

Evaluation of Knowledge, Attitude and Practice of Community Pharmacists in Oral Contraceptives, Counseling and Dispensing in Tehran, Iran

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Abstract

Background: Unwanted pregnancy leads to economical and health burden on females and societies. To avoid this, different methods of contraception have been developed. Oral contraceptives as a method, due to less cost and least failure, have found its way through consumers. Important aspect of this method is proper consumption to minimize risk of pregnancy. Pharmacists play role in improving knowledge and compliance of consumers. **Method:** The study was online cross sectional, conducted over Tehran province in Iran. Questionnaire distributed by online over community pharmacists. Sample was found to be 71 (confidence interval 90% and margin error of 10%). Chi Square test and Correlation-Regression were used for analysis of data. **Results:** While most of respondents were female with less than 5 years experiences, there were found to have poor knowledge in dispensing and counseling about oral contraceptives. Approximately 69% of respondents had good practice. No significant association (p -value < 0.05) was obtained between the dispensing practice of respondents and their knowledge level. Knowledge and practice towards oral contraceptives were higher among the female respondents. **Conclusion:** Poor knowledge, good attitude and good practice of community pharmacists regarding dispensing and counseling of OCPs were observed.

Keywords: Oral Contraceptive, Community Pharmacy, Pharm-D, Tehran, Pregnancy.

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INTRODUCTION

It may seem questionable while finding about 200 million female over the world not using any contraception methods. [1] This avoidance increases the risk of unintended pregnancy. Unintended pregnancy which rates about 50% in USA [2] and 26% in Iran [3] has different consequences from economical burden, health issues, abortion and even death. The reasons for this unprotected coitus can be named as accessibility to pills and mechanical barriers, cost, [4] fear of side effects and lack of knowledge. Globally, it is estimated that 22% of such unintended pregnancies are terminated with unsafe techniques, and 18% end up in unplanned births thus imposing an economic burden on the health system. [5] Oral contraceptives as a trustable method of contraception have become popular however it needs special instruction which necessitates customers notified of it. In this between, community pharmacists as frontiers of health system play prominent role in dissemination of information and providing counseling to consumers about oral contraceptives. Community Pharmacy Practitioners (CPPs) for doing their job well need good knowledge, attitude and practice (KAP). Here we aimed to assess KAP

of CPPs in Tehran, about oral contraceptives dispensing and counseling.

METHOD

2.1. Study design, setting and population

An online cross sectional study was conducted at community pharmacists who were working in Tehran province, Iran. Study population comprised of community pharmacists registered by Iran FDA. *Inclusion criteria in this research were registered community pharmacists who located in Tehran province, Iran.*

2.2. Sample size and sampling method

Sample size was calculated by Rao software with the assumption of 90% confidence interval, 10% margin of error. The final sample size was found to be 70 participants. Sampling method used in the study was simple random sampling. A link of questionnaire has been sent to some random WhatsApp numbers belonging to pharmacists. The list and numbers obtained from official resources.

2.3. Study questionnaire

The study was online cross sectional, used questionnaire. Questionnaire was developed by review literatures [1], [8], [13], [19] and doing some modifications. Questions designed in Google form and then information was analyzed. Questionnaire has 4 sections for collecting demographic information of CPPs, assessing knowledge, attitude and practice.

To assess the practice and knowledge of the respondents on OCPs, correct and incorrect answer to questions scored as ‘1’ and ‘0’ respectively. The cumulative and mean scores were calculated. Respondents who scored above, equal the mean were defined as having “good practice” and “good knowledge”, and those who scored below and equal the mean score were defined as having “poor practice” and “poor knowledge”.

The attitude of respondents was calculated with the help of a Likert scale ranging from; ‘Strongly agree,’ i.e. ‘5’ to ‘Strongly disagree’ i.e. ‘1’. According to the cumulative score, the respondents who marked below the mean were defined as having a “positive attitude” and others who marked above and equal the mean score were defined as having a “negative attitude”.

