EMERGENCY CONTRACEPTION: KNOWLEDGE, ATTITUDES AND PRACTICES AMONG MARRIED MALAY WOMEN STAFF AT A PUBLIC UNIVERSITY IN MALAYSIA

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Abstract. There is a high rate of unintended pregnancies in Malaysia due to low contraceptive use. Only 30% of married women use modern contraceptive methods. Emergency contraception (EC) is used within a few days of unprotected sex to prevent pregnancy. The purpose of this study was to investigate the knowledge, attitudes, and practices regarding EC pill use among Malay women. A cross sectional study was conducted among married female staff using stratified random sampling from 15 faculties in the Universiti Putra Malaysia (UPM). Data about sociodemographic factors, reproductive health, knowledge, attitudes and practices regarding EC use were gathered using validated self-administered questionnaire. The response rate was 87%. Half the 294 subjects who participated had a low knowledge, 33.0% a moderate knowledge and 17.0% a good knowledge about the EC pill. Eighty-eight percent of respondents had a positive attitude and 12.0% a negative attitude toward EC. Eleven percent of respondents had previously used EC. Unplanned and unwanted pregnancies were reported by 35.0% and 14.0% of respondents, respectively. Most respondents lacked knowledge about the indications for using EC, its mechanism of action, when it can be used and its side effects. Our findings show a need to educate women about EC.

Keywords: emergency contraception, knowledge, attitude, practice, Malaysia

INTRODUCTION

The World Health Organization estimates globally 210 million women become pregnant each year, two-thirds of them, approximately 135 million, deliver live infants. The remaining one-third of pregnancies end in stillbirth, miscarriage or induced abortions (WHO, 2011). Of the estimated 42 million induced abortions each year, nearly 20 million are performed under unsafe conditions and result in the deaths of an estimated 68,000 women; representing about 13% of all pregnancy-

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related deaths (WHO, 2011).

Five million women are hospitalized each year for treatment of abortion related complications, such as hemorrhage and sepsis (Singh, 2006). It is estimated about one-third of pregnancies in South and Southeast Asia are unintended due to low use of contraception, contraceptive method failure, and high unmet need for contraceptives (Hossain *et al*, 2005). "Unmet need" means that women want to restrict or space future pregnancies but they do not use a contraceptive method or have no access to the method (United Nations, 2010).

Emergency contraception (EC) is a method of contraceptive women can use within a few days of unprotected intercourse to prevent unwanted pregnancy. EC methods include hormonal and mechanical methods. Hormonal EC pills contain higher levels of hormones than those found in routine oral contraceptives (Brunton and Beal, 2006). EC pills sometimes are referred to as the "morning-after" or "postcoital" pills and should be initiated as soon as possible after intercourse, because efficacy declines substantially with time (International Consortium for Emergency, 2004). Indications for EC include when no contraceptive method has been used, with contraceptive failure or incorrect use and cases of sexual assault when the woman is not using contraception (WHO, 2005).

Two common methods of hormonal EC include the Yuzpe regimen and plan B. The Yuzpe regimen consists of the administration of two doses of combined oral contraceptive pills (each dose containing 100 g of ethinyl estradiol and 1mg norgestrel) taken 12 hours apart but within 72 hours of unprotected sex (Yuzpe and Lancee, 1977). Plan B is recommended by the World Health Organization. It consists of 1.5 mg levonorgestrel as a single dose alone or in combination with other hormones (WHO, 2005; WHO, USAID and John Hopkins University, 2007).

EC pills are 75-95% effective if taken within 72 hours of unprotected intercourse (Trussell *et al*, 1999). Globally, use of EC is relatively low. In the United States usage has been reported as 9.4%, in South Africa as 4% and in Iran as 5.2% (Babaee *et al*, 2003; Merchant *et al*, 2007; Myer *et al*, 2007).

In Malaysia only 30% of married women use modern contraceptive, 25% use traditional methods and 45% do not use any form of contraceptive (United Nations Population Fund, 2004). A report by the Reproductive Rights Advocacy Alliance of Malaysia states unintended pregnancies are increasing due to low contraceptive use among women (Asian Pacific Resource and Research Center, 2006).

