Emergency Contraception: A Survey of Hong Kong Women's Knowledge and Attitudes

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Objectives: To investigate the knowledge and attitudes towards emergency contraception among women in Hong Kong.
Methods: A questionnaire survey was conducted among women who attended the general gynaecology clinic at a regional hospital from July 2014 to September 2014. Questions regarding the use of emergency contraception, knowledge, and attitudes towards emergency contraception were explored.
Results: Of the analysed cohort of 395 women, 215 (54.4%) had heard of emergency contraception. Among these women, 167 (77.7%) knew the correct timing for its use, and 87 (22%) had previously used emergency contraception. The media and friends represented the most common source of information. Doctors and the Family Planning Association of Hong Kong were rarely the source. Increased advertisement of emergency contraception was supported by 70% of women, while 37.5% supported over-the-counter availability of emergency contraceptive pills. Reasons for and against these responses were explored.
Conclusion: The awareness and knowledge of emergency contraception among local women has significant room for improvement. More women supported increased advertisement of emergency contraception and the sale of emergency contraceptive pills over the counter. The provision of emergency contraceptive pills over the counter may be an important means if its availability is improved in Hong Kong. Improved education of the public is required to promote awareness and local acceptance of emergency contraception.
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Introduction

Emergency contraception (EC) is an effective emergency contraceptive method for women who have unprotected sexual intercourse. In Hong Kong, there are currently three methods of EC: the traditional levonorgestrel-only pill, the newer ulipristal acetate pill, and the intrauterine contraceptive device (IUCD). These are highly effective methods with a low failure rate. The failure rate of the levonorgestrel-only pill is 2% to 3%; the failure rate of the ulipristal acetate pill is 1% to 2%; the failure rate of IUCD at 0.09% is the most effective method[1]. Levonorgestrel-only pills are well known to be safe[2] with only short-term side-effects such as nausea, vomiting, and menstrual disturbance[3]. They are well tolerated, and pose no risk of overdose with no major drug interactions or contra-indications[2].

The effectiveness of emergency contraceptive pills (ECPs) is limited by timing of administration. Hence, expedited accessibility to the pill is of utmost importance. In Hong Kong, the levonorgestrel-only pill is registered as a Part 1 Schedule 3 Poison that must be prescribed by a doctor. To increase availability of the drug, the Family Planning Association of Hong Kong has been advocating advanced provision of ECPs[4]. The next step may be to follow the practice of other countries and provide ECPs over the counter. Nonetheless whether this practice will be well accepted by local women is another issue. This study aimed to investigate the knowledge and attitudes of women in Hong Kong towards EC.

Methods

This was a cross-sectional study consisting of women who attended the general gynaecology clinic for consultation in a regional public hospital in Hong Kong from July 2014 to September 2014. When patients registered at the clinic for consultation, eligible women were invited by the clinic nurses to complete a questionnaire consisting of 30 questions. Eligible women were Hong Kong residents aged between 15 and 50 years. They had to be able to read either English or Chinese.

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The questionnaire was pilot-tested. Written information concerning the objective and details of the study was provided to the participants prior to completion of the questionnaire. The sample size was calculated based on the formula:

$$n_0 = \frac{(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2 p(1-p)}{(p_0 - p)^2}$$

where α is the significance level (α=0.05) and β=1-power, assuming the power to be 80%; p is the proportion of women who support the sale of ECPs over the counter and is set to be 35%; p_0 is the proportion of women who supported provision of ECPs over the counter according to the 2004 study in Hong Kong, which is 25.7%[5]. Hence a sample size (n) calculated to be 259 would be sufficient to identify any difference in the proportion of women who supported the provision of ECPs over the counter compared with the reference figure.

The questionnaire examined demographic data, the woman's use of contraception, knowledge of EC, experience with use of ECPs, and attitude towards EC. It was estimated that women would require 10 to 15 minutes to complete the questionnaire. Significant incomplete questionnaires (those with a missing value for more than half in the questionnaire) were excluded from the analysis. This study was approved by the Institutional Review Board of the Hospital (ref: HKEC-2014-056).

Statistical Analyses

Data analysis was performed using PASW Statistics 18, release version 18.0.0 (SPSS, Inc., 2009, Chicago [IL], US). For categorical data, the Chi-square test and Fisher's exact test were used as appropriate. For continuous data with a highly skewed distribution, a non-parametric test (i.e. Mann-Whitney *U* test) was used.