2.4. Data collection

Community pharmacists were approached by the pharmacist through online mode and the objectives of the study was explained. The final data collection tool (obtained after the

pilot study) distributed to community pharmacists working at different community pharmacies at Tehran. A Google form was created to collect and the link for the Google form was then circulated to study sample through what’s app group. To assess the dispensing practice and knowledge of the respondents on contraceptives, selected variables were used and defined. Data processing and analysis have been done by using Microsoft Excel.

2.5. Statistical analysis

Data was analyzed by Chi-Square test, Fisher Exact test, and Regression-Coefficient through Microsoft Excel.

RESULTS AND DISCUSSION

Table 1 demonstrates the socio-demographic data of the CPPs. A total of 71 CPPs participated in the study. Majority of the respondents were of the age grouping between 20 to 30 (67.6%). Among the total respondents, 67.6% were female, and most of them had a Doctor of Pharmacy (Pharm-D) degree. The highest number of respondents had a work experience of fewer than 5 years (69%).

3.1. Finding about knowledge

Table 2 outlines the knowledge of CPPs. By analyzing of data, it was found 50.7% of respondents had poor knowledge and 49.2% had good knowledge. Only one female respondent with PhD qualification scored 100%.

Table 1- Socio demographic characteristics of the respondents

CHARACTER	FREQUENCY	PERCENTAGE
Age groups in years		
20-30	48	67.6
31-40	16	22.5
41-50	2	2.8
51-60	5	7
Gender		
Male	23	32.4
Female	48	67.6
Job Experience in years		
Less than 5 years	49	69
5-10	13	18.3
11-15	3	4.2
16-20	3	4.2
Above 20	3	4.2
Position		
Chief pharmacist	57	80.3
Assistant pharmacist	9	12.7
Trainee pharmacist	2	2.8
Other	3	4.2
Approximate number of customers for contraceptive pills per day		
0-10	49	69
11-20	12	16.9
21-30	7	9.8
More than 30	3	4.2
Approximate number of customers for contraceptive pills per day with prescription		
0-10	66	93
11-20	4	5.6
More than 21	1	1.4

Table 2-Percentage distribution of respondents by their knowledge of OCP

Parameters	Response	Percentage%
1- Do you think this counselling “Start oral contraceptive pills from 5th day of period and take 1 each day, 1 week gap, start a new pack” is :	Correct	64.8
	Incorrect	34.2
2- If user forgets to take ≥ 1 : mono-phasic oral contraceptive pills, she should take	1 tablet	25
	2 tablets	50
	More than 2 tablets	3.9
	No response	21.1
3- If user forgets to take ≥ 1 : tri-phasic oral contraceptive pills, she should take 2 tablets, if less than 12 h	Correct	52.6
	Incorrect	47.4
	No response	
4- Oral contraceptive pills should make periods less painful	Correct	56.6
	Incorrect	43.4
5- If taking oral contraceptive pills lead to acne in customer, following counselling “ continue tablet use and no need to visit doctor” is;	Correct	22.4
	Incorrect	77.6
6- “Use of oral contraceptive pills with certain other medications causes problems.”	Correct	96.1
	Incorrect	3.9
7- If user does not have period after end of pack: “start next pack on time and visit a doctor”	Correct	40.8
	Incorrect	59.2
8- If user feels pain in thigh or calf after taking contraceptive pills: “visit a Doctor”	Correct	96.1
	Incorrect	3.9
9- If user feels severe headache after taking contraceptive pills: “take a pain killer and visit a doctor”	Correct	14.5
	Incorrect	85.5
10- If user gets break-through bleeding after taking contraceptive pills: “continue oral contraceptive pills and visit a doctor”	Correct	46.1
	Incorrect	53.9
11- If user feels breast tenderness: “continue oral contraceptive pills and visit a doctor”	Correct	34.2
	Incorrect	65.8
12- If user has nausea/vomiting: “take oral contraceptive pills with food/with antiemetic/another time”	Correct	94.7
	Incorrect	5.3
13- Oral contraceptive pills user’s weight stays constant over time	Correct	28.9
	Incorrect	71.1
14- Users’ chances of having children is unaffected by oral contraceptive pills use	Correct	50
	Incorrect	50
15- Oral contraceptive pills use causes dry mouth	Correct	55.3
	Incorrect	44.7
16- Smoking increases oral contraceptive pills risks	Correct	98.7
	Incorrect	1.3
17- Oral contraceptive pills decrease breast cancer and ovarian cancer risks	Correct	34.2
	Incorrect	65.8
18- Oral contraceptive pills increase endocervical cancer risk	Correct	56.6
	Incorrect	43.4
19- Do you know about dose of different oral contraceptives?	Yes, completely	47.2
	Somehow	51.3
	No	1.5

