



## The knowledge of pharmacists about cosmetics in pharmacies of Tehran, Iran

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### ABSTRACT

**Background:** Considering that the cosmetics today are not have used only for luxury purposes and have effective medicinal components, pharmacists require knowing about the components and ingredients of such products with a scientific level on different usages. As mentioned above, the main objective of this study is investigating the knowledge of pharmacists employed in the pharmacies of Tehran about cosmetics.

**Methods:** This study has been conducted by descriptive method using surveys. For completing the surveys, referring to the pharmacies, in personal, and delivering the forms to pharmacists, they were asked to complete it in the same time and they returned it to the surveyor.

**Results:** According to results, it can be seen that 57% of pharmacists generally answered correctly, i.e., the information of almost 43% of pharmacists for sunscreen cares seems not to be enough. Furthermore, the awareness of pharmacists about depilatories and their physicochemical properties and ingredients was weak (21.5%).

**Conclusion:** It was considered as the only significant relation between age of pharmacists and their knowledge such that by increase in their age, their knowledge to two products, sunscreen care, and depilatory was decreased. On the other side, in Iran, the role of pharmacists has not been defined in this field-necessity of providing cosmetics information.

**Keywords:** Knowledge; Pharmacist; Cosmetic

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### 1. Introduction

Cosmetics are one of the most thriving markets in the world trade with a daily expending variety, particularly in developing countries [1].

In the last 20 years, Global Beauty Market has grown by 4.5% a year on average (compound annual growth rate) with annual growth rates ranging from around 3% to 5.5%. Also known as cosmetics and toiletries or personal care products, this market has proven both its ability to achieve stable and continuous growth as well as its capacity for resilience in unfavorable economic conditions [2].

Considering that the cosmetics today are not have used only for luxury purposes and have effective medicinal components, pharmacists require knowing about the components and ingredients of such products with a scientific level on different usages [3-5].

In the view of Food and Drug Department of America (FDA), it is necessary to determine some provisions for supervision of cosmetics. Based on some properties such as ingredients, formulation, dosage, usage purpose, the claims of manufacturer, inserting the list of drug function on its label,...., FDA has classified a product as pharmaceutical or cosmetic and or cosmeceutical and if such products classified in the last

group, it has over-the-counter (OTC) state and is treated according to related regulations [6,7].

FDA must prove in a legal court that such product might come with damages for consumer or it has a false label. This is while; FDA has no supervision on the performance of companies in pre-marketing stage [8-10].

By the presence of various cosmetics in the markets of our country, increasingly incremented in size and variety, it is a requirement having a specialist authority, like a pharmacist, with proper knowledge and information about the component and formulation as well as side effects of the ingredients of such products to provide the consumers of such products with necessary information as required [11].

According to studies, in the USA, like other countries, despites having large supermarkets for selling such products, more than 45% of such products are being sold in the pharmacies, and this is the evidence indicating that pharmacy is the best place for selling as well as data sharing for products [12,13].

Pharmacists, therefore, require having considerable information about the ingredients of such products and how to combat with side effects caused by their abuse [14]. As mentioned above, the main objective of this study is

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investigating the knowledge of pharmacists employed in the pharmacies of Tehran, Iran, about cosmetics, particularly two of most widely consumed quasi-pharmaceutical products, i.e., sunscreen cares and depilatories as well as the relation between demographic properties, economic-social conditions and education of pharmacists and their knowledge and information about cosmetics.

## 2. Methods

This study has been conducted by descriptive method using surveys. For completing the surveys, referring to the pharmacies, in personal, and delivering the forms to pharmacists, they were asked to complete it in the same time and they returned it to the surveyor.

**Population and Samples:** The population included pharmacists who employed by pharmacies of Tehran. Considering the geographical distribution of such employed pharmacists in Tehran and dividing it into five given geographical areas, North, South, East, West and Center, there were sampled 200 pharmacists [15,16] who employed in pharmacies of Tehran.

**Tools:** The most important part of this study was preparing a valid, general and applied questionnaire. Along with, there was prepared a questionnaire comprising from two parts including demographic questions from pharmacists in addition to other information about their interest to this discussion as well as items containing the study of their knowledge (by Yes/No questions and Multiple-Choice Questions). The preliminary questionnaires were assessed in terms of face validity and reliability by pharmacists, and specialists in this field with experience of these questionnaires [17].