Statistically significant variables were adopted as potential predictors and entered into logistic regression to identify significant factors in women who supported the provision of ECPs over the counter. The critical level of statistical significance was set at 0.05. The multiple logistic regression analysis (backward elimination procedure) was performed by including variables found to be significant at a level of p<0.2 by univariate analysis, if considered to be an important demographic variable.

Results

A total of 474 women were approached during the 12-week study period, of whom 35 refused to complete the questionnaire and 10 were excluded because they did not fall into the age range of 15 to 50 years. A total of 429 questionnaires were returned; among these, 34 were incomplete and 395 were available for analysis. The response rate was 92.1%.

Characteristics of Participants

The demographic characteristics are shown in Table 1. The mean age of the participants was 38.4 years. A large proportion (15%) were housewives and 3% were students. Around 20% of women had no previous formal method of contraception.

Awareness and Knowledge of Emergency Contraception

A total of 215 (54.4%) of the women had heard of EC. Their knowledge of EC and the most common sources are shown in Table 2. Awareness was greater among younger women. There was also evidence of an association between awareness and the women's monthly income, with a statistically significant (p<0.01) higher awareness among women with higher monthly income. The awareness of EC was not statistically associated with education level, number of children, number of previous abortions, marital status or whether they had been pregnant after the use of ECP (Table 3). Our data also showed that there was an association between knowledge of the time frame of administration of levonorgestrel-only pills and age, with younger women being better informed. In addition, knowledge about timing was higher in women with previous use of EC (Table 3).

To further analyse local women's knowledge of EC, a score was assigned for the five questions that tested knowledge. In all, 131 (60.9%) women who had heard of EC answered three (of five) questions correctly. There continued to be an association between a high level of knowledge and young age. Among women who had heard of EC, 90% of those aged 15 to 24 years answered at least three questions correctly, and 72% of those aged 25 to 34 years. These associations were statistically significant (p<0.001).

There was also an association between knowledge and education level. Of women with an undergraduate degree, 77% answered at least three (of five) questions correctly. In contrast, among those with a secondary school qualification, the figure was 56%. These associations were statistically significant (p<0.001).

The above data indicate that women who were younger, had a higher education level, and had used

Table 1. Characteristics of participants (n=395)*

Characteristic	Data
Age (years)	38.4 (40 [33-45])
Occupation	
Managers and administrators	8 (2)
Professionals	19 (5)
Associate professionals	30 (8)
Clerks	54 (14)
Service workers and shop sales workers	43 (11)
Elementary occupations	6 (2)
Self-employed	1 (0.3)
Unemployed	5 (1)
Housewife	59 (15)
Student	13 (3)
Missing data	157 (40)
Education level	
No formal education	4 (1)
Primary school	33 (8)
Secondary school	243 (62)
Undergraduate or above	114 (29)
Missing data	1 (0.3)
Women's monthly income (HK$)	
<10,000	184 (47)
10,000-29,999	171 (43)
30,000-50,000	29 (7)
>50,000	11 (3)
Religious belief	
None	265 (67)
Buddhism	53 (13)
Christianity	61 (15)
Catholic	15 (4)
Others	1 (0.3)
Ethnic origin	
Chinese	385 (98)
Caucasian	1 (0.3)
Filipino	5 (1)
Indonesian	4 (1)
Smoker	
Yes	41 (10)
No	354 (90)

* Data are shown as median (interquartile range) or No. (%) of subjects. Because of rounding, not all percentages total 100

Table 1. (con'd)

Characteristic	Data
No. of children	
0	169 (43)
1	100 (25)
2	106 (27)
≥3	20 (5)
No. of induced abortions	
0	296 (75)
1	55 (14)
2	31 (8)
≥3	13 (3)
Marital status	
Married	245 (62)
Single	116 (29)
Divorced / separated / widowed	34 (9)
Sexual status	
Never sexually active	40 (10)
Previously sexually active, but inactive for recent 1 year	93 (24)
Sexually active for recent 1 year	262 (66)
Method(s) of contraception previously used	
None	77 (20)
Other reasons (not mention)	29 (7)
Not sexually active	40 (10)
Trying to conceive	8 (2)
Withdrawal method	91 (23)
Calendar method	33 (8)
Barrier method (including male and female condom, diaphragm)	241 (61)
Spermicide	6 (2)
Hormonal contraceptive pills	79 (20)
Injectables	18 (5)
Intrauterine device	37 (9)
Male / female sterilisation	5 (1)

EC before had the greatest knowledge about timing of administration of the levonorgestrel-only pill.