It was found 46% of male and 51% of female respondents had good knowledge. By percentage, higher percentage of female had good knowledge than male (Table 3).

Table 3: Summary of knowledge, attitude and practice distribution toward OCPs

Sl. No	Parameter	Total number of participants(n=71)	Percentage%
1	Good Knowledge	35	49.2
2	Poor Knowledge	36	50.7
3	Poor Attitude	0	0
4	Good Attitude	71	100
5	Poor Practice	22	31
6	Good Practice	49	69

3.1.1. Association between demographic information and knowledge

Association between demographic information and knowledge calculated by statistical test and presented in table 4. For association between demographic information and knowledge, chi square test has been used. Null hypothesis assumed there is no effect by demographic info on knowledge. In all parameters, p value is far greater than 0.05 which means significant difference was not observed so null hypothesis can't be rejected.

Table 4: Association between demographic information and knowledge toward OCPs

Sl. No	Variable		Good Knowledge	Poor knowledge	Chi Square	P Value
1	Gender	Male	10	12	0.19	0.66
		Female	25	24		
2	Job Experience	Less than 5 years	21	27	4.69	0.32
		5 – 10 years	8	6		
		11 – 15 years	3	0		
		16 – 20 years	2	1		
		Above 20	1	2		
3	Job Position	Chief pharmacist	27	30	0.54	0.76
		Assistant Pharmacists	6	4		
		Trainee Pharmacist	2	2		

3.2. Finding about attitude

Table 5 listed attitude of CPPs toward dispensing and counselling of OCPs.

Table 5: Percentage distribution of respondents by their attitude of OCP

Parameters	Response	Percentage
Do you think use of oral contraceptives is ethical?	Strongly agree	51.3
	Agree	32.9
	Neutral	14.5
	Disagree	1.3
	Strongly Disagree	-
Do you think teenagers and youngsters can take responsibility for use of oral contraceptives?	Strongly agree	23.7
	Agree	44.7
	Neutral	14.5
	Disagree	15.8
	Strongly Disagree	1.3
Do you think all sexual active men and women should be aware of use of oral contraceptives?	Strongly agree	72.4
	Agree	25
	Neutral	1.3
	Disagree	1.3
	Strongly Disagree	-
Do you think oral contraceptives should be as well known as condoms?	Strongly agree	67.1
	Agree	19.7
	Neutral	5.3
	Disagree	7.9
	Strongly Disagree	-
Do you think use of oral contraceptives increases women control of reproduction?	Strongly agree	36.8
	Agree	34.2
	Neutral	17.1
	Disagree	9.2

	Strongly Disagree	2.6
Do you think information of oral contraceptives should be included in sex education in school?	Strongly agree	55.3
	Agree	27.6
	Neutral	9.2
	Disagree	7.9
	Strongly Disagree	-
Do you think oral contraceptives should be sold only to women?	Strongly agree	3.9
	Agree	6.6
	Neutral	6.6
	Disagree	39.5
	Strongly Disagree	43.4
Do you think oral contraceptives should be sold only to those over 18 years?	Strongly agree	21.1
	Agree	21.1
	Neutral	6.6
	Disagree	35.5
	Strongly Disagree	15.8
Do you think men less willing to use condom when they know about oral contraceptives?	Strongly agree	23.7
	Agree	52.6
	Neutral	10.5
	Disagree	11.8
	Strongly Disagree	1.3
Do you think increased the knowledge of oral contraceptives result in more unsafe sex?	Strongly agree	19.7
	Agree	48.7
	Neutral	15.8
	Disagree	15.8
	Strongly Disagree	-
Do you think counselling is an important role of dispensers before dispensing oral contraceptive pills	Strongly agree	55.3
	Agree	42.1
	Neutral	1.3
	Disagree	1.3
	Strongly Disagree	-