Restrictive abortion laws and limited access to safe abortion services is associated with the high prevalence of unsafe abortion (WHO, 1998, 2004). In Malaysia abortion is permitted only to save the woman's life or to preserve her physical or mental health (Center for Reproductive Rights, 2007). It lacks implementation and there is restricted access to abortion care in the public health care system. Women in violent relationships, with a low income and unmarried women who face an unwanted pregnancy experience difficulty accessing safe abortions because of expensive care in the private sector. Data regarding the prevalence of abortion is not readily available due to its legal and moral ambiguities (Abdullah, 2009). Women must be aware of EC after unprotected intercourse (Schiappacasse and Diaz, 2006).

Many women are unaware of the existence, availability and how to use EC (Family Health International, 2001). In Malaysia health providers offer a higher dose of a combined oral contraceptive as EC. There is a lack of published data about knowledge, use and attitudes about EC use in Malaysia. This information can provide health policy makers with information needed to develop strategies targeting women of reproductive age. The purpose of this study was to investigate knowledge, attitudes, and practices regarding hormonal EC among married female staff at Universiti Putra Malaysia (UPM).

MATERIALS AND METHODS

A cross sectional study was carried out among married female staff from 15 faculties in Universiti Putra Malaysia, Serdang. Proportionate stratified random sampling was conducted in this study. A list of married female staff (aged 20-49 years) was obtained from the registrar's office of each faculty. The sampled fraction from each faculty was proportional to the total married female staff at that faculty. The dependent variable for this study was the practice of EC,while the independent variables were: age, ethnicity, religion, education level, a history of mistimed pregnancy, unwanted pregnancy, abortion, contraceptive practices, knowledge about and attitude towards EC. An unintended pregnancy was classified as a mistimed or unwanted pregnancy. A mistimed pregnancy was defined as a pregnancy occurring sooner than desired. An unwanted pregnancy was defined as when the woman did not want the child at the time of conception or at any time in the future (Chandra *et al*, 2005).

The data were collected using a self-administered pre-tested questionnaire in Malay and English. The questionnaire was adapted from a World Health Organization guideline for EC and previously published studies (WHO, 2005; Corbett *et al*, 2006; Marafie *et al*, 2007). Respondents were requested to respond to individual statements using "Yes", "No" or "Do not know". Knowledge of EC investigated included awareness of EC, its side effects, availability of EC, its mechanism of action, the time frame for use and the indications for EC.

Respondents were given one point for answering correctly and no points for answering wrongly or that they did not know. Respondents who answered <25% of questions correctly were categorized as having low knowledge about EC, respondents who answered 25-50% of questions correctly were categorized as having a moderate knowledge of EC and those who answered >50% of questions correctly were categorized as have a good knowledge of EC (Jamali and Azimi, 2007). Attitudes were measured with a composite score of 10 items using a five point Likert scale: one for strongly disagree to five for fully agree.

The attitude areas assessed were: attitudes about EC, safety of EC, feelings of embarrassment while seeking EC, willingness to use EC in future, religious beliefs regarding EC, husband's opinion about the use of EC, use of EC among youth and moral issues regarding EC. The content validity of the questionnaire was established by a panel of women's health experts. Pretesting of the questionnaire was carried out to ensure the respondents understood the items and to measure the reliability (internal consistency) of the scales in the questionnaire. The internal consistency of knowledge questions was a Cronbach's alpha=0.86 and for

attitude questions was a Cronbach's alpha=0.70. Data analysis was done using the Statistical Package for Social Sciences (SPSS),version 18 (SPSS). Descriptive analysis was conducted using frequencies, percentages, means and standard deviations. The chi-square test was used to determine associations among categorical variables. The Fisher's exact test was used to examine the association among categorical variables since the study sample size and cell sizes were relatively small. A p-value <0.05 was considered as significant.

This study was approved by the Medical Research Ethics Committee, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

RESULTS

Of 336 subjects given the questionnaire, 301 completed and returned it. Seven respondents were excluded from the study because of incomplete information. The overall response rate was 87.2% (294). The mean age of respondents was 35.8±9.0 years. The majority of respondents were Malay (95.9%) and Muslim (96.6%). Two-thirds of subjects had a tertiary level of education. Thirty-five percent of subjects gave a history of a mistimed pregnancy; 14.0% gave a history of an unwanted pregnancy. Thirty-three percent of subjects reported a history of abortion. Forty-five percent of subjects used contraception during the previous month. More than half of subject had a low knowledge of EC, 33.0% had a moderate knowledge and 17.0% had a good knowledge of EC. Sixty-four percent of respondents were aware the EC pill is used to prevent pregnancy due to unprotected sex. One quarter of respondents knew EC can be used after missing contraceptive pills, and 35.0% were aware the EC pill can be used for cases of condom rupture. Twelve percent of subjects knew the EC pill can be used for cases of failed withdrawal method. Two-thirds of respondents were unaware of when they should take an EC pill. Thirteen percent believed the EC pill prevents pregnancy by delaying ovulation. Thirty-six percent believed the EC pill prevents pregnancy by preventing implantation of a fertilized egg. Twelve percent of subjects knew about the common side effects of the EC pill, such as nausea and vomiting. One-third of respondents were aware of the availability of EC in government clinics. Half of respondents stated EC can be found in private clinics. Two-thirds of respondents knew the EC pill requires a doctor's prescription.

