

# Emergency contraceptive pill use among women of reproductive age in Pathein, Myanmar

Emergency  
contraceptive  
pill use

349

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## Abstract

**Purpose** – Emergency contraceptive pills (ECPs) allow a second chance to prevent unwanted pregnancy in unplanned sexual intercourse. Therefore, it helps reduce the rate of induced or unsafe abortions. Although they are available over-the-counter in Myanmar, relevant information remains improperly known by women and its use is limited. The purpose of this paper is to identify the prevalence and associated factors of ECPs use among women of reproductive age in the delta region of Myanmar.

**Design/methodology/approach** – This community based cross-sectional study was conducted in Pathein Township, Ayeyarwady Division, Myanmar from March 30 to April 29, 2018. This study was conducted among 238 respondents selected using multistage sampling and face-to-face interviews employed structured questionnaires. Multiple logistic regression was used to analyze the associations among variables.

**Findings** – The prevalence of ECPs use among reproductive aged women was 11.3 percent. Factors significantly associated with ECPs use were high monthly family income (AOR = 4.50, 95% CI = 1.31–15.48), condom use (AOR = 4.40, 95% CI = 1.07–18.16) and never having experienced pregnancy (AOR = 6.20, 95% CI = 2.06–18.67).

**Originality/value** – To improve the use of ECPs, extension of services such as opening hours or working days is needed. The government and NGOs should implement the services to support women who have encountered unplanned sexual intercourse so that unwanted pregnancy can be prevented.

**Keywords** Urban communities, Emergency contraceptive pills, Reproductive women, Unplanned pregnancy

**Paper type** Research paper

## Background

The emergency contraceptive pill (ECP) is a contraceptive method that can be administered after unprotected sexual intercourse[1]. ECPs containing Levonorgestrel can lower pregnancy risk following a single act of sexual intercourse by 80–90 percent[2]. Around 211m women across the world become pregnant annually. Among those pregnancies, 87m (41 percent) are unwanted[3]. In 2012, unwanted pregnancies accounted for 44 percent of the total pregnancies in Southeast Asia which was higher than the rate in Asia as a whole (38 percent)[4]. The reasons for the high prevalence of unwanted pregnancies in South and Southeast Asia include the low use of modern contraception, method failure (the fault of both users and technology)

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and high unmet needs[5]. In Myanmar, 710,000 unwanted pregnancies occurred in 2015[6]. Unwanted pregnancy is one of the main reasons for maternal deaths[5]. Global estimates in 2014 indicated that the highest proportion of unwanted pregnancies result in abortion (59 percent in developed countries and 55 percent in developing countries). Bearak *et al.*[7] also found that those unwanted pregnancies end in miscarriage and stillbirth. Accordingly, unwanted pregnancies cause not only health-related impacts (such as disability and induced abortion) but also social, financial, educational and psychological drawbacks for women and children[8]. Moreover, unwanted children are probably not nurtured properly placing a burden on society as children are the future leaders of the country.

Although ECPs are not recommended as a routine method of contraception, they provide a second chance to prevent an unwanted pregnancy after unplanned sexual intercourse and hence helps reduce the rate of induced or unsafe abortions[9]. They also play an important role in preventing unwanted pregnancies when regular contraceptive methods fail, regular methods are not used, and in cases of sexual assault[10]. Although ECPs are available in many countries, this has not produced the desired impact on unwanted pregnancy rates and they are not widely used[11]. Globally, the prevalence of the use of ECPs ranges from 0.1 to 12 percent, whereas in different countries in Asia it ranges from 0.1 to 0.9 percent[12]. In Myanmar, only 0.1 percent of married women have ever used ECPs[13].

Related studies from various countries in America, Africa and Asia have shown many factors affect the use of ECPs [11, 14–17]. However, the contexts and cultures of those countries differ from Myanmar; and therefore, factors affecting the use of ECPs may differ. The third phase of the PRECEDE–PROCEED model constitutes predisposing, reinforcing and enabling factors based on which policy changes in the country can be made. Therefore, the PRECEDE–PROCEED model is used to identify factors associated with the use of ECPs in this study.

