Repeat Termination of Pregnancy among Hong Kong Women: a Retrospective Audit Review

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Objective:
To study the socio-demographic factors and contraceptive practice among women seeking for first-time versus repeat termination of pregnancy.

Methods:
Records of 769 women attending the Family Planning Association of Hong Kong for termination of pregnancy from January to March 2005 were retrospectively reviewed. After excluding 173 cases with missing data, 596 cases were finally available for analysis.

Results:
A total of 256 (43%) of the cases under review were having repeat termination of pregnancy. Women seeking for repeat termination of pregnancy were significantly older in age (p<0.001), lower in education level (p<0.001), higher in parity (p<0.001), and more being married (p<0.001). More than 60% of repeat termination of pregnancies were due to financial reasons and completed family. Approximately 4 to 13% of women were using reliable contraceptive methods before the current pregnancy, with significantly higher percentage in the repeater groups (p=0.002). Postoperatively, a significant majority (>60% of cases) chose to use reliable methods compared to preoperative usage (p<0.001). Only 2 to 6% of cases had used emergency contraception before the current pregnancy.

Conclusions:
Our results suggest that repeat termination of pregnancy is a more significant problem among those older married women with completed family. We saw a positive change towards choosing more reliable contraceptive methods after termination of pregnancy, but this group of women probably need strengthened education and counselling to reinforce proper and sustained usage of the methods chosen. Emergency contraception should also be better taught.

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Introduction

Termination of pregnancy (TOP) is one of the most commonly performed gynaecological procedures. In our locality, legally induced abortions can only be performed in gazetted hospitals and in the Family Planning Association of Hong Kong (FPAHK). In the year of 1999, there were 15 165 legally induced first-trimester abortions performed in Hong Kong hospitals[1], and 3693 performed in the FPAHK[2]. Among them, some are undergoing TOP for repeated times. In the United Kingdom and the United States, the rate of repeat TOP has been reported at 20% to 30% among all TOP seekers[3-6]. In Hong Kong, a recent population survey revealed that 26.3% of subjects had undergone TOP, and

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8.4% were having TOP for more than once, thus giving a repeat rate of 31.9%[2].

There are a number of overseas studies trying to explore the social factors and contraceptive behaviour among women seeking repeat TOPs[7]. However, similar data are limited in our locality. As social factors and contraceptive behaviour may be influenced by cultural background of the population, it would be worthwhile to explore this issue among our own population. Results generated from this review would provide an analysis on the magnitude of the problem of repeat TOPs among our clients and the risk factors in terms of socio-demographic background and contraceptive use that are associated with repeat TOPs. This would help us to provide more targeted and client-oriented counselling especially to the 'high-risk' clients, with an ultimate aim to bring down the rate of repeat TOPs in our population.

Methods

Objectives and Study Design

This is a retrospective audit review with an aim to identify risk factors in socio-demographic background and contraceptive use in women attending for first-time versus repeat TOP.

Subjects and Data Retrieval

Women attending the FPAHK for unwanted pregnancies are seen at the clinic twice by the nurse and doctor respectively for preoperative assessment and counselling. Young unmarried women under 26 years old are seen in the Youth Health Care Centres (YHCC). Married women under 26 years old and all women aged 26 years or above (irrespective of marital status) are seen in the Birth Control Clinics. Those attending the YHCC also have mandatory counselling at each consultation by the same counsellor. The reasons and indications for requesting TOP are assessed and contraception is discussed during these sessions, apart from the preoperative clinical assessment. Postoperatively, they are routinely followed up at 2 and 6 weeks, during which contraceptive practice is reinforced in addition to the postoperative medical check-up.

The clinical records of all clients undergoing TOP in FPAHK during the 3-month period from January to March 2005 were reviewed. Data were retrieved from our computerised Clinical Management Information System and also from the paper records.

Data that were extracted included age, age at first sex, education level, marital status, parity, number of previous miscarriages and previous TOPs. The reasons for the current TOP, their contraceptive practice before and after the current TOP, and their use of emergency contraception (EC) were also retrieved.

Statistical Analysis

Statistical analysis was performed using the SPSS for Windows version 13.0 software (SPSS Inc, Chicago [IL], US). The socio-demographic factors and contraceptive practice characteristics of women attending for the first, second, and third or subsequent TOP were compared. The difference between groups were analysed with the χ^2-test for trend for categorical variables, the one-way analysis of variance (ANOVA) for continuous parametric variables, the Wilcoxon sign-rank test and the Kruskal-Wallis test for non-parametric variables. A difference was considered statistically significant if $p<0.05$.

