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An Evaluation of Pharmacist's Knowledge Concerning the Use of Oral Contraceptive Pills in Hamadan Pharmacies

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A B S T R A C T

Pharmacists as an available member of the health care system have an important role in transmitting accurate and complete information to consumers about contraception methods. The aim of the present study has been to evaluate pharmacist's knowledge with regard to the use of oral contraceptive pills (OCPs) based on the patient's conditions in Hamadan pharmacies in 2016. This analytical-descriptive study was performed on 96 pharmacists working at Hamadan pharmacies. The data collection was done using a questionnaire. The questionnaire consisted of 59 items including 5 items on the demographic data of pharmacists and 54 items on evaluating the pharmacists' knowledge of using OCPs in accordance with the patient's condition. The validity and reliability of the questionnaires were investigated in 52 subjects prior to the current study (Cronbach's α = 0.993). The mean age of the pharmacists was 38.81 (SD ±10.70) years and 50% of them were male. The average of the total knowledge score was 75.94% (SD±11.31). The total knowledge score showed a significant negative correlation with age, years of work experience and the time since graduation. Also, the total knowledge score was higher in female and pharmacists working in governmental pharmacies as compared with male and pharmacists working in private pharmacies. While the level of pharmacists' knowledge about oral contraceptives was fair, the knowledge of the older pharmacists was significantly lower than young pharmacists. So, further educational interventions were required for older pharmacists particularly males.

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Introduction

Nowadays, uncontrolled population growth is one of the most important problems in most countries of the world, especially developing countries, which is actually a serious threat to the global community [1]. In Iran, the current population growth rate is 1.2%, and population growth has proved to be a major concern for the country's authorities [1, 2]. The unwanted pregnancy is one of the most causes of the population growth [3]. Approximately, 200 million pregnancies are occurring annually around the world, about one third of which is unwanted [4]. In Iran, the incidence rate of unplanned pregnancy among pregnant women is very high [2]. Unwanted pregnancies affect the health of the mother in two ways: first, a large number of pregnancies known as a threat to maternal health; second, in countries where there is no access to safe abortion services, a large number of the unwanted pregnancies end up in unsafe ways, which can lead to maternal disability and death [5]. On the other hand, several adverse effects have been reported in the previous studies such as premature or low birth weight, infant death, child neglect and abuse(s) by the parents following the unwanted pregnancy [5]. According to the World Health Organization (WHO), the effective implementation of family planning services is the key to success in solving all of such problems. Developing and implementing family planning is the most effective, cheapest and easiest way to improve people's lives. Family planning services can save half of the 500,000 women who die each year due to complications of pregnancy and childbirth. The family planning methods are different. In general, they can be classified into six general categories: 1-Hormone, 2-Uterine, 3-Barrier methods, 4-Chemical, 5-Physiological, 6-Sterilization [1]. Oral contraceptive pills (OCPs) which have been used since 1960 are now used by 100 million women [6, 7]. The mechanism of action of OCPs includes total ovulation inhibition, endometrial changes, mucosal quality changes, cervical changes and possibly tubular fixation [8]. Oral contraceptive pills have many advantages such as reducing dysmenorrhea, regulating menstrual periods, reducing bleeding and preventing anemia, reducing the symptoms of premenstrual syndrome (PMS), increasing bone density, protecting against benign breast diseases and ovarian cancer [9]. Some side effects have been reported for the oral contraceptive methods, including weight gain, depression, mood changes, and decreased libido [10]. Some drugs such as rifampin can change the bacterial intestinal flora, which may metabolize or absorb oral contraceptive pills [11]. Contraindications of oral contraceptives include: migraine headaches, high blood pressure, uterine myoma, gestational diabetes mellitus, diabetes mellitus, elective surgery, epilepsy, obstructive jaundice, pregnancy, sickle cell anemia, bile duct disease, thromboembolic problems, woman smoker over age 35, concomitant liver diseases, concomitant psychosis, breastfeeding, heart valve diseases, familial hyperlipidaemia, estragon-dependent malignancy, and obesity [12-14]. Many studies have reported that the lack of awareness, inaccessibility and fear of side effects among consumers are the major causes of unwanted pregnancy [15]. Therefore, health care authorities and specially pharmacists must provide customers with enough information on the correct use of oral contraceptive pills based on patient's conditions and the side effect they might have for consumers [16, 17]. Since pharmacists who work in the pharmacy are the most accessible members of the health care system, they could provide consumers with appropriate advice and information regarding the prevention methods of unwanted pregnancy. As a few studies have evaluated the knowledge and attitudes of pharmacists toward the use of oral contraceptive pills, therefore, our goal was to investigate the knowledge of pharmacists working in pharmacies in the Hamadan city toward the proper use of combined oral contraceptives (OCPs) based on patient's conditions.