The Ayeyarwady Region is located in the delta region of Myanmar. The maternal mortality ratio of this division is the second highest among 15 states and divisions across the country reporting 353.7 deaths per 100,000 live births, which is higher than the country data as a whole. (281.6 per 100,000 live births)[18]. It consists of 26 townships of which Patheingyi is one with a population of 287,071[19]. In Patheingyi, ECPs are available in clinics, hospitals, pharmacies and non-governmental organizations. It has been observed that several unmarried couples and even some married couples in this township use ECPs as a routine contraceptive method. Misconceptions in using ECPs may occur among married women, and the reasons for use may differ with other contraceptive methods. Hence, the factors associated with the use of ECPs need to be explored. This study could provide reproductive health data that is useful for public health professionals and healthcare providers in planning and implementing strategic health plans.

This study aimed to assess the prevalence of ECPs use and associated factors of ECPs use among women of reproductive age in Patheingyi Township, Myanmar.

## Methods

### *Study design*

This study was a community based cross-sectional design conducted in Patheingyi Township, Ayeyarwady Division. Data were collected from March 30, to April 29, 2018.

### *Study population*

The study population comprised of women of reproductive age (18–49 years) in the township. We collected data from this age group because they were able to access health services independently and their parents were not required to sign a consent form. The inclusion criteria of participants were reproductive-aged women 18–49 years old (both married or unmarried),

who were included in the name list, had been living in the study area at least 6 months, and were willing to participate. This study excluded women who had experienced the menopause (regardless of the age), who had been diagnosed mentally ill or were unable to communicate. The prevalence of ECPs use was calculated by using an unknown proportion formula by Daniel W.W. and Cross C.L. It was calculated by assuming a 95% confidence interval and an estimated proportion of 0.1. Then, 10 percent was added to the minimal sample size in case of missing or incomplete data. The total sample size was 238, and there was no missing data after data collection.

### *Sampling technique*

A sample of residents in Patheingyi Township was enrolled in this study. Study participants were selected using a three-stage sampling procedure. First, one ward of each region (north, east, south and west) was selected by simple random sampling. Second, households were selected by systematic sampling to be proportionate to the number of households in each ward. Finally, only one participant was selected from each household by simple random sampling.

### *Research instrument*

Questionnaires used in this study were developed based on theory and related research papers. The questionnaire content was validated by two experts in family health to confirm whether the questionnaires could measure the objectives of the study. The content validity index was 1 for knowledge, 0.93 for attitude and 0.83 for social support. Questionnaires were translated from English to Myanmar, and again back to original English to confirm that the consistency was maintained. After that, the reliability was assessed to determine whether the questionnaires could produce stable and consistent results. It was pilot tested using 30 participants who had similar characteristics to the study population. KR-21 assessed reliability of knowledge which was at 0.77 while Cronbach's  $\alpha$  coefficient determined the reliability of attitude and social support at 0.76 and 0.97, respectively. This study conducted face-to-face interviews among participants using a questionnaire. It comprised five parts as described below.

Part 1 consisted of 15 items of close-ended questions concerning general characteristics.

Part 2, focusing on participants' knowledge, consisted of 12 items (8 positive items and 4 negative items). The answers were divided as "Yes," "No" and "Not sure." For positive statements, the score was "1" for "Yes" and "0" for "No" and "Not sure" meaning do not have the knowledge or do not know about that question. For the 4 negative items, the score was "1" for "No" and "Not sure" and "0" for "Yes." The responses were divided into three categories, i.e. good knowledge  $\geq 80$  percent of total score ( $\geq 10$  scores), moderate knowledge 60–79 percent of total score (8 and 9 scores) and poor knowledge  $< 60$  percent of total score ( $< 7$  scores).

Part 3, focusing on attitude, comprised of 14 items (5 positive statements and 9 negative statements). The answers were classified as "Agree," "Neither agree nor disagree" and "Disagree"[20]. For positive statements, the score was "3" for "Agree," "2" for "Neither agree nor disagree" and "0" for "Disagree." For negative statements, the score was "1" for "Agree," "2" for "Neither agree nor disagree" and "3" for "Disagree." Based on these three categories, the positive attitude was  $\geq 80$  percent ( $\geq 34$  scores), the neutral attitude was 60–79 percent (25–33 scores) and negative attitude was  $< 60$  percent ( $< 25$  scores).