Table 3 shows the attitude of respondents towards OCPs. Majority of the respondents had a positive attitude towards OCP (100%). 16 of pharmacists scored more than 4, while ten pharmacists were from Tehran city. There was not found any association between area of pharmacies and attitude.

3.3. Finding about practice

Table 6 shows the practice of respondents towards dispensing OCPs. Majority of the respondents had a good practice in dispensing of OCP (69%). (Table 3)

Table 6 Percentage distribution of respondents by their practice of OCP

Practice	Response	Percentage%
Have you ever dispensed Contraceptive Pill (CP)?	Yes	88.2
	No	11.8
Who are the most frequent clients?	Teenagers	4
	Adult women	89.4
	Adult men	6.6
Most often the products are sold on?	Patient Request	84.2
	Patient approaches with prescription	14.5
	On your recommendations	1.3
Which source of information do you commonly use for contraceptives?	Medical Representative	10.5
	Text Book	67.1
	Training	1.3
	Internet	21.1
Based on your practice, do you feel oral contraceptive pills should be categorized under over the counter drug?	Yes	86.8
	No	13.2
When have you received your last formal training /education on dispensing of	>1 year back	35.5

oral contraceptive pills?	< 1 year back Not received	18.5 46
Do you counsel customers on oral contraceptive pills while dispensing?	Yes No	96 4
If not, what are the reasons for not giving counselling to customers toward oral contraceptive pills?	-Lack of interest in customer -Lack of time -Lack of knowledge -Not instructed by regulations, authority -Others	72 17 - - 11
Do you counsel on the mechanism of action of oral contraceptive pills?	Yes No	31.6 68.4
Do you counsel the time at which oral contraceptive pills should be taken?	Yes No	86.8 13.2
Do you counsel on the side effects of oral contraceptive pills?	Yes No	78.9 21.1
Do you encourage customers to take contraceptives?	Yes No	31.6 68.4
If no, reason for not encouraging contraceptives?	-Side effects -Since it may increase chance of pregnancy -Government regulation on favour of increase birth rate -Lack of knowledge for providing further consolation - I do encourage Others	47% 1.3% - 2.6% - 1.3% - 26.1% 21.7%

3.3.1. Association between demographic information and practice

For association between demographic information and practice, chi square test has been used. (Table7). Null hypothesis assumed there is no effect by demographic info on practice. In all parameters, p value is far greater than 0.05 which means significant difference was not observed so null hypothesis can't be rejected.

Table 7: Association between demographic information and practice toward OCPs

Sl. No	Variable	Good Knowledge	Poor knowledge	Chi Square	P Value
1	Gender	Male	13	1.46	0.22
		Female	36		
2	Job Experience	Less than 5 years	32	4.64	0.32
		5 – 10 years	10		
		11 – 15 years	3		
		16 – 20 years	3		
		Above 20	1		
3	Job Position	Chief pharmacist	40	0.72	0.70
		Assistant Pharmacists	7		
		Trainee Pharmacist	2		