Results

During the 3 months' study period, 769 women attended FPAHK for TOP. Of them, 173 (22.5%) women were excluded from this review because of missing information in some items. Of the 596 case notes examined, 340 (57.0%) women underwent a first-time induced abortion, 161 (27.0%) sought for the second induced abortion, and 95 (15.9%) underwent TOP for the third or more times. The maximum number of abortions that women in our study underwent was five. The mean ages of non-repeaters and repeaters were 27.1 and 31.8 years, respectively. Table 1 shows the reasons for induced abortions. The commonest reasons for non-repeaters were financial problem (46.2%) and being single and unprepared (22.9%), whereas the commonest reasons for repeaters were financial problem (37.9%) and completed family (27.7%).

Table 2 shows the various socio-demographic factors among the non-repeater and repeater groups. Women undergoing repeat induced abortion were of older age ($p<0.001$), higher in parity ($p<0.001$), more being married/cohabitated ($p<0.001$), and lower in education level ($p<0.001$).

Table 1. Main reasons for the current termination of pregnancy (TOP)

Reason	No. (%)			
	First TOP (n=340)	Second TOP (n=161)	Third TOP or above (n=95)	Overall (n=596)
Financial reason	157 (46.2)	62 (38.5)	35 (36.8)	254 (42.6)
Completed family	52 (15.3)	40 (24.8)	31 (32.6)	123 (20.6)
Single and unprepared	78 (22.9)	20 (12.4)	10 (10.5)	108 (18.1)
Extramarital pregnancy	3 (0.9)	4 (2.5)	4 (4.2)	11 (1.8)
Other relationship problem	7 (2.1)	7 (4.3)	7 (7.4)	21 (3.5)
Other social reasons	34 (10.0)	19 (11.8)	3 (3.2)	56 (9.4)
Maternal health reasons	1 (0.3)	0	0	1 (0.2)
Drug exposure	3 (0.9)	3 (1.9)	1 (1.1)	7 (1.2)
Not documented	5 (1.5)	6 (3.7)	4 (4.2)	15 (2.5)
Total	**340**	**161**	**95**	**596**

Table 2. Socio-demographic factors in women undergoing a first-time or repeat termination of pregnancy (TOP)

Socio-demographic factor*	First TOP (n=340)	Second TOP (n=161)	Third TOP or above (n=95)	p Value
Age (years)				
Mean ± SD	27.10 ± 7.80	30.83 ± 7.64	33.43 ± 7.12	<0.001
Median ± SEM	25 ± 0.42	31 ± 0.60	35 ± 0.73	
Range	16-44	15-46	18-47	
Age at first sex (years)				
Mean ± SD	20.64 ± 4.26	20.48 ± 4.09	21.06 ± 3.91	0.546
Median ± SEM	20 ± 0.23	20 ± 0.32	20 ± 0.40	
Range	12-34	11-35	15-36	
Parity				
Mean ±SD	0.71 ± 1.00	1.16 ± 0.96	1.51 ± 1.04	<0.001
Median ± SEM	0 ± 0.054	1 ± 0.08	2 ± 0.11	
Range	0-6	0-4	0-4	
No. of miscarriages				
Mean ± SD	0.10 ± 0.38	0.11 ± 0.38	0.14 ± 0.38	0.327
Median ± SEM	0 ± 0.021	0 ± 0.03	0 ± 0.04	
Range	0-3	0-3	0-2	
Marital status, n (%)				
Single	185 (54.5)	47 (29.2)	18 (18.9)	<0.001
Cohabitation or married	141 (41.5)	97 (60.2)	62 (65.3)	
Divorced or separated or widowed	14 (4.1)	17 (10.6)	15 (15.8)	
Education level, n (%)				
No formal education	8 (2.4)	10 (6.4)	5 (5.4)	<0.001
Primary	13 (3.9)	7 (4.5)	7 (7.6)	
Secondary	251 (74.7)	122 (78.2)	74 (80.4)	
Matriculation or tertiary	64 (19.0)	17 (10.9)	6 (6.5)	

* SD denotes standard deviation, and SEM standard error of the mean

Tables 3 and 4 show the comparison of contraceptive methods chosen before and after TOP by repeaters and non-repeaters. Table 5 shows the comparison of contraceptive methods (classified