Part 4 comprised of social support with 23 items regarding emotional, informational, instrumental and appraisal support from health care providers, friends, family members/relatives, partner/husband, printed and unprinted media and others. The answers were categorized as "Always," "Sometimes" and "Never." The score was "2" for "Always" and "1" for "Sometimes" and "0" for "Never." The responses were categorized in three categories: good support was  $\geq 80$  percent of the total score ( $\geq 37$  scores), fair support was 60–79 percent of the total score (28–36 score) and low support was  $< 60$  percent of total score ( $< 28$  scores). Cultural and religious acceptance of ECPs were "Yes" or "No" questions.

Part 5 included enabling factors identified by 9 items regarding availability, accessibility and affordability of ECPs.

Part 6 comprised of 4 items about whether the participants had ever used, reasons for use, their intention to use and reasons for having no intention to use ECPs.

### *Statistical analysis*

Following data collection, responses were input using SPSS Software, Version 18.0. Descriptive analysis used frequency, percentage, mean, median, mode, standard deviation and minimum–maximum values. For statistical analysis, simple and multiple binary logistic regression analysis was used to explore the associations between independent and dependent variables. *p*-value was set at 0.05.

### *Ethical considerations*

The protocol for this study was reviewed and approved by the Ethics Review Committee (IRB) of the Faculty of Public Health, Mahidol University (No. 27/2561). An informed consent statement was obtained before commencement of the face-to-face interview.

## **Results**

### *General characteristics of the participants*

The average age of the participants was 29.09 years, and 55.9 percent of the participants were in the 18–29 year age group. The majority were Bamar (81.1 percent) and Buddhist (87 percent). About two-thirds (66 percent) of the participants were currently employed. Nearly three-fourths (72.3 percent) of them completed high school and lower education and 60.5 percent of them were or had been married. Almost half of the participants (47.9 percent) had monthly family incomes  $\geq$  250,000 Kyats ( $\geq$  US\$185), and 66 percent had a sufficient income. Concerning sexual history, 64.3 percent had experienced sexual intercourse. Among those, 69.3 percent experienced first sex at  $\geq$  20 years and 55.6 percent engaged in sexual activity less than ten times a month. Moreover, among women who had experienced sexual intercourse, 17 percent had never used a condom and 73.9 percent had experienced pregnancy (Table I).

### *Knowledge and attitudes toward the use of ECPs*

The knowledge of ECPs use had an average score of 4.47 (Mean  $\pm$  SD = 4.74  $\pm$  2.78), and the min.-max. knowledge score was 0–11. The participants who had poor knowledge totaled 59.2 percent whereas 40.8 percent had good knowledge. Regarding attitude, the score ranged from 20 to 42 (Mean  $\pm$  SD = 31.95  $\pm$  5.17). In all, 37.4 percent of the participants had a positive attitude and 62.6 percent had negative attitude towards ECPs (Table I).

### *Social support, cultural and religious acceptance for the use of ECPs*

The score for social support ranged from 0 to 46 (Mean  $\pm$  SD = 14.88  $\pm$  11.7). In all, 14.3 percent of the participants received high levels of support and 85.7 percent received low support regarding ECPs use. About one-third (66 percent) stated that ECPs were culturally accepted and 69.7 percent of participants disclosed that the religion they believed in accepted the use of ECPs (Table I).

### *Availability, accessibility and affordability of ECPs*

Concerning availability, 94.5 percent of the participants stated that ECPs were available. Among participants who knew that ECPs were available in their township, almost three-fourths (72.0 percent) of the participants could describe at least two places where ECPs were available. The participants mentioned that these places were open on holidays (38.2 percent) and on a 24-hour basis (23.1 percent).