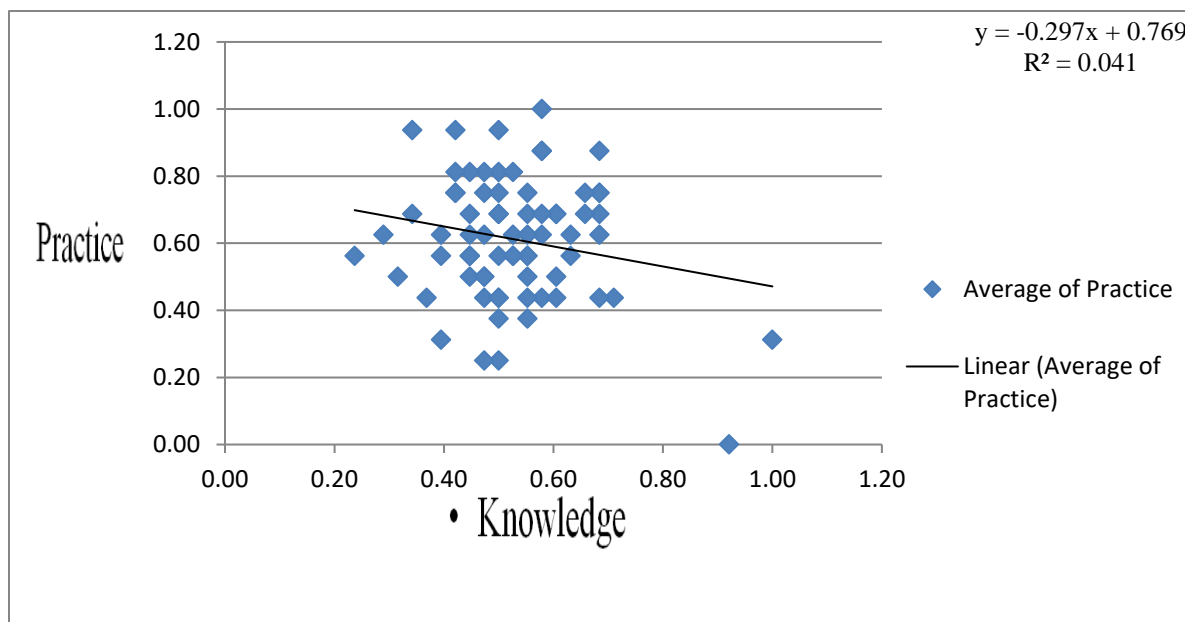
3.3.2. Association between level of practice and knowledge

Based on Chi Square test, p value is far greater than 0.05 so no significant differences were found (Table 8). It means there was no association between knowledge and practice level. Meanwhile by applying regression correlation test a mild relation and association can be found.

Table 8: Association between level of practice and knowledge toward OCPs

Sl.No	Level of Knowledge	Level of Practice		Chi square	P value	Fisher Exact Test
		Poor Practice	Good Practice			
1	Poor knowledge	12	24	0.029	0.86	0.69
2	Good knowledge	10	25			

By analysis through Microsoft Excel, r or correlation coefficient between knowledge and practice was found to be -0.0202. Correlation coefficient, “r” measures the closeness of association of the points in a scatter plot to a linear regression line based. It was observed there is a mild reverse (negative) relation between knowledge and practice. (Graph 1).



Graph 1: Correlation between practice and knowledge toward OCPs

3.4. Discussion

In this research, most of the respondents were female unlike studies which were conducted in Nepal [8] and Ethiopia. [19]

3.4.1. Demographic information discussion

Based on analysis of data, majority of the respondents were of the age group between 20-30 years (67.6%), female (67.6%) and most of them held Doctor of Pharmacy (Pharm-D) degree with a work experience of fewer than 5 years (69%). In Nepal study, [8] about 49% of respondents had experience of less than 5 years which is similar to our study report. In contrast at Ethiopia, [19] most of participants had more than 5 years job practice. Almost 75% of the respondents were chief pharmacist.

3.4.2. Discussion about knowledge findings

By analyzing of data, it was found approximately 50% of respondents had poor knowledge and 49.2% had good knowledge. The result was lower than the research conducted in Mexico [7] and Nepal. [8] In Nepal study, about 65% of respondents were found to have good knowledge. [8]

Among respondents, 49.3% thought if user forgets to take ≥ 1 : mono-phased oral contraceptive pills, she should take 2 tablets. About 24.6% correctly believed 1 tablet and 21.7% didn't have any idea and 4.3% recommended more than 2 tablets should be given. Based on guideline published by CDC, [9] in this situation, customer must take the most recent missed pill as soon as possible (any other missed pills should be discarded). Here obvious lack of knowledge observed.