Use of Emergency Contraceptive Pills

In this cohort, 87 (22%) women had previously used ECPs. In all, 49 (12.4%) women had used it once, 18 (4.6%) had used it twice, five (1.3%) had used it 3 times,

and 15 (3.8%) had used it ≥4 times.

Of these 87 women, 28 (32%) were aged between 25 and 34 years and 40 (46%) were aged 35 and 44 years. The correlation was statistically significant (p<0.001). The number of times a woman became pregnant after taking ECPs, the source and reason for use of ECPs are shown in Table 4.

Attitudes towards Emergency Contraceptive Pills

Attitudes towards EC are shown in Table 5. In particular, 309 (78%) women stated that provision of ECPs over the counter would not reduce the likelihood of using condoms as a regular contraceptive method. Among these women, 289 (93.5%) had never been pregnant after taking ECPs. This association was statically significant (p<0.05).

Table 2. Participants' knowledge of emergency contraception (n=215)*

	No. (%)
Can intrauterine contraceptive device be used as emergency contraception?	
Yes	23 (11)
Within 72 hours after unprotected sex	6 (3)
Within 5 days after unprotected sex	3 (1)
Within 1 week after unprotected sex	1 (0.5)
Anytime after unprotected sex	3 (1)
Do not know	10 (5)
No	112 (52)
Do not know	80 (37)
Do emergency contraceptive pills cause abortion?	
Yes	44 (21)
No	54 (25)
Do not know	117 (54)
Are emergency contraceptive pills 100% effective?	
Yes	15 (7)
No	143 (67)
Do not know	57 (27)
When should emergency contraceptive pills be taken?	
Within 72 hours after unprotected sex	167 (78)
Within 5 days after unprotected sex	1 (0.5)
Within 1 week after unprotected sex	3 (1)
Anytime after unprotected sex	4 (2)
Do not know	40 (19)
Can emergency contraceptive pills replace regular contraceptive methods?	
Yes	12 (6)
No	167 (78)
Do not know	36 (17)
Source(s) of emergency contraception knowledge	
Family Planning Association	38 (18)
Media	80 (37)
Friends	75 (35)
Doctors	31 (14)
School	20 (9)
Parents	4 (2)

* Because of rounding, not all percentages total 100

Table 3. Awareness of existence of EC by age and monthly income, and identifying correct timing of levonorgestrel-only pills by age and experience*

	Heard of EC (n=215/395; 54%)	p Value	Able to identify correct timing of levonorgestrel-only pills (n=167/215; 78%)	p Value
Age (years)		<0.01		<0.05
15-24	20/31 (65%)		20/20 (100%)	
25-34	55/88 (63%)		43/55 (78%)	
35-44	93/163 (57%)		72/93 (77%)	
>44	47/113 (42%)		32/47 (68%)	
Income (HK$)		<0.01	–	
≤10,000	184 (46%)			
$10,001-29,999	171 (60%)			
$30,000-49,999	29 (66%)			
≥$50,000	11 (82%)			
Use of EC before	–			
Used			65/67 (97%)	
Not used			102/148 (69%)	

Abbreviation: EC = emergency contraception

* Because of rounding, not all percentages total 100

Table 4. Previous pregnancies after taking emergency contraceptive pills, as well as reasons for and source of emergency contraceptive pills (n=87)*

	No. (%)
Have you ever been pregnant after taking emergency contraceptive pills?	
Yes	12 (14)
1	7 (2)
2	2 (2)
3	1 (1)
≥4	2 (2)
No	75 (86)
How did you obtain the emergency contraceptive pills (can choose >1 item)?	
Prescribed by doctor at the Family Planning Association	18 (21)
Prescribed by general practitioner	20 (23)
Prescribed by doctor at accident and emergency department	2 (2)
Advanced prescription by doctor	2 (2)
From the pharmacy	37 (43)
From friend	15 (17)
Why did you use emergency contraceptive pills?	
Condom accident	18 (21)
Did not use regular contraceptive method	43 (49)
Omitted contraception that time	26 (30)