Characteristics	Total		ECPs use ( <i>n</i> (%))		<i>p</i> -value	OR (95% CI)
	No.	%	Used	Never used		
Total	238	100.0	27 (11.3)	211 (88.7)		
<i>Age (years)</i>						
18–29	133	55.9	17 (12.8)	116 (87.2)	0.433	1.39 (0.61–3.18)
30–49	105	44.1	10 (9.5)	95 (90.5)		Ref
Mean ± SD = 29.09 ± 8.041, Min.–Max. = 18–49						
<i>Race</i>						
Bamar	193	81.1	23 (11.9)	170 (88.1)	0.566	1.39 (0.46–4.23)
Others	45	18.9	4 (8.9)	41 (91.1)		Ref
<i>Religion</i>						
Buddhist	207	87.0	21 (10.1)	186 (89.9)	0.139	0.47 (0.17–1.28)
Other	31	13.0	6 (19.4)	25 (80.6)		Ref
<i>Occupation</i>						
Employed	157	66.0	15 (9.6)	142 (90.4)	0.229	0.61 (0.27–1.37)
Unemployed	81	34.0	12 (14.8)	69 (85.2)		Ref
<i>Education</i>						
University and higher	66	27.7	13 (19.7)	53 (80.3)	0.015	2.77 (1.22–6.26)
High school and lower	172	72.3	14 (8.1)	158 (91.9)		Ref
<i>Marital status</i>						
Married	144	60.5	20 (13.9)	124 (86.1)	0.131	2.01 (0.81–4.95)
Never married	94	39.5	7 (7.4)	87 (92.6)		Ref
<i>Monthly family income</i>						
≥ 250,000 Kyats (≥ US\$185)	114	47.9	20 (17.5)	94 (82.5)	0.006	3.56 (1.44–8.77)
< 50,000 Kyats (< US\$185)	124	52.1	7 (5.6)	117 (94.4)		Ref
Median = 250,000, Mode = 300,000, Min.–Max. = 50,000–600,000						
<i>Financial status</i>						
Enough income	157	66.0	20 (12.7)	137 (87.3)	0.348	1.54 (0.62–3.82)
Not enough income	81	34.0	7 (8.6)	74 (91.4)		Ref
<i>Age at first sex<sup>a</sup></i>						
≥ 20	106	69.3	21 (19.8)	85 (80.2)	0.170	2.08 (0.73–5.89)
< 20	47	30.7	5 (10.6)	42 (89.4)		Ref
Mean ± SD = 21.69 ± 3.924, Min.–Max. = 13–32						
<i>The average frequency of sex in one month<sup>a</sup></i>						
< 10	85	55.6	20 (23.5)	65 (76.5)	0.020	3.18 (1.20–8.44)
≥ 10	68	44.4	6 (8.1)	62 (91.2)		Ref
Mean ± SD = 9.4 ± 6.6, Min.–Max. = 0–31						
<i>Types of contraceptives used<sup>a</sup></i>						
<b>Condom</b>						
Yes	26	17.0	11 (42.3)	15 (57.7)	< 0.01	5.48 (2.13–4.11)
No	127	83.0	15 (11.8)	112 (88.2)		Ref
<i>Experience of pregnancy<sup>a</sup></i>						
No	40	26.1	17 (42.5)	23 (57.5)	< 0.01	8.54 (3.39–21.56)
Yes	113	73.9	9 (8.0)	104 (92.0)		Ref

(continued)