Of respondents, 58% were agree with role of contraceptive pills in making periods less painful while 42% believed OCDs don't have any role in pain relief during female menstruation. According to a literature review published by Cochrane Library, birth control pills are thought to reduce cramping and pain in menstrual period. [10]

Among respondents, 78.3% wrongly thought if OCDs lead to acne, customers need to report physicians and stop taking pills. Of them, 21.7% were on favor to the statement. So needs to continue the OCDs. Lack of knowledge was observed since acne is a normal side effect of OCDs which no needs to stop drug regimen. Apart from this point, some study resulted in benefit of combined OCD in treatment of acne. [11]

46.4% of subjects thought if user gets break-through bleeding after taking contraceptive pills "She should continue oral contraceptive pills and no need to visit a doctor" while 53.6% were against above statement. Based on a review, the most common adverse effect of combined oral contraceptive pills is break through bleeding, [12] so in this case need to continue tablet and visit physician.

63.8% of respondents wrongly believed "If user feels breast tenderness: continue oral contraceptive pills and visit a doctor" is incorrect while only 36.2% found it correct. In Tabriz study, [13] of the pharmacists 48.0% correctly believed that breast tenderness did not need a physician visit or discontinuation. Based on Micromedex [14] database, breast tenderness accounts for 8.2% of OCPs consumers.

Based on the findings, 69.6% of respondents believed OCDs users' weight stays constant and 30.4% didn't agree with above statement. Based on a study, the researchers concluded that it seems very unlikely that hormonal

contraceptives cause major weight gain. But this doesn't mean there is no chance of individual women for gaining weight. About 15% of both groups believed it did not cause any weight changes. [15]

Approximately 52.2% of respondents agreed with users' chances of having children are unaffected by oral contraceptive pills use while 47.8% disagreed. Tabriz [13] study concluded, about 60.7% of pharmacists believed that OCP use did not have an effect on a woman's future child-bearing. In a systematic literature research, it was concluded that fertility following stop of contraception was not affected by use of these drugs. [16]

Around 36.2% of respondents agreed with OCPs decrease breast cancer and ovarian cancer risk. According to Tabriz [13] study, 30% of pharmacists correctly knew OCPs can reduce ovarian cancer risk. A new study revealed women who had used OCPs had slight increases (7%) in relative risk of breast cancer. [17]

3.4.3. Discussion about attitude of pharmacists toward OCPs

Attitude of respondents toward dispensing and counseling of OCPs was studied by 11 questions. Majority of the respondents had a positive attitude towards OCP (100%). In Nepal [8] study, about 94% of respondents were found to have good attitude. Sixteen of pharmacists scored more than 4, while 10 were from Tehran city. For more scrutiny in findings, respondents divided in 2 groups. Those were working in Tehran and those around Tehran. This classification was supposed to identify whether location affected on attitude since in Tehran due to more income and higher life style model, may tendency toward contraceptives has been affected. In a study conducted in Canada, it was found lower household income was associated with less use of oral contraceptives. [18]

To identify determinant variables associated with area of location and attitudes, $p \leq 0.05$ was considered statistically significant. By applying Chi square statistical test, there was not found any association between area of pharmacies and attitude ($p > 0.05$)

In our sample, 56.5% of respondents were strongly agree about use of OCPs is ethical. In Ethiopia study, [19] the majority (65%) of the study participants agreed that use of emergency contraceptives is ethical.

44.9% of respondents were agree about teenagers and youngsters can take responsibility for use of oral contraceptives while 26.1% of respondents were strongly agree with that statement. Similar result was showed in findings of Apikoglu- Rabus *et al.*, [20] where 52% of the pharmacists believed that teenagers are fully capable of taking responsibility for ECP use. In contrast in Nepal [8], 45.5% of pharmacists disagreed with easy access of teenagers to OCPs which means they believed this population can't take responsibility of use of OCPs. In

research conducted in South Africa in which a significant number of pharmacists doubt their appropriateness for women younger than 18 years of age. It seems major factor for this difference was culture of respondents. [21]

68.1% of respondents strongly agreed and 17.4% of respondents agreed with oral contraceptives should be as well known as condoms. In Ethiopia study, [19] respondents with lower percentage (11.7% strongly agreed and 36.7% agreed) supported our findings.