Eighty-three percent of subjects had a positive attitude about EC. Fifty-three percent of subjects believed the EC pill to be safe. Seventy-seven percent of subjects were embarrassed to seek EC. Fifty-four percent stated they would use EC in future if the need arose. Seventy-one percent of subjects believed the use of EC was not against their religious beliefs. Fifty-nine percent of subjects believed their husbands would agree with using EC after unprotected sex. Eighty-three percent of subjects believed increasing availability of EC does not promote free sex among youth. Sixty-one percent of subjects disagreed the use of EC leads to promiscuity. EC was used by 11% (n=33) of subjects in this study. Of EC users, 12% had used EC within the previous 3 months, 3% had used EC during the previous 12 months and 85% had used EC greater than the previous 12 months.

Table 1 shows the use of EC by sociodemographic characteristics. Of the 158 women <35 years old, 7.6% of them had used an EC pill. A history of EC use was

Table 1
Emergency contraception use by married female staff by socio-demographic characteristics (N=294).

Characteristics	n	Emergency contraception use				Chi-square	p-value
		Yes		No			
		No.	%	No.	%		
Age (years)							
≤35	158	12	7.6	146	92.4	4.516	0.034*
>35	136	21	15.4	115	84.6		
Education							
Primary/Secondary	80	12	15	68	85	1.572	0.21
Tertiary	214	21	9.8	193	90.2		
Religion							
Islam	284	30	10.6	254	89.4	NA	0.089
Others	10	3	30	7	70		FET
Ethnicity							
Malay	282	31	11	251	89	NA	0.631
Others	12	2	16.6	10	83.3		FET
Household income (RM)							
≤ 3,000	196	18	9.2	178	90.8	1.69	0.194
> 3,000	83	12	85.5	71	14.5		
Information not available	15						

*p <0.05; FET, Fisher's exact test; NA, not applicable

significantly more common among older women (>35 years old) than younger women (15.4%; p=0.034). There were no significant associations between EC use and education, religion, ethnicity or household income.

Table 2 shows the use of EC by reproductive health characteristics. The prevalence of EC use was significantly higher (14%; p=0.005) among subjects who had children than those who were childless. Subjects with a history of induced abortion reported using EC more frequently than women who had a history of spontaneous abortion (50; p=0.008). EC use was more common among normal contraception users than non-contraception users (21.2; p<0.001). There was no significant association between EC use and history of unwanted pregnancy or mistimed pregnancy.

Table 3 shows EC use by knowledge, attitude and history of receiving EC counseling from a health care professional. Women with a good knowledge of EC were more likely to use it than those with a moderate or low knowledge (36%; p<0.001). Subjects who received EC counseling from a health care professional were significantly more likely to use EC than those who did not (39.3%; p<0.001). No significant differences in EC use were seen between subjects who had positive and negative attitudes about EC (p=0.095). The most frequently source of information about EC was doctors (84.4%), followed by the internet (37.8%), magazines (27.2%) and friends (20.7%) (Table 4).

Table 2
Emergency contraception use among married female staff by reproductive health characteristics (N= 294).