**Table I.**  
General characteristics  
and reproductive  
information of  
238 respondents  
regarding ECPs use

Characteristics	Total		ECPs use ( <i>n</i> (%))		<i>p</i> -value	OR (95% CI)
	No.	%	Used	Never used		
<i>Knowledge</i>						
Good (≥ 6)	97	40.8	19 (19.6)	78 (80.4)	0.002	4.05 (1.69–9.69)
Poor (< 6)	141	59.2	8 (5.7)	133 (94.3)		Ref
Mean ± SD = 4.74 ± 2.78, Min.–Max. = 0–11						
<i>Attitude</i>						
Positive (≥ 34)	89	37.4	13 (14.6)	76 (85.4)	0.223	1.65 (0.74–3.69)
Negative (< 34)	149	62.6	14 (9.4)	135 (90.6)		Ref
Mean ± SD = 31.95 ± 5.17, Min.–Max. = 20–42						
<i>Social support</i>						
Good (≥ 28)	34	14.3	6 (17.6)	28 (82.4)	0.217	1.87 (0.69–5.03)
Low (< 28)	204	85.7	21 (10.3)	183 (89.7)		Ref
Mean ± SD = 14.88 ± 11.7, Min.–Max. = 0–46						
<i>Cultural acceptance</i>						
Yes	157	66.0	21 (13.4)	136 (86.6)	0.175	1.93 (0.75–4.99)
No	81	34.0	6 (7.4)	75 (92.6)		Ref
<i>Religious acceptance</i>						
Yes	166	69.7	19 (11.4)	147 (88.6)	0.940	1.03 (0.43–2.49)
No	72	30.3	8 (11.1)	64 (88.9)		Ref
<i>Availability</i>						
Available ECPs services as the respondents knew <sup>b</sup>						
> 2 places	63	28.0	8 (12.7)	55 (87.3)	0.841	1.10 (0.45–2.65)
≤ 2 places	162	72.0	19 (11.7)	143 (88.3)		Ref
Opening days/hours of available places						
Open on holidays <sup>b</sup>						
Yes	86	38.2	20 (23.3)	66 (76.7)	< 0.01	5.71 (2.30–14.20)
No	139	61.8	7 (5.0)	132 (95.0)		Ref
Open 24 hours <sup>b</sup>						
Yes	52	23.1	13 (25.0)	39 (75.0)	0.002	3.79 (1.65–8.70)
No	173	76.9	14 (8.1)	159 (91.1)		Ref
<i>Accessibility</i>						
Mode of transportation <sup>b</sup>						
By foot	51	22.7	11 (21.6)	40 (78.4)	0.020	2.72 (1.17–6.31)
Not by foot	174	77.3	16 (9.2)	158 (90.8)		Ref
The convenience of traveling <sup>b</sup>						
Very convenient	39	17.3	5 (12.8)	34 (87.2)	0.862	1.10 (0.39–3.10)
Moderately convenient and difficult	186	82.7	22 (11.8)	164 (88.2)		Ref
Travel time <sup>b</sup>						
< 15 min	108	48.0	12 (11.1)	96 (88.9)	0.694	0.85 (0.38–1.91)
≥ 15 min	117	52.0	15 (12.8)	102 (87.2)		Ref
<i>Affordability</i>						
Free of charge						
Yes	19	8.0	4 (21.1)	15 (78.9)	0.174	2.27 (0.70–7.43)
No/do not know	219	82.0	23 (10.5)	196 (89.5)		Ref
Being affordable						
Yes	202	84.9	23 (11.4)	179 (88.6)	0.962	1.03 (0.33–3.17)
No	36	15.1	4 (11.1)	32 (88.9)		Ref

**Notes:** <sup>a</sup>Among 153 participants with a history of sexual activity; <sup>b</sup>Among 225 participants who responded that ECPs were available

Table I.

Concerning accessibility to ECPs, 22.7 percent of the participants mentioned they could travel to the available places by foot and 17.2 percent revealed that travel was very convenient. Nearly one-half (48 percent) said that the travel time to the nearest place available was less than 15 min.

Regarding affordability, 8 percent of participants responded that ECPs could be obtained free of charge. The majority (84.9 percent) mentioned that they could easily afford ECPs (Table I).

### *Prevalence of ECPs use*

The prevalence of ECPs use among reproductive-aged women in Pathein Township was 11.3 percent (Table I). Slightly more than one-half (55.6 percent) used it because of the failure of regular contraceptive methods. Over one-third replied that they have experienced unplanned sexual intercourse. In total, 26 percent replied that they used ECPs less due to less frequent sexual intercourse.

Among those who had never used ECPs, 79.6 percent had the intention to use it if they encountered unplanned sexual intercourse. Almost one-half of the participants (48.8 percent) stated that their reason for not intending to use it was because they were afraid of the side effects.

