Evaluating the Knowledge, Attitude and Performance of Kermanshah Citizens about the Effects of Using Detergents and Abstergents on Hygienic, Environmental and Safety

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ABSTRACT
The published statistics show the increasing consumption of detergents and abstergents in recent decades. According to high utilization of these substances and their adverse consequences, the purpose of this study is evaluating the knowledge, attitude and performance of Kermanshah citizens about the hygienic, environmental and safety effects of using detergents and abstergents. This study is analytical and descriptive and the sample size was 386 persons from Kermanshah citizens in 2015. The methodology of this study is based on a self – made questionnaire and the Cronbach's alpha coefficient was 0.7. The SPSS – 20 was used for analyzing the data. 42.44% of them have high knowledge and 49% - 9% of them have respectively average and poor knowledge. 81.75% of participants have a positive attitude and 18.25% of them have negative one. Also 61.5% of participants have a proper performance and 38.5% of them don't have a proper performance. There was a positive and significant relation between knowledge based on attitude (r=0.03) and performance (r=0.2). And also it was found that there is a direct correlation between attitude and performance (r=0.04). Since 38.5% of participants had poor performance and this is not satisfactory, it is necessary to instruct and inform people continuously about using detergents and abstergents correctly for better and more efficient performance.

Key words: Knowledge, Attitude, Performance, Detergents, Environmental Effects

INTRODUCTION
On one hand, developing the culture of society and on the other hand increasing the knowledge of users about the diversity of detergents can increase the range of using detergent products in recent decades [1]. In fact, by developing knowledge, experience and inventing new products, the use of detergents and abstergents for personal hygiene and industrial applications is increased, and therefore today these substances are used in current forms. Despite the positive aspects of using detergents for providing public hygiene and turning it into a cultural value in society, unfortunately there are lots of healthy problems especially about not paying attention to safety points in selection, preservation, consumption of detergents and also the lack of knowledge about the adverse effects of detergents and abstergents. In fact, detergents are kinds of products and organic compounds that their cleaning power can be increased by solvation and scattering in water [2-3]. According to the published statistics, in developed countries like America and Germany, the per capita use of detergents was 25 kilograms, while in India the per capita use of detergents was 3.2 kilograms [4]. According to the reports of the Ministry of Mines and Industries of Iran, the per capita use of detergent powder was 7.5 kilograms per year. So that in 2014 the average rate of detergent powder production was 635.6 tons and in comparison with previous years shows a growing trend [5]. Since chemical detergents contain high densities of corrosive, allergenic and sometimes carcinogenic compounds, vacating these substances into the aquatic environment eventuate in various environmental problems. Although detergents are so effective in hygiene, but disregarding nuances for consuming them can endanger human's health[6]. Improper use of these substances in short term or long term can causes various diseases in various parts of body, like skin diseases which are due to having strong acidic dirt remover substances, skin inflammation, eczema and the infection of skin,

senility of skin and brittle nails, ocular diseases such as redness, tearing, pain, eyes urticaria and respiratory diseases [7-10] which are caused by diffusing gases and fumes into air, so breathing them can disarrange the lung functions, stimulate the respiratory mucosa, and causes asthma, and breathing them for a long time can causes lung cancer [11-15]. In order to solve the environmental and health problems in any fields, enhancing the people's knowledge and information is one of the most basic factors, because people's knowledge about the consequences of their actions will lead them to act better and more appropriate. Nonetheless the usefulness of the urgency of knowledge and training in all levels are mentioned in the recommendations of IUCN [16]. Because of studying the people's knowledge, attitude and also their information shows the wrong views or weakness of public knowledge, so we can subsequently improve the culture especially in the fields which there are lack of information and views in the community. It is obvious that the hygienic actions and behaviors in any society are affected by the level of knowledge and also the people's attitude about the desired subject. So, due to the frequency of using detergents for different purposes and their adverse consequences, in this research we aimed to study the level of knowledge, attitude and performance of Kermanshah citizens in terms of the hygienic and environmental effects and also regarding the safety notes in using detergents and abstergents which are consumed more in recent years.

MATERIALS AND METHODS

This research is an analytical and descriptive study which evaluates the knowledge, attitude and performance of Kermanshah citizens about the hygienic and environmental effects and also considering the safety notes in using detergents and abstergents in Kermanshah in 2015. The statistical population of the study is the families which are covered by the health centers of Kermanshah and their total number is 99373. The statistical population was chosen randomly. So the sample size was determined by equation (1). Because when there isn't any estimation in the population, the sample size has its greatest number that is 386.

$$\mathbf{n} = \frac{\mathbf{Z}^{\mathbf{2}}_{\boldsymbol{\alpha}/\mathbf{2}} \times \mathbf{p}(\mathbf{1}-\mathbf{p})}{\boldsymbol{\beta}^{\mathbf{2}}} \qquad (1)$$