37.7% of respondents strongly agreed with use of oral contraceptives increases women control of reproduction. 34.8% agreed with statement. It is important to know about 3% of women who are taking OCPs may became pregnant. Even this failure is on account of improper use of these drugs. [22]

56.5% of respondents strongly agreed information of oral contraceptives should be included in sex education in school. Same result was observed in Ethiopian pharmacists. [23] A research which conducted in US revealed interesting result about sex education and contraceptive methods. Study showed that at first intercourse, those who had sex education were more likely to have used any and very effective contraception. [24]

3.4.4. Discussion about practice of pharmacists toward OCPs

Majority of the respondents had a good practice in dispensing of OCP (69%). In Nepal study, [8] about 74% of respondents were found to have good practice. About 88% of respondents had dispensed OCPs in their job experience. Similar result was observed in Nigeria study. [25]

Text books and internet were major sources of information for referring by pharmacists by 68.4% and 18.6% respectively. Based on a study conducted in Nigeria, [25] most frequently consulted literature sources among the study participants were the reference books and internet. Drug information most frequently required from community and hospital pharmacists were cost of drugs and drug dosage respectively. [26]

About 88.6% of pharmacists in our research believed oral contraceptive pills should be categorized under over the counter drug. In contrast, less number of pharmacists in Nepal [8] (30%) and Jamaica (50%) [27] felt the same. Our result was supported by studies [28] which compared female who obtained OCPs as over the counter in Mexico. Based on result, OTC users had higher OCPs continuation rates over 9 months of follow-up. [28] This can be assumed as benefit of categorizing OCPs as non prescription drugs.

47% of respondents have not received any training course for oral contraceptives while in Nepal [8] study same result concluded by 68% of pharmacists. A study conducted and revealed interesting result. According to finding of that, the training program significantly improved the asthma knowledge score of pharmacists. [29] This result can be

extrapolated to OCPs.

In our study, 97.1% of respondents counsel customers on oral contraceptive pills while dispensing. In those who were not counseling, lack of interest in customers and lack of time were major reasons by 77% and 18% respectively.

About 70% of pharmacists in this study, do not encouraging customers for taking OCPs. 62% mentioned due to side effects and 32% due to lack of their knowledge about possible question by females, wont recommend customers to take contraceptives.

From respondents, 78% are giving counsel about side effect of OCD while in Hungary study, this rate was found to be 57%. [30] The reason for this result may be due to the differences in educational levels. 70% of pharmacists were not giving any point about mechanism of drugs. It seems not necessary but can improve customer compliance. In Nepal [8] and Hungary [30] researches about 54% of CPPs were not giving any consolation about mechanism of action of tablets which seems necessary for customers to get familiar for making decision about their health.

As limitation, Covid-19 has made lots of difficulties for conduction of this research. Difficulties in contact with pharmacists due to lockdown, high work load of pharmacists, and risk of infection were some of them.

Low sample size was another significant limitation. Reluctance of most of community pharmacists due to fear of being judged and busy schedule were some reasons.

CONCLUSION

A total of 71 CPPs participated in current study. Majority of the respondents were of the age group between 20 to 30 year (66.7%), female (68.1%), and most of them had a Doctor of Pharmacy (Pharm-D) degree. Based on result and analysis about 49% of participants had good knowledge, all of them had good attitude and majority (69%) had good practice regarding dispensing and counseling of OCPs. Also moderate reverse relation between knowledge and practice was reported.

To improve society health and meet goal of research, it is recommended to conduction of workshops about methods of counseling and latest related information. Finally, official policy of Iran government to discourage contraceptives should be considered.

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