### *Factors associated with ECPs use*

Simple binary logistic regression was used to find out the association between each independent and dependent variable. Factors associated with ECPs use were high education (OR = 2.77, 95% CI = 1.22–6.26), high monthly family income (OR = 3.56, 95% CI = 1.44–8.77), less frequency of sex in one month (OR = 3.18, 95% CI = 1.20–8.44), condom use (OR = 5.48, 95% CI = 2.13–14.11), not having experience of pregnancy OR = 8.54, 95% CI = 3.39–21.56), good knowledge (OR = 4.05, 95% CI = 1.69–9.69), pharmacies and service centers open on holidays (OR = 5.71, 95% CI = 2.30–14.20), pharmacies and service centers open 24 hours (OR = 3.79, 95% CI = 3.79) and being able to travel to available places by foot (OR = 2.72, 95% CI = 1.17–6.31) (Table I).

### *Predictors of ECPs use*

Multiple binary logistic regression showed that participants who had a monthly income of more than 250,000 kyats (more than US\$185) were four times more likely to use ECPs than those who had less than or equal to 250,000 kyats (less than or equal to US\$185) (AOR = 4.50, 95% CI = 1.31–15.48). Respondents who had used condoms were four times more likely to use ECPs than those who had never used a condom (AOR = 4.40, 95% CI = 1.07–18.16). Women who had never experienced pregnancy were six times more likely to use ECPs than those who had (AOR = 6.20, 95% CI = 2.06–18.67) (Table II).

Characteristic	Crude OR (95% CI)	Adjusted <sup>a</sup> OR (95% CI)	<i>p</i> -value
University and higher education	2.77 (1.22–6.26)	1.03 (0.29–3.65)	0.961
Monthly family income $\geq$ 250,000 kyat ( $\geq$ US\$185)	3.56 (1.44–8.77)	4.50 (1.31–15.48)	0.017
Average frequency of sex in one month < 10 times	3.18 (1.20–8.44)	2.79 (0.82–9.54)	0.101
Used condom	5.48 (2.13–14.11)	4.40 (1.07–18.16)	0.041
No experience of pregnancy	8.54 (3.39–21.56)	6.20 (2.06–18.67)	0.001
Good knowledge ( $\geq$ 6 scores)	4.05 (1.69–9.69)	2.98 (0.87–10.27)	0.084
Open on holidays	5.71 (2.30–14.20)	1.15 (0.27–5.01)	0.850
Open 24 hours	3.78 (1.65–8.70)	1.28 (0.31–5.34)	0.736
Transportation by foot	2.71 (1.17–6.31)	2.65 (0.80–8.82)	0.113

**Note:** <sup>a</sup>Adjusted variables by age, education, marital status, occupation and religion

**Table II.**  
Predictors of  
ECPs use using  
multiple binary  
logistic regression

## Discussion

The findings showed that most respondents were currently employed, married young adults with a high level of education and sufficient income. This result was unsurprising as this study was conducted in an urban area, having a high proportion of internal migrants who stayed in the area for education and employment. The proportion of use of short-term contraceptive methods including combined oral contraceptive pills and injectable contraceptives (three months) was much higher than that of long-term methods such as the use of an intrauterine device and implants. This might be due to misconceptions regarding long-term methods. Regarding informal interviews, 4 of 11 women of reproductive age replied that they were afraid of using the intrauterine device, as it may hurt their husband or move outside the uterus. Moreover, some women (3/11) replied that inserting hormonal implants needed a large incision, and they were frightened to use it. In addition, long term methods needed well-trained personnel to provide services and may have caused inaccessibility.

The prevalence of ECPs use among reproductive-aged women was 11.3 percent. This was much higher than the national survey showing that the percentage of married women who had used ECPs was 0.1 percent in 2007[13]. The difference might be because the data from the national survey was obtained from all parts of Myanmar including remote and rural areas but this study was conducted in an urban area. ECPs use could be quite lower in rural and hard-to-reach areas than urban areas since it may be easier to access the ECPs in urban areas. In addition, some INGOs conducted several activities including awareness raising sessions, training and static, and mobile clinics in the study area. The government also paid greater attention to the family planning in order to achieve the objectives of the five-year strategic plan for reproductive health, which is a national response to the goals of the Program of Action of the International Conference on Population and Development and other international development goals and targets[21]. Moreover, the rate was quite similar to a study by Intra among women vocational students in Thailand which reported 12.6 percent ECPs use[22]. This might be because Thailand and Myanmar are neighboring countries and the situation of the two countries is quite similar.