## 3. Findings

**Results from Studying the Knowledge of Pharmacists about Sunscreen Cares:** In this part, there were asked 11 questions and the rate of responses by pharmacists indicated in table 1.

**Table 1.** Results for studying the response rate of pharmacists to items related to sunscreen cares

Item	Correct answers	False answers	No answer	Correct answer%
1	111	69	20	55.5
2	127	73	0	63.5
3	103	93	4	51.5
4	135	46	19	67.5
5	170	18	12	85
6	110	81	0	55
7	157	30	13	78.5
8	102	74	12	51
9	45	94	61	22.5
10	135	61	4	67.5
11	58	72	70	29
Mean correct answer %				56.95

Table 2 indicates total scores obtained by pharmacists for sunscreen cares. According to results, it can be seen that 57%

**Table 2.** Scores obtained by pharmacists for sunscreen cares

Dependent variable	Number of pharmacists	Mean $\pm$ SD	Highest score	Lowest score
Knowledge	200	6.27 $\pm$ 2.03	11	1

SD: Standard deviation

of pharmacists generally answered correctly, i.e., the information of almost 43% of pharmacists for sunscreen cares seems not to be enough.

By a glance to the answers of pharmacists to items 1 and 3 for sunscreen cares and their formulation, it indicates that 53.25% of such pharmacists provided correct answer to such items, this means 46.75% seemed not having enough information of it. Awareness of pharmacists, subject of study, about materials with sunscreen traits - Item 2 - was about 63.5% and this indicates that they are properly aware from materials with sunscreen qualities.

The considerable point for answers of pharmacists was their average awareness from the actual concept of sun protection factor (SPF) - According to Item 6, about 55%; along with, it can be mentioned to their less knowledge for judgment about sunscreen products according to SPF definition, such that 29% of respondents were only familiar with maximum SPF permissible in the USA for inserting the sunscreens label.

Considering the questions, it can be inferred that their information about properly usage of sunscreen cares, their usages or not usages and/or proper type of them was 69.90%. Highest rate of correct answers to sunscreen cares items for their usage - Item 5 - was about 85%. Lowest rate of correct answer to sunscreen cares was 9 (22.5%). In this question, there was evaluated the awareness of pharmacists for their protection against sun in the patients with photosensitivity due to usages of medicines.

**Results from Studying the Knowledge of Pharmacists about Depilatories:** Another part of the questionnaire contained questions for studying the awareness of pharmacists about depilatories as its results indicated in table 3.

Similar to sunscreen cares, table 4 indicates the scores obtained by pharmacists about depilatories.

By a glance to results of questionnaires and mean answers to items (about 31%), it can be perceived that the responsiveness to related items was very undesirable with the awareness of pharmacists was very low. This is while, selected questions, after finalized, reduced to 4 items and most of them classified among fundamental questions for a pharmacist.

It is obvious that the awareness of pharmacists about depilatories, and their physicochemical properties and ingredients (Item 1) was weak (21.5%). It is clear that such weakness will seriously influence the action of pharmacist against side effects from abuse of such materials and disable him dealing with such materials such that it can be proved this claim by Item 2 (19.5% correct answer). Another considerable point is however the ignorance of pharmacists, subject of study for proper usage of depilatories and actions must be taken before using them.

Although new epilation methods including electrolysis and laser are among the field of dermatology and cosmetic, however, according to their responsibilities, pharmacists must relatively know about the generalities of such methods to recommend them to referees for instructions, and this is in discrepancy with their average knowledge as indicated in Item 3 (65%).

**Table 3.** Results for studying the answers of pharmacists to questions about depilatories

Item	Correct answers	False answers	No answer	Correct answer %
1	43	101	56	21.5
2	39	84	77	19.5
3	130	56	14	65
4	34	162	4	17
Mean correct answer %				30.75

**Studying the Relation between Knowledge of Pharmacists and Independent Variables:** Another part of this study was about studying the awareness of pharmacists, subject of study from independent variables including age, gender, graduation date, work experience in the pharmacy, type of pharmacy - in the urban or hospital-, type of ownership of the pharmacy, geographical place of the pharmacy, passing the lessons for cosmetics, interest to participating in retraining courses, and necessity of providing such data in the retraining courses.