Table 3. Contraceptive methods before the current pregnancy

Contraceptive method	No. (%)			
	First TOP* (n=340)	Second TOP (n=161)	Third TOP or above (n=95)	Overall (n=596)
Nil	37 (10.9)	21 (13.0)	11 (11.6)	69 (11.6)
Barrier method	256 (75.3)	117 (72.7)	63 (66.3)	436 (73.2)
Combined oral contraceptive pills	11 (3.2)	12 (7.5)	11 (11.6)	34 (5.7)
Patch contraceptive	0	0	0	0
Monthly injectable	0	1 (0.6)	0	1 (0.2)
Depo-Provera injection	0	0	0	0
Intrauterine contraceptive device	3 (0.9)	2 (1.2)	1 (1.1)	6 (1.0)
Natural methods	14 (4.1)	4 (2.5)	6 (6.3)	24 (4.0)
Spermicides	1 (0.3)	2 (1.2)	3 (3.2)	6 (1.0)
Coitus interruptus	17 (5.0)	2 (1.2)	0	19 (3.2)
Vasectomy	1 (0.3)	0	0	1 (0.2)
Female sterilisation	0	0	0	0
Abstinence	0	0	0	0

* TOP denotes termination of pregnancy

Table 4. Contraceptive plan after the current termination of pregnancy (TOP)

Contraceptive method	No. (%)			
	First TOP (n=340)	Second TOP (n=161)	Third TOP or above (n=95)	Overall (n=596)
Barrier method	94 (27.6)	42 (26.1)	33 (34.7)	169 (28.4)
Combined oral contraceptive pills	172 (50.6)	73 (45.3)	34 (35.8)	279 (46.8)
Patch contraceptive	4 (1.2)	2 (1.2)	0	6 (1.0)
Monthly injectable	20 (5.9)	11 (6.8)	9 (9.5)	40 (6.7)
Depo-Provera injection	5 (1.5)	5 (3.1)	4 (4.2)	14 (2.3)
Intrauterine contraceptive device	19 (5.6)	24 (14.9)	13 (13.7)	56 (9.4)
Natural methods	0	0	0	0
Spermicides	0	0	0	0
Coitus interruptus	0	0	0	0
Vasectomy	2 (0.6)	0	0	2 (0.3)
Female sterilisation	3 (0.9)	1 (0.6)	1 (1.1)	5 (0.8)
Abstinence	8 (2.4)	1 (0.6)	0	9 (1.5)

according to reliability) adopted by the repeaters and non-repeaters before and after TOP. Review of the contraceptive practice before the current pregnancy found that the incidence of using a reliable contraceptive method was significantly increased from 4.4% in first-time TOP seekers to 9.3% in second-time repeaters and to 12.6% in the third-or-more-time repeaters (p=0.002). A significantly higher proportion of our subjects (more than 60%) accepted usage of a reliable method after the current TOP compared with before operation (p<0.001)[Table 6]. There was no significant difference in using reliable birth control methods after induced abortion and in likelihood of changing birth control methods between the non-repeater and repeater groups. Reliable birth control methods referred to combined oral contraceptives, Depo-Provera injection (DP), monthly injectables, patch contraceptives, intrauterine contraceptive device (IUCD), vasectomy and female

Table 5. Contraceptive methods classified according to reliability before and after the current termination of pregnancy (TOP)

Contraceptive method reliability*	No. (%)			p Value
	First TOP (n=340)	Second TOP (n=161)	Third TOP or above (n=95)	
Before current pregnancy				
Nil used / unreliable method	325 (95.6)	146 (90.7)	83 (87.4)	0.002
Reliable method	15 (4.4)	15 (9.3)	12 (12.6)	
After current TOP				
Nil used / unreliable method	115 (33.8)	45 (28.0)	34 (35.8)	0.884
Reliable method	225 (66.2)	116 (72.0)	61 (64.2)	

* Reliable birth control methods refer to combined oral contraceptives, Depo-Provera injection, monthly injectables, patch contraceptives, intrauterine contraceptive device, vasectomy and female sterilisation, whereas unreliable birth control methods refer to barrier methods, natural methods, abstinence, coitus interruptus, and spermicide

Table 6. Percentage of using reliable birth control methods (hormonal methods, intrauterine contraceptive device, or sterilisation)

	Preoperative	Postoperative	p Value
First TOP*	4.4%	66.2%	<0.001
Second TOP	9.3%	72.0%	<0.001
Third TOP or more	12.6%	64.2%	<0.001

* TOP denotes termination of pregnancy

sterilisation, whereas unreliable birth control methods referred to barrier methods, natural methods, abstinence, coitus interruptus and spermicide. Only 2.1% of non-repeaters had used EC prior to current pregnancy, whereas 5.6% in second-time repeaters and 3.2% in the third-or-more-time repeaters had used EC. The difference was not statistically significant.

Discussion

Repeat TOP accounted for a significant proportion of induced abortions in both our local population and overseas. Studies from the United States and Europe reported an incidence on repeat TOP at 20 to 30%[3-6]. A recent Chinese study of repeat TOP among unmarried young women revealed an incidence of 33%[8]. Figured at 43%, our incidence of repeat TOP further exceeded that in other populations. It was also higher than that reported in our previous population published in 2002[2]. Among our study subjects, the repeat TOP rate was even higher among our adult Birth Control Clinic attendants (53.8%) compared to our YHCC clients (23.2%). As induced abortions carry a significant psychological and physical morbidity, it is important for repeat TOPs to be prevented. Exploration for factors leading to contraceptive failure and repeated TOPs should warrant prompt attention.