According to the results of multiple logistic regression, monthly family income showed a significant association with ECPs use. Participants with a monthly family income of more than 250,000 Kyats (US\$185) were 3.56 times more likely to use ECPs than those whose family incomes were 250,000 Kyats and lower. Similar information was gained from a qualitative study by Diaz *et al.*[23] among potential users from Brazil, Chile and Mexico reporting that having a low income interfered with women using ECPs. This was because it would probably isolate them from receiving necessary information. Another obstacle among low-income women was the view that motherhood is the identity and destiny of a woman which made women feel that they do not need ECPs[23]. Quite possibly, women with a higher income had better access to information about ECPs as well as a knowledge of the available places to purchase them with better means of being able to purchase ECPs.

A significant association was found between condom and ECPs use. Participants who had used condoms were 5.476 times more likely to use ECPs than those who never used one. Similar to this result, a study by Shiferaw *et al.*[11] among female students at Mizan-Tepi University, South West Ethiopia showed that participants who used regular contraceptive methods were about five times more likely to use ECPs than who had never used one ( $p < 0.001$ ). These findings were similar to a study among students at Takoradi Polytechnic in Ghana by Manortey *et al.*[24]. Participants who had used any contraceptive methods were about six times more likely to use ECPs than those who had never used one ( $p < 0.001$ ). To sum up, the association in the current study might be explained by two factors. First, participants who used regular contraceptive methods might also be aware of ECPs as an option. Second, condoms and ECPs are similar in nature in that they are used

only when participants have sexual intercourse, and therefore, participants who engage in less frequent sexual intercourse might prefer both methods.

Pregnancy was significantly associated with ECPs use. Participants who were never experienced a pregnancy were 8.541 times more likely to use ECPs than those who had been pregnant. A reverse finding was discovered in the analyzed data from the US National Survey of Family Growth, by Kavanaugh and Schwarz[25]. Women who had experienced pregnancy one to four times were less likely to have used ECPs than those who never experienced pregnancy ( $p < 0.01$ )[25]. In conclusion, as the current study was a cross-sectional study, a cause and effect relationship between independent and dependent variables could not be established. Therefore, the associations determined in the study might be because participants had never experienced pregnancy as a result of using ECPs.

### Conclusion

The findings showed that the prevalence of ECPs use among reproductive-aged women was 11 percent. Multiple regression analysis showed that predictive factors associated with ECPs use were a high education level, low frequency of sexual intercourse, condom use, no experience of pregnancy and high level of knowledge regarding ECPs. Moreover, enabling factors in the community comprising shop opening hours, lengthy opening and easy accessibility were associated with ECPs use. After adjusting variables, our study found that only high monthly family income, condom use and pregnancy factors predicted ECPs use among reproductive-aged women in the study area.

Our study found that a high intention to use ECPs was found among reproductive-aged women when they encountered unplanned sexual intercourse. To improve ECPs services in urban areas, policy makers need to consider offering 24-hour services (including holidays).