In equation, n is the sample size, is$Z^2_{\alpha/2}$ Z value (e.g. 1.96 for 95% confidence level), p is percentage picking a choice, expressed as a decimal and β2 is type II error. Rationing of 8 regions was resulted by dividing the covered population in each center on 99373 which is the total number of the samples. In the next step, a questionnaire was compiled, which consists of three parts: knowledge (questions 1–10), attitude (questions 11–20) and performance (questions 21 - 30). This questionnaire was attached to a demographic characteristic of persons. The validity of the questionnaire which is considered the type of content validity was obtained by the experts and its reliability (stability) was obtained by calculating the Cronbach's alpha coefficient using test – retest method and at least its value was 0.7. The general context of the questions is about the hygienic behaviors such as using gloves, masks, proper ventilation while using detergents and abstergents containing toxic gases, training children about the possible dangers of detergents, reading guide labels for using detergents and abstergents, the correct methods for usage, and finally the consumption dose of detergents and abstergents. After collecting data, we use descriptive statistical indexes (mean and standard deviation) among demographic variables and the level of knowledge to describe and analyze the data. The participant's attitude and performance are measured using X2 and Spearman tests and the analytical results are given using SPSS – 20 and Excel.

RESULTS AND DISCUSSIONS

189 respondents were male (48.95%) and 197 of them were female (51.04%). 5.20% of the respondents were under 20 years old, 68% were between 20 and 40 years old, 22.39% were between 40 and 60 years old and 4.42% were older than 60 years old. In terms of education, 5.20% of the respondents were illiterate, 27.60% have low literacy, 33.07% have a diploma degree, 28.12% have a bachelor degree and 5.64% have higher degrees. The results of the monthly consumption of detergents and abstergents in homes are shown in Figure 1. According to figure 1, 36.71% of participants (141 persons) declare that their monthly average consumption of detergents powders is two 500 grams (1 kilogram) packets. Also according to the results of figure 1, 35.67% of respondents (137 persons) acclaimed that their average monthly use of liquid detergents (dishwashing liquid, hand washing liquid, shampoos for hair and body and …) is a 1000 ml bottle which equals 1 kilogram.

Knowledge, attitude and performance

The participant's knowledge, attitude and performance are shown in Table 1 and 2 separately. 42.44% of participants have high knowledge, 49% and 9% of them have respectively average and poor knowledge about the detergents. On the whole, the

mean knowledge level of the population under study was moderate with mean ±SD equal 32.85 ±4.6 (Table. 1). Also, 81.75% of participants had positive attitude and 18.25% had negative attitude about the effects of using detergents and abstergents on hygienic, environmental and safety. The mean attitude level of the population was 30.45 ± 4.98 (Table. 1) which it can therefore be said that the attitude level of the population was relatively good. Also 61.5% had the proper performance and 38.5% didn't operate properly. So, the mean performance score of the population was 50.06 ± 3.32 (Table. 1).

The results of correlation between knowledge, attitude and performance are shown in Table 3. The correlation test shows a positive and significant relation between knowledge and attitude (r = 0.03) and also between the knowledge and performance (r = 0.2), on the other hand there is a direct relation between the attitude and performance (r = 0.04).

In this study the persons have the potential of exposing to chemical detergents and abstergents for different uses which increases the risks of suffering various diseases such as common skin disease (eczema), ocular diseases and respiratory diseases (asthma was the most common), and according to the epidemiological studies the suffering rate increases up to 42% [17-18]. In this research, studying the hygienic indexes (using gloves, masks, ventilation while using detergents and abstergents containing toxic gases, training children about the possible dangers of detergents and abstergents) shows that women pay attention to the hygienic principles more than men. The results show that the highest level of knowledge belongs to the ages 20 – 40 years old.

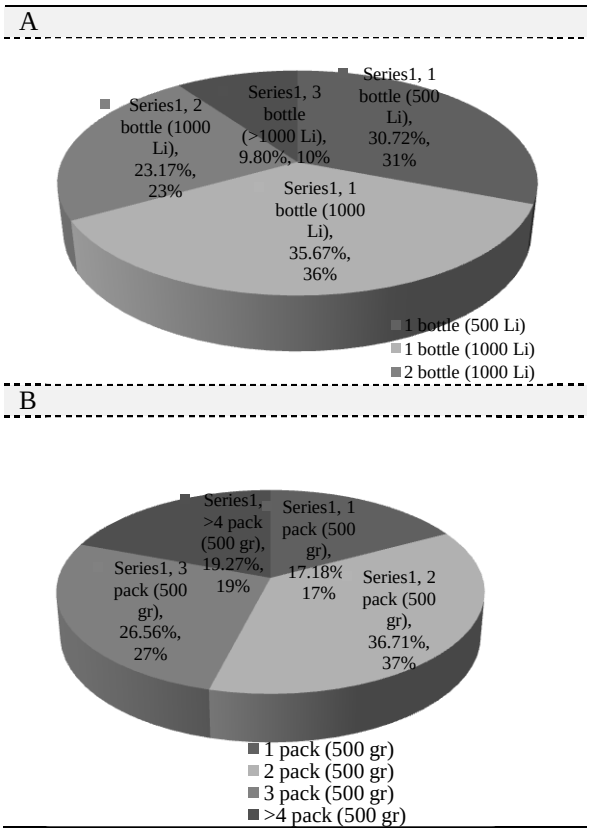

Fig. 1: Average Monthly Consumption of detergents (A: 1Liter bottles) and abstergents (B: packages with 500 grams)