* Because of rounding, not all percentages total 100

Table 5. Attitudes towards emergency contraception (n=395)*

Attitude	No. (%)
Would availability of emergency contraceptive pills over the counter reduce your likelihood of using a condom?	
Yes	86 (22)
No	309 (78)
Would availability of emergency contraceptive pills over the counter reduce your likelihood of using other contraceptive methods?	
Yes	76 (19)
No	319 (81)
Would availability of emergency contraceptive pills over the counter increase your likelihood of unprotected sex?	
Yes	68 (17)
No	327 (83)
In case of unprotected sex, would you be more likely to use emergency contraceptive pills if they were available over the counter?	
Yes	153 (39)
No	242 (61)
Should emergency contraception be more widely advertised?	
Yes	278 (70)
May help to reduce unwanted pregnancies and termination of pregnancies	201 (51)
It is not well-known enough to people at risk	173 (44)
It is useful to specific groups (e.g. rape victims)	159 (40)
No	117 (30)
It may promote inappropriate regular contraceptive practice	62 (16)
It may promote casual sex	82 (21)
It is not morally acceptable	27 (7)
There is already enough publicity	16 (4)
Would you prefer emergency contraceptive pills to be made available over the counter?	
Yes	148 (37)
It will be more convenient for users	86 (22)
It will be less embarrassing for users	45 (11)
It will help to reduce unwanted pregnancies or termination of pregnancies	96 (24)
It will encourage women to use it at times of unprotected sex	44 (11)
No	247 (63)
Women may use it inappropriately	210 (53)
It may promote inappropriate regular contraceptive practice	96 (24)
It may promote casual sex	141 (36)
It is not morally acceptable	36 (9)
It may lead to concerns regarding regulation of pharmacists	109 (28)

* Because of rounding, not all percentages total 100

There was an association between the use of ECPs and support for the provision of ECPs over the counter, with a higher degree of support by women who had previously used ECP. Around 29.1% of those who supported the provision of ECPs over the counter had previous use of ECPs; only 17.8% of those who did not support the provision of ECPs over the counter had used ECPs. These associations were statistically significant ($p<0.01$).

There was also an association between history of induced abortion and support for provision of ECPs over the counter with a higher level of support by women who had a history of induced abortion (37.2%). Only 17.8% of those who did not support provision of ECPs over the counter had a history of induced abortion. These associations were statistically significant ($p<0.001$). Attitudes for supporting the provision of ECPs over the counter were not statistically associated with age or marital status.

Variables that were statistically associated with supporting the provision of ECPs over the counter ($p<0.2$) were further analysed using a logistic regression. These variables were "number of induced abortions" ($p<0.001$), "sexual status" ($p=0.11$), and "use of ECPs before" ($p=0.01$). The results showed that participants who had a history of induced abortion (odds ratio [OR]=1.60; 95% confidence interval [CI], 1.24-2.06, $p<0.001$) and those that had used ECPs before (OR=1.82; 95% CI, 1.11-2.97, $p=0.02$) were more likely to support availability of ECPs over the counter.

Discussion

In this study, subjects were recruited from a regional gynaecology clinic. These women had diverse social, economic, and cultural backgrounds. Given the sensitive nature of the topic, we believe that a response rate of 92.1% was satisfactory and the missing data (as shown in Table 1) would not affect statistical analysis as it did not exceed 1% of valid cases used for analysis in most parameters.

Women's Awareness of Emergency Contraception

Local women's awareness of EC has always been low. In our study, 54.4% of local women had heard of EC. This figure is lower than that from previous studies in Hong Kong. In a local study in an abortion clinic, 67% of respondents said they had heard of EC[6]. Another local study conducted in 2003 by the Family Planning Association of Hong Kong showed that 63.7% of respondents had heard of EC[5]. In the territory-wide survey in 1997 and 2002 on local women's knowledge, attitude and practice about family planning, 73.6%[7] and 71.1%[8] of participants had heard of EC, respectively. In contrast, women's awareness of EC in western countries is comparatively higher. In a Swedish abortion clinic, 83% of the respondents had heard of EC[9]. In a study in Aberdeen, UK, 94% of respondents had heard of EC[10]. This shows that there is an urgent need to improve women's awareness of EC in Hong Kong.

Our study showed that there was a higher awareness of EC among younger women, consistent with previous local[5] and overseas[9] studies. In another UK study[10], there was also an association between awareness of EC and home ownership. In our study, a higher awareness of EC was found in those with a higher monthly income.

Women's Knowledge of Emergency Contraception

Among women who had heard of EC, knowledge was acceptable, with 77.7% aware of the correct time frame for administration of levonorgestrel-only pills. This was lower when compared with a local study conducted in 2003[5] showing that 81.3% of women were aware of the correct time frame. This may be because our study population was drawn from the general gynaecology clinic, not the Family Planning Service.