### References

1. World Health Organization, Department of Reproductive Health and Research [WHO/RHR], and Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs [CCP]. Knowledge for health project. Family planning: a global handbook for providers. Geneva: WHO; 2011.
2. International Consortium for Emergency Contraception [ICEC]. Clinical summary: emergency contraceptive pills. New York, NY: ICEC/Management Sciences for Health; 2013.
3. World Health Organization [WHO]. The world health report: 2005: make every mother and child count. Geneva: WHO; 2005.
4. Sedgh G, Singh S, Hussain R. Intended and unintended pregnancies worldwide in 2012 and recent trends. *Stud Fam Plann.* 2014; 45(3): 301-14.
5. Hossain SMI, Khan ME, Rahman M, Sebastian MP. Emergency contraceptive pills: Southeast Asia regional training manual. New Delhi: The US Agency for International Development (USAID); 2005.
6. Family Planning 2020. Myanmar FP2020 core indicator summary sheet. Washington, DC: Family Planning 2020 United Nations Foundation; 2015.
7. Bearak J, Popinchalk A, Alkema L, Sedgh G. Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *Lancet Glob Health.* 2018; 6(4): 380-89.
8. World Health Organization [WHO]. Unwanted pregnancies and the need to increase access to modern contraceptives. Geneva: WHO; 2017.
9. World Health Organization [WHO]. Preventing unsafe abortion: fact sheet. Geneva: WHO; 2017.
10. Association of Reproductive Health Professionals. The facts about emergency contraception. Washington, DC: Association of Reproductive Health Professionals; 2011.
11. Shiferaw BZ, Gashaw BT, Tesso FY. Factors associated with utilization of emergency contraception among female students in Mizan-Tepi University, South West Ethiopia women's health. *BMC Res Notes.* 2015; 8(1): 817.

12. Palermo T, Bleck J, Westley E. Knowledge and use of emergency contraception: a multicountry analysis. *Int Perspect Sex Reprod Health*. 2014 Jun; 40(2): 79-86.
13. Myanmar Department of Population and the United Nations Population Fund [UNFPA]. Country report on 2007 fertility and reproductive health survey. Nay Pyi Taw: UNFPA; 2009.
14. Rocca CH, Shankar M, Sreevathsa A, Krishnan S. Acceptability and use of emergency contraception among married women in Bangalore, India. *Int J Gynaecol Obstet*. 2013 Apr; 121(1): 64-8.
15. Rocca CH, Schwarz EB, Stewart FH, Darney PD, Raine TR, Harper CC. Beyond access: acceptability, use and nonuse of emergency contraception among young women. *Am J Obstet Gynecol*. 2007 Jan; 196(1): 29.e1-6; discussion 90.e1-5.
16. Amalba A, Mogre V, Appiah MN, Mumuni WA. Awareness, use and associated factors of emergency contraceptive pills among women of reproductive age (15–49 years) in Tamale, Ghana. *BMC Womens Health*. 2014; 22(14): 114.
17. Wan RSF, Lo SST. Are women ready for more liberal delivery of emergency contraceptive pills? *Contraception*. 2005 Jun; 71(6): 432-7.
18. Myanmar Department of Population and United Nations Population Fund [UNFPA]. The 2014 Myanmar population and housing census: thematic report on maternal mortality: census report volume 4-C. Nay Pyi Taw: UNFPA; 2016.
19. Myanmar Department of Population and United Nations Population Fund [UNFPA]. The 2014 Myanmar population and housing census: Ayeyawady region: census report volume 3 – N. Nay Pyi Taw: UNFPA; 2015.
20. Likert R. A technique for the measurement of attitudes. New York, NY: New York University; 1932 [cited 2017 Dec 23]. Available from: [https://legacy.voteview.com/pdf/Likert\\_1932.pdf](https://legacy.voteview.com/pdf/Likert_1932.pdf)
21. Myanmar Ministry of Health, Department of Health. Five-year strategic plan for reproductive health (2014-2018). Nay Pyi Taw: Department of Health; 2014.
22. Intra T. Knowledge and attitude toward use of emergency contraceptive pills among vocational students. Bangkok: Mahidol University; 2004.
23. Diaz S, Hardy E, Alvarado G, Ezcurra E. Acceptability of emergency contraception in Brazil, Chile, and Mexico. 2 – facilitating factors versus obstacles. *Cad Saude Publica*. 2003 Nov-Dec; 19(6): 1729-37.
24. Manortey S, Duah WT, Baiden F. Factors associated with the use of emergency contraceptive pills among students of the Takoradi Polytechnic in Ghana. *J Scientific Research and Reports*. 2016; 12(3): 1-10.
25. Kavanaugh ML, Schwarz EB. Counseling about and use of emergency contraception in the United States. *Perspect Sex Reprod Health*. 2008 Jun; 40(2): 81-6.

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