Materials and methods

This research is a descriptive-analytic study, which was conducted on 96 pharmacists working in the pharmacies of Hamadan and its suburbs. This cross-sectional study was performed from the beginning of September 2016 to the end of

March 2017. Selection of the samples in this study was conducted based on random clustering. To this aim, the city of Hamadan and its suburbs were divided into different regions, and accordingly several pharmacies were selected from each region. In this study, a questionnaire was used. The questions were based on the guidelines and recommendations of the WHO organization on the correct use of OCPs pills. These guidelines are very comprehensive in terms of the proper use of OCPs based on patient's conditions [18, 19]. Data collected by this questionnaire included demographic information of pharmacists, including age (year), gender, the time since graduation (year), years of work experience in the pharmacy (year) and type of pharmacy (private, governmental). The questionnaire consisted of 54 questions, 2 options, 3 options and 4 options, and each question had only one correct option. One point was given to each correct answer, and no score was given to the unanswered and wrong answers. So, the total score varies between 0 and 54. This questionnaire included questions about the proper use of OCPs (8 questions; time of initiating OCPs and starting day in each cycle, number of days that OCPs should be used in each cycle, necessity for back-up methods, management of missed doses, effect of patients weight), side-effects of OCPs such as nausea and vomiting, weight gain, risk of infertility, spotting and breakthrough bleeding (4 questions), OCPs interactions with other medicines including antibiotics and anti-convulsants (3 questions), taking OCPs with regard to the background diseases including cardiovascular, neurologic, psychiatric, endocrine, genitourinary disorders and malignancies (30 questions), taking OCPs based on the demographic characteristics of the costumer (9 questions; age, body mass index, smoking, lactation, history of abortion and postpartum contraception). The validity of the questionnaire was confirmed by the faculty members of the faculty of pharmacy that is two clinical pharmacy specialists and two pharmacological specialists (PhD). To determine the reliability of the questionnaire before starting the study, 52 questionnaires were distributed to 52 pharmacists and filled by the related pharmacists. The reliability of the questionnaire was confirmed by Cronbach's alpha coefficient of 0.993. In the present study, after referring to the pharmacists under study, the researcher explained the purposes of the research and they were given the opportunity not to participate. The questionnaire took about an hour to complete by the participants. The score of each person was calculated as the percentage of the correct answers. Then, pharmacists knowledge was categorized into low (0-50%), Medium (51-75%) and high (76-100%) based on Jafarzadeh et al. study [1]. Finally, the data were analyzed using SPSS software (version 16) by descriptive methods (such as percentage, frequency, mean and standard deviation), independent t-test and ANOVA tests. The significance level in all tests was $P<0.05$.

Results

The mean age of the subjects was 38.81 ± 10.70, including 48 males (50%) and 48 female (50%). Of all participants, 59 of them (61.45%) were from private pharmacies and 37 of them (38.54%) were selected from governmental pharmacies. The average years of work experience in the pharmacy was 12.84 ± 9.10 years and the average time since graduation was 13.15 ± 9.69 years.

The average total score of pharmacist's knowledge toward the correct use of contraceptive pills was 75.94% (SD±11.31). Table 1 summarizes the general knowledge of pharmacists. According to the results, 64.58% of the participants had high knowledge level, 34.77% of the subjects had a moderate knowledge level and 1.04% had a low knowledge level.

Table 2 presents the average score of pharmacists' knowledge regarding different background conditions and diseases based on which the components of the questionnaire were evaluated. In most of conditions pharmacists' knowledge and correct answers were higher than 70% and the mean score of pharmacists' knowledge concerning the correct use of OCPs based on patients' background diseases was 71.14±52.76. The minimum score was determined in relation to the knowledge regarding the side-effects of OCPs (70.57±24.05).