It is nonetheless encouraging that a higher level of knowledge was present among younger women. All women aged 15 to 24 years could identify the time frame correctly. A higher level of knowledge was also found in those with a higher education level and those who had used EC before.

At the time of the study, ulipristal acetate ECP had been licensed in Hong Kong although not widely publicised locally. Thus knowledge about this pill was not tested in our questionnaire. As use and knowledge about the pill becomes more prevalent, it may be an area worth exploring in future studies.

In 2002, an article published in the *Hong Kong Medical Journal* provided an update for doctors about prescription of EC. It stressed that EC cannot replace regular contraception[11]. Among those women who had heard of EC, 23% believed either that EC could replace regular contraception or did not know the correct answer to this question. This deficiency in knowledge deserves our attention, reminding doctors to educate women not only about the correct time frame for EC administration, but also to stress that it cannot replace regular contraceptive practice.

It is worrying that 75% of women who had heard of EC thought that ECPs cause abortion or could not answer the relevant question. This misconception may negatively affect a woman's attitude towards a more liberal provision of ECPs. It is possible that with enhanced education, this misconception may be corrected and women's attitude towards ECPs may improve.

As with a previous local study[5], most women learnt about EC from friends or the mass media. The source of EC information was rarely from the doctor or the Family

Planning Association of Hong Kong. This situation is similar to that in Australia[12] and the UK[10] and is not ideal since knowledge from these sources may be unreliable. Nonetheless it may also be because doctors are not well informed. In a 2007 study, local gynaecologists in the private sector only scored 6.08 out of 12 in the knowledge test[13]. This may be why local doctors hesitate to discuss EC during routine contraceptive counselling.

Use of Emergency Contraception

In our study, 22% of women had previously used EC. This figure was higher than that found in previous local studies. In a local study published in 19996, only 10% of women who attended an abortion clinic had ever used EC. In a later study conducted in 20035, only 15.7% had previously used EC.

Attitude towards Emergency Contraception

One of the concerns about increasing the availability of EC through advanced provision was the promotion of casual sex[5]. Nonetheless a local randomised controlled trial conducted in 2001 showed that when women were given three courses of progestogen-only pills to keep at home, they did not abuse the ECPs, and their contraceptive choice and consistency of use remained unchanged[14]. A systematic review also showed that advance provision did not lead to increased frequency of unprotected intercourse or change in contraceptive methods[15]. In our study, the majority also claimed that provision of ECPs over the counter would not reduce their likelihood of practising regular contraception (78%) or increase their likelihood of engaging in unprotected sex (83%). Hence, our study suggests that even if ECPs are legalised to be sold over the counter, it is likely that local women will continue to display a responsible attitude towards sexual behaviour and will not neglect their regular contraceptive practices.

The majority of respondents in our study (70%) believed that EC should be more widely advertised. The figure in our study was significantly higher when compared with a previous local study in Hong Kong in 2003 where only 46.3% of local women supported advertisement of ECPs[5].

Provision of ECPs over the counter was supported by 37.5% of women. Again, this figure has increased when compared with the local study in 2003[5] wherein only 25.7% supported over-the-counter sale of ECP.

The attitude of the women in our study was less conservative than before. This is an important point to consider for local regulatory authorities. Women supported the provision of ECPs over the counter mostly because they believed it would be more convenient for users to obtain the drug. Women who objected to over-the-counter provision of ECPs were mostly concerned that it would promote casual sex.

In a 2004 US Food and Drug Administration (FDA) hearing, progestogen-only ECP was not deregulated as there were insufficient data to show that it could be safely used by young adolescent women without the professional supervision of a licensed practitioner[16]. In July 2009, the pill was first approved for use without a prescription for women aged ≥17 years and as a prescription-only option for women <17 years[17]. In April 2013, the product was approved for non-prescription use in women as young as 15 years[18]. In June 2013, the US FDA approved the product to be available without a prescription for use by all women of reproductive potential[19]. This suggests that the acceptance of ECPs over the counter is a process that occurs over time among both users and health care providers. Hong Kong authorities may also learn from the US' progressive steps in the approval of ECP provision over the counter.

Conclusion

Our study shows that local women's awareness and knowledge of EC are still low with significant room for improvement. An increased proportion of local women support wider advertisement and more support over-the-counter provision. This may be of value to local law-making authorities. Meanwhile, education of the public to enhance awareness and local acceptance of EC should be further promoted.

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