Characteristics	n	Emergency contraception use				Chi-square	p-value
		Yes		No			
		No.	%	No.	%		
Has child(ren)							
Yes	229	32	14	197	86	7.85	0.005*
No	65	1	1.5	64	98.5		
Unwanted pregnancy							
Yes	40	3	7.5	37	92.5	0.645	0.422
No	254	30	11.8	224	88.2		
Mistimed pregnancy							
Yes	103	13	12.6	90	87.4	0.31	0.577
No	191	20	10.5	171	89.5		
Abortion							
Yes	96	12	12.5	84	87.5	0.2333	0.63
No	198	21	10.5	177	89.4		
Type of abortion (n=96)							
Induced	8	4	50	4	50	NA	0.008*
Spontaneous	88	8	9.1	80	90.9		FET
Used contraception							
Yes	132	28	21.2	104	78.8	NA	<0.001*
No	162	5	3.1	157	96.9		FET

*p <0.05; FET, Fisher's exact test; NA, not applicable

DISCUSSION

Our study shows most subjects lacked adequate knowledge about the EC pill. Awareness of the correct time for taking EC among women is essential for timely use (Schiappacasse and Diaz, 2006). In this study a quarter of respondents knew the correct time to take an EC pill after unprotected sex. Our finding is lower than that of Wan and Lo (2005) who found half of women aged 15- 53 years attending clinics in Hong Kong were aware of the correct time for taking an EC pill. In the current study, knowledge about the mechanism of action of the EC pill was low. Ten percent of respondents thought EC caused an abortion. Cunnane *et al* (2006) found 20% of American women studied who presented to a health clinic believed EC pills were an abortifacient. In our study, knowledge about the common side effects and awareness of the indications for using EC were low. Awareness of the availability of EC is an important factor in the timely use of EC. In the majority of countries EC products are sold by medical prescription (Schiappacasse and Diaz, 2006). The present study shows one-third of participants knew about the availability of EC at government clinics. A majority of respondents were aware the EC pill must be obtained by a doctor's prescription.

Despite inadequate knowledge of EC among respondents, a majority had a

Table 3
Emergency contraception use among married female staff by knowledge, attitude and counseling about EC (N= 294).

Characteristics	n	Emergency contraception use				Chi-square	p-value
		Yes		No			
		No.	%	No.	%		
Knowledge							
Low	147	4	2.7	143	97.3		
Moderate	97	11	11.3	86	88.7	41.469	<0.001*
Good	50	18	36	32	64		
Attitude about EC use							
Positive	35	1	2.9	34	97.1	2.791	0.095
Negative	259	32	12.4	227	87.6		
Received EC counseling							
Yes	61	24	39.3	37	60.7	61.078	<0.001*
No	233	9	3.9	224	96.1		

*p-value <0.05

Table 4
Sources of information about Emergency Contraception*.

Sources	Frequency	Percent
Doctors	248	84.4
Media	41	13.9
Internet	111	37.8
Friends	61	20.7
Magazine	74	27.2

*The respondents could answer more than one option.

positive attitude about EC and beleived EC is safe. Fifty-eight percent of subjects in our study believed their husbands would be agreeable to using EC. This finding is higher than a study by Marafie *et al* (2007) who reported 14% of Kuwaiti women thought their husband would approve of EC.

The influence of religion on acceptance of EC has been evaluated in several studies (Gould *et al*, 2002; Sorhaindo *et al*, 2002). Bozkurt *et al* (2006) in a study from Turkey found 52% of subjects believed the use of EC was religiously appropriate. Baiden *et al* (2002) in a study from Ghana, found 68.0% of subjects felt their religious beliefs do not alter their EC use. In the present study, two-thirds of women stated EC use was consistent with their religious beliefs. In our study, the use of EC was low among married women. Only 11.0% of respondents had used this method. The use of EC was two times higher among Swedish women and 1.4 times higher among women in Hong Kong (Aneblomet *et al*, 2002; Wan and Lo, 2005).

Our findings revealed low use of ordinary contraception, which can lead to unintended pregnancies. More than one-third of our subject experienced mistimed pregnancies. A study from Iran revealed EC pill users were more knowledgeable about ordinary contraception than non-users; a majority of their subjects (88%) had a positive attitude about EC, but there was no significant correlation between a

positive attitude and EC use (Babaee *et al*, 2003).

The higher percentage of EC use among women who had been counseled by a health care professional reveals the significant role of health providers regarding contraceptive methods, including EC.

The present finding showed an accurate knowledge of EC was lacking among respondents. Women need to be educated about modern contraception, including EC. People who seek health care may be educated regarding contraceptive methods, including EC, its indications, mechanism of action, best time to use it and its possible side effects. Health care providers have an important role in providing this information to their clients.

The most desirable source for obtaining health information is doctors and health care professionals. Promoting EC through the health system and educating clients are the best methods for providing information about EC. Since this was a relatively small study conducted among working women at UPM, further studies need to be conducted in Malaysia, particularly in the community.

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