Based on initial analyses, there have been only considered three variables, age, graduation year and work experience for entering to final analysis. In this stage, according to the observations of some interactions in initial statistics analysis, multivariate ridge regression was used in the final model instead of ordinary multivariate linear regression. Next part is related to relation between the knowledge of pharmacists about depilatories and independent variables, there have been only considered three variables, age, graduation year, and work experience for entering to final analysis.

In the last stage, there was studied the relation between general knowledge of pharmacists, subject of study for products, sunscreen care and depilatories and independent variables.

This analysis determined that the age of pharmacists is the only variable that can be remained in final model such that by increased age of pharmacists, subject of study, their knowledge to cosmetics, sunscreen cares and depilatories has been decreased ( $r = 0.41$ ,  $P = 0.04$ ).

#### 4. Discussion

This study aimed to investigate the knowledge of pharmacists employed in pharmacies of Tehran about cosmetics. For depilatories, averagely 30% of pharmacists had acceptable knowledge and it was not desirable. We can conclude that having full and accurate knowledge of pharmacists about these products and promoting their scientific knowledge is the first and most important step that causes properly usage of such products as well as preventing the side effects from abuse of such products and for highly consumed products such as sunscreen cares and depilatories, it will promote the public health level through the society and this will certainly help cost saving in economy of public health sector [18,19].

Initial analyses indicated the relations between age of pharmacists, subject of study, passing the cosmetics lesson, interest to participation in retraining courses and necessity of

presenting such discussions in retraining and knowledge level of pharmacists, but by studying the interactions between these variables and using final model by multivariate ridge regression, it was considered as the only significant relation between age of pharmacists and their knowledge such that by increase in their age, their knowledge to two products, sunscreen care and depilatory was decreased. Independent variable of age comprises factors such as older training system (not passing related courses) and older information about such products. However, besides these probable reasons, the most important point is that pharmacists never required themselves to learn this information and providing the consumers with correct and accurate information about such products such that about depilatories; they could even by studying the brochure of such products better answer to the questions of this survey. In most pharmacies through the country, technicians in the cosmetics part mostly provide the consumers with advertising information about sunscreen cares and depilatories with no needing to justify it or referring to the pharmacist [20,21]. One of the reasons for this is might be the non-incentive and ignorance of pharmacists to their main duties, i.e., guiding the referees for correctly using the cosmetics. The view of pharmacists in this case, of course, needs another study. On the other side, in Iran, the role of pharmacists has not been defined in this field - necessity of providing cosmetics information; it means that there is no given standard for this by which the pharmacist is obliged to provide the consumers with such information and or pharmacists could provide the information in the framework of cosmetics that having pharmaceutical properties as well and can be among OTC medicines. Therefore, the pharmacists themselves may be confused and not feeling any responsibility and this reduces their incentive for attaining more information. This is while; one can indeed consider a part of cosmetics products supplied in Iran's market among OTC medicines that patient ignores the orders of pharmacist or does not trust to them and or feels no need for it and only considers the advertisements about such products [22-24].

In a study conducted in Naples, Italy, investigated the side effects of some cosmetics products, it indicated that 56.5% people who affected by such effects, had no consultation for this with their physician or pharmacist and turned to self-diagnosis and self-treatment [25]. In another study conducted, 35% of pharmacists stated that lack of accepting the information about medicines by patients is one of the limitations of providing such information [26]. One of the reasons of this case is that the role of pharmacist remained unknown by patients who referred to the pharmacy and it is necessary to promote their knowledge to the scientific and practical capabilities of pharmacist for providing consultation services by cultural works, mass media, and proper trainings.

Some recommendations can be provided to the authorities of pharmacy training includes:

**Table 4.** Scores obtained by pharmacists for depilatories

Dependent variable	Number of pharmacists	Mean ± SD	Highest score	Lowest score
Knowledge	200	1.23 ± 0.91	4	0

SD: Standard deviation

- Efficient and targeted training during the education courses for pharmacists or out of such courses in the framework of lesson course, theoretically or practically;

- Proper and continuous retraining courses comprising from cosmetics discussions for promoting the knowledge level of pharmacists and or preparing proper training booklets for their usage;

Informing the society by mass media for role of pharmacists in the pharmacy.

### 5. Conflict of Interests

Authors have no conflict of interests.

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