Table 3 summarizes the general knowledge of pharmacists toward the correct use of OCPs based

on demographic and occupational information of pharmacists. This table shows that the score of the pharmacists' knowledge significantly reduced with the increasing age. Moreover, statistical analysis also showed that there was a negative (correlation=-0.627) and significant correlation (P-value = 0.001) between knowledge score and increasing age. Also, table 3 summarizes the overall knowledge of pharmacists based on years of their work experience. There was a significant difference in the knowledge among various groups of pharmacists (P-value = 0.001). The knowledge score reduced with increasing years of work experience varying from 1 to 30 years, while it increased with further increase in pharmacist's years of work experience varying from 31 to 40 years. However, analysis results showed that there was a negative (correlation = -0.616) and significant (P-value = 0.001) correlation between knowledge score and years of work experience. The difference in the score of pharmacist's knowledge in different groups according to time since graduation was also significant (P-value = 0.001). The knowledge score decreased with the increasing time since graduation from 1 to 30 years, but the score increased with a further increase in pharmacist's time since graduation from 31 to 40. The results of the analysis test showed that there was a negative (correlation = -0.546) and significant (P-value=0.001) correlation between the knowledge score and the years since graduation. According to the results, the knowledge score in female pharmacists was significantly higher than male pharmacists (P-value = 0.016). Also, the knowledge of pharmacists in governmental pharmacies was significantly higher than those worked in private pharmacies, and the difference in knowledge scores between the two groups was significant (P = 0.052).

Table 1. Frequency distribution of pharmacists under study in term of knowledge toward the correct use of OCPs

Knowledge level	Number	Percent
Low (0-50%)	1	1.04
Medium (51-75%)	33	34.37
High (76-100%)	62	64.58

Table 2. Average score of pharmacist's knowledge score (%) regarding different background diseases and conditions

	Score of knowledge			
Condition/ Disease	**Mean**	**SD**	**Min.**	**Max.**
Consumer demographic conditions	79.16	14.79	44.44	100.00
Cardiovascular diseases	74.71	17.35	0.00	100.00
Neurological diseases	76.87	25.51	0.00	100.00
Genitourinary diseases	77.39	18.70	0.00	100.00
Endocrine diseases	78.90	30.41	0.00	100.00
Drug interactions	76.73	27.83	0.00	100.00
Side effects	70.57	24.05	0.00	100.00
How to use medication properly	72.52	17.54	0.00	100.00

Table 3. Comparison of the scores of pharmacist's knowledge (%) with regard to the correct use of OCPs based on the demographic and occupational information

Variables	Score of knowledge		P value
	Mean	SD	
Age groups (yr)			0.001
20-30	83.60	5.42	
31-40	77.83	5.03	
41-50	71.75	9.34	
51-60	64.35	17.74	
Years of ork experience groups (yr)			0.001
0-10	80.89	5.82	
11-20	74.78	8.14	
21-30	58.59	15.38	
31-40	78.70	6.54	
Time since graduation groups (yr)			0.001
0-10	81.52	5.76	
11-20	75.92	7.48	
21-30	61.62	15.14	
31-40	79.16	5.92	
Gender			0.016
Female	78.70	12.43	
Male	73.18	9.41	
Pharmacy type			0.052
Governmental	78.77	7.80	
Private	74.16	12.79	

Discussion

In this study, the knowledge of pharmacists working in pharmacies in Hamadan and the suburbs with regard to the proper use of OCPs was investigated. The average score of general pharmacists' knowledge concerning the correct use of oral contraceptive pills was 75.94% (SD±11.31), which indicates an acceptable knowledge level. The knowledge of pharmacists varied between 70% and 80% with regard to different patient conditions and background diseases. Approximately, 64.58% of the subjects had a high knowledge level and 34.77% had a moderate level of knowledge and only 1% had a low knowledge level. There were limited studies that investigated pharmacist's knowledge toward preventive methods, such as OCPs. In the study by Nazari et al. 71% of pharmacists knew the emergency contraception methods using HD pills; while only 28% of them answered all questions correctly, and 50% of them were aware of its important side-effects (nausea and vomiting) [20]. The results of the study by Haripasard et al. showed that 33% of pharmacists had proper information with regard to the contraceptive prevention method using HD pills, its use and its important side-effects [21]. In Haripasard et al. and Bennett et al. studies, 22% and 46% of the subjects were aware of the main side effects of emergency contraception using HD pills, respectively [17, 21]. However, there was a difference in the method used between our study and previous related studies; the level of pharmacist's knowledge in our study seems to be higher than the mentioned studies. Many studies have been conducted to assess the knowledge of health center employees toward the contraceptive methods. In Jafarzadeh et al. [1] study, it was found that most of the health personnel had high and moderate knowledge toward the contraceptive methods (56% and 30%, respectively), which is consistent with the results of the present study. Sharifian-Attar et al. in their research showed that the majority of employees had moderate knowledge about contraceptive pills (83.3%) and only 13.2% of them had high knowledge level [22]. Eiladarabadi et al. in their research showed that