Analysis of the socio-demographic factors in our subjects revealed that women seeking for repeat TOP were significantly older in age, lower in education level, higher in parity, and more being married. The majority (>60%) of repeat TOPs were due to financial reasons and completed family. These factors actually were inter-related, as the older age group of women would more likely be multiparous, married, and having completed family. Review of the contraceptive practice before the current pregnancy found that the incidence of using a reliable contraceptive method was significantly increased from 4.4% in first-time TOP seekers to 9.3% in second-time repeaters and to 12.6% in the third-or-more-time repeaters. These findings were actually compatible with findings from some other studies[6,9]. By summating all these factors into an overall picture, it suggested that repeat TOP is a more significant problem among those older married women with completed family, instead of the unmarried youth group. Hence, the former group

of women would worth special attention with regard to contraceptive education. The cause of contraceptive failure could probably be due to inadequate education or perception on proper method usage, rather than lack of motivation or insight of being responsible towards birth control. This could further be illustrated by the significantly high proportion of our subjects (>60%) who accepted usage of a reliable method after the current TOP ($p<0.001$). Some of the older women might be less meticulous with contraception as they might perceive a decline in fecundity. There was no significant difference in the likelihood of postoperative change in contraceptive methods between the non-repeater and repeater groups, indicating that both groups were equally susceptible to adopt more reliable methods. Yet, if keen and dedicated instruction and follow-up is not offered, the women may still fail their contraception from wrong or interrupted usage for various reasons, and may finally resort to repeated abortions as a contraceptive means. As more women in the repeater group have lower education level, counselling should be tailored so that the clients really can comprehend and adhere to the instructions provided. Furthermore, we referred to just the contraceptive plan upon discharge, which does not infer to the long-term contraceptive practice afterwards. Upon counselling, they may just appear to be responsible, and to our experience many do not comply well afterward or would switch back to unreliable methods subsequently. Sustainability is a definite issue that we need to address, and we need further prospective studies to explore into this area.

Another phenomenon that we identified is under-usage of EC among our TOP subjects. Only about 2 to 6% of them had used EC before the current pregnancy. This agrees with the findings from a previous local study[10]. Figures from overseas studies varied. In a United Kingdom study, 10% of first-time abortion seeker and 12% of repeaters reported use of EC[6], despite 80% or more were aware of EC. A French study revealed that only 10% of women undergoing repeat TOP were aware of the existence of EC[11]. Among our general population, the overall knowledge and usage of EC is also low[12,13], and there may still be a number of myths and stigmata hindering people from accessing EC. Given the high proportion of women using relatively less reliable contraceptive methods, they need better education on the awareness and use of EC as a back-up method. Improving accessibility to EC is an important issue. Our local population is still very conservative about more liberal delivery of EC. From our recent study, only about 25% of women were supportive of over-the-counter sales of EC pills, and less than 50% supported more publicity of EC or advanced provision of EC pills[13]. Another recent study of us has shown that advanced provision of EC did not jeopardise the consistent use of regular contraception nor promote abuse of it[12], and this should at least clear some of the myths.

There are limitations to this retrospective cross-sectional study. Even though the women may choose a reliable contraceptive method upon counselling after operation, we cannot tell whether they would really comply to it, use it in the proper way, and sustain the usage over long term. Another limitation of such cross-sectional review is that we cannot tell whether the first-time TOP seekers will have repeat TOP subsequently with time, especially the first-time TOP group is of younger age and hence has a substantial number of reproductive years ahead to be subjected to pregnancies. Hence, it is not possible to draw conclusions on predictive factors for the behaviour of repeat TOP. Moreover, the range of the data parameters that can be retrieved retrospectively is limited. And there are incomplete data in some cases. Recall bias, under-reporting of contraceptive non-compliance, and imprecise documentation are also possible sources of bias. These prompt the need for a prospective longitudinal study to explore in more detail the incidences and reasons for contraceptive non-compliance and failure.

In conclusion, despite shortcomings inherent to this study design, our review did enlighten us on the magnitude of the problem of repeat TOPs among our population and some characteristics of women undergoing repeat TOPs. This would help us to focus on certain areas of attention when providing contraceptive counselling, ie reinforcement of knowledge on proper usage of the methods and to ensure compliance and sustainability rather than merely offering a prescription. For those who choose a relatively less reliable contraceptive method, eg barrier method, awareness and usage of EC as a back-up method should be properly taught.

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