Table 1: Comparison of the mean and deviation of population

Level	Mean	SD	sig
knowledge	32.85	4.6	0.001
attitude	30.45	4.98	0.042
performance	50.06	3.32	0.023

Table 2: The association between knowledge, attitude and practices of participant regard to different variables

Variables	Knowledge		Attitude		Practices	
	df	sig	df	sig	df	sig
Gender	2	0.06	1	0.057	1	<0.05
Age	6	0.00	3	<0.05	3	<0.05
Job	8	<0.05	4	<0.05	4	<0.05
Education	8	<0.05	4	0.062	4	<0.05
Income	4	0.05	2	0.059	2	0.065

Table 3: Correlation between knowledge, attitude and practices

		Attitude	Practices	Practices		
Knowledge	r	0.03	0.2	**Attitude**	r	0.04
	sig	0.04	0.00		sig	0.3
Number (N) 386						

In fact, the age is the most effective factor for the correct knowledge, attitude ad performance and it seems that this age group (20 to 40 years old) has more knowledge which is because of being and communicating in society and also using mass media, so they have better performance.

Studying the relation between knowledge and job shows a significant difference between knowledge and different jobs (sig = 0.05), so that the housewives had higher knowledge than the others had and it is due to their more tendency for learning about the effects of using detergents because they use

detergents a lot and they are involved with the adverse effects of detergents and abstergents. The results showed that the level of knowledge is not related to the level of earnings (sig = 0.06). In many studies, the results indicate that knowledge of the nature of the detergents and the risk of facing them can improve and promote the people's attitude and performance [19]. The results of this study conform to the results of Zock *et al.* survey in 2007[20]. Their study was about the hygienic effects of detergents and abstergents and also about the people's knowledge, attitude and their performance. This study confirms the relation between attitude, training and also informing in different ways [20].Also the results of our study match with the results of various studies like Zock (2010), Vizcaya (2011), Moual (2012), Casteroth (2012)[17, 21-23]. All of these studies mentioned that the gases of detergents have acidic compounds so influence on the respiratory system. In closed environments, the damage of detergent gases is doubled. These studies also refer to the relation between the knowledge and attitude with performance [17, 22-23]. It is obvious that by realizing, knowing, having a proper attitude and consciously performance in this field, we can reduce the damages caused by important and dangerous factors specially water resources that are dangerous for people's health directly and indirectly.

According to the results of the study (Table 3), chi-squared test is used for determining the relation between knowledge, attitude and performance. These results show that knowledge has a direct (r = 0.2) and significant (sig = 0.00) relation with performance so that operational changes are due to the knowledge of citizens. Also in this study the relation between the attitude and performance of people is (r = 0.04) and the value of (sig = 0.3) confirms that the community's knowledge can lead the people's attitude to a positive form. The undeniable effects of community's knowledge on the hygienic systems can't be ignored. The public knowledge in any fields allow the people to identify the effects, features, advantages and disadvantages of different subjects well, to recognize and control the causes and conditions of their occurrence or intensifications, to predict the intensifier or reducer of the effects and prevent the risks of harmful detergents and abstergents. The adverse effects decrease by knowing the proper method for solving and controlling the risks of detergents, so the effects of using these detergents and abstergents decreases by understanding and knowing the proper attitude and conscious performance in this field. In this study just a small percentage of people (18.25%) don't have a proper attitude which is due to their low rate of knowledge (38.5% of total population) in this field. So it is necessary for the health organizations to plan and provide educational services in this field.

CONCLUSION

The results of this study indicate that the respondents had an acceptable knowledge but 38.5% of them act poor and this situation is not so satisfactory. For improving this problem, the relevant organizations should change the health patterns to change the people's attitude and performance. According to this important factor and the role of knowledge, training and positive attitude on hygienic and environmental effects and also on regarding safety rules for using abstergents and detergents and their effects on people's performance, it is clear that we can improve the people's knowledge better and more and subsequently increase their performance by developing training programs, coordinating with national media and learning skills in using these substances. So in order to achieve these goals of prevention programs, we should try to raise the social knowledge and improve the people's attitude. These two factors can improve the performance too.

ETHICAL ISSUES

The ethical issues were considered during the conduct of this study.

CONFLICT OF INTEREST

We affirm that this article is the original work of the authors and have no conflict of interest to declare.

AUTHORS' CONTRIBUTIONS

All authors were participated in all stages of the research.

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