36.1% of health care workers had a low knowledge level, 55.6% had a moderate knowledge level and 8.3% had a high knowledge level toward the contraceptive methods in emergencies [23]. Jamali et al. reported that 35.3% of the health care worker had high knowledge, 38% had moderate knowledge and 26.7% had low knowledge about emergency contraception [4]. Mokhtari and Sedighi reported that the majority (62.8%) of the educators in the three educational levels had moderate awareness about contraceptive methods, and only 27% of them had high grades [24]. In most previous studies, health care workers had a high level of knowledge about contraceptive methods (albeit less than our study). Despite the difference in sampling and implementation methods, other related studies indicated that most of the health centers' staff (like pharmacists in the present study) had a high level of knowledge. It seems that in recent years, employing educated forces (with a bachelor's degree) in the health care centers can play a significant role in raising the level of awareness of this group of health workers. It should be noted that the role of mass media and responsible organizations of population control cannot be ignored in the term of informing and raising public awareness about family planning. It is obvious that the pharmacists have a special role in the community for providing clear medication information to patients' due to the public trust in this group, easy access and lack of any need to spend much time and pay consulting fees. The Knowledge of pharmacists toward the contraceptive methods should be maintained at a high level through adequate training of pharmaceutical students, improving the level of retraining courses and sending training brochures provided by drug dealers such as Food and Drug Deputies of Medical Universities. Our study showed that the pharmacists' knowledge about proper use of OCP decreased with increasing age, years of work experience and the time since graduation, and there was a negative relationship between the mentioned factors and knowledge. These results are consistent with the findings of Abbasi-Nazari et al. [20], Jamali et al. [4], Delbanco et al. [25], Sharifian-Attar et al. [22] and Elder Abadari et al. studies [23]. They reported that the level of knowledge toward the contraceptive methods decreased with increasing age and employment years. These results may be associated with various factors such as lack of any need for knowledge improvement or edification, satisfaction with the knowledge in possession, involvement in in economic affairs, public space governing the pharmaceutical market of the country, lack of interest in studying articles and scientific findings by the national and international institutions and research centers. The time since graduation in the younger pharmacists is lower than older, they could remember the most part of the scientific information, and in pharmacists with higher years of work experience study time, knowledge level, and scientific information decrease gradually. In the present study, decreasing the level of knowledge with increasing age may be due to the lack of sufficient accuracy in answering the questions in these groups of participants. Several studies reported that there was no relationship between age and knowledge about contraceptive methods such as Adekunle et al. and Jafarzadeh et al. studies [1], [26] and they have reported some potential motives for these results such as limited number of samples, difference in the social context and the research environment. In the present study, although there was a negative relationship between the years of work experience and the time since graduation and the knowledge level, in the group with years of work experience of 31-40 years and time since graduation of 31-40 years the knowledge level increased with increasing years of work experience and the time since graduation. This finding can be attributed to the limited number of participants in this group. There were only 2 subjects in the group with years of work experience of 31-40 years and 4 subjects in the group with time since graduation of 31-40 years. In the present study, there was a relationship between gender and knowledge level. Thus, the knowledge level in female pharmacists was significantly higher than that of male pharmacists, and this finding is consistent with the results of Abbasi-Nazari et al. [20], Amin et al. [27], Jamali et al. [4] and Golden et al. [28] studies. In this study, the higher level of knowledge in female pharmacists

may be attributed to the fact that most female pharmacists are more likely to be in contact than male pharmacists with regard to the questions about contraceptive methods. In a study by Bennett et al. it was found that female pharmacists have more detailed information in this regard than male pharmacists [17]. In contrast to the present study, Sills et al. study showed no correlation between gender and knowledge level of pharmacists about contraceptive methods [29]. In the present study, the knowledge of pharmacists working in governmental pharmacies with regard to the correct use of OCPs was more than those working in private pharmacies. To our knowledge, there are no studies that focus on pharmacist's knowledge regarding the private or governmental pharmacy. The high level of knowledge of pharmacists working in governmental pharmacies may be due to the oversight programs, retraining courses, seminars and briefings in these pharmacists.

Conclusion

Although, in our study the knowledge level of pharmacists with regard to the proper use of CCPs was acceptable, the level of knowledge was much lower in older pharmacists. In view of the important role of pharmacists in informing the general public, training programs should be implemented to update the information of older and especially male pharmacists and increase their incentive to study and learn about OCPs pills. Also, it is suggested that training brochures should be provided to maintain and improve the knowledge of pharmacists on the proper use of oral contraceptives.

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Conflict of Interests

Authors certify that there is no actual or potential conflict of interest in relation to this article.

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