Research Article

Identification of Key Success Factors in the Marketing of Cosmetics Based on Knowledge, Attitude and Practice (KAP) Analysis Using Topsis Technique (The Case of Iran)

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A B S T R A C T

Background: Cosmetic products are one of the most important fields of consumer market. Strategic marketing plan and creating competitive advantages through recognizing of key success factors has become as a main core competency of active firms in this area. Based on this, the aim of our study was to identify the key success factors of cosmetic products' marketing in the Iran's market.

Methods: To do this, knowledge, attitude, and practice (KAP) of consumers in Iran were evaluated and key success factors were identified based on the mix marketing theory. Deep interviews and closed-ended questionnaires were used to collect data. The randomized sample population of this study was 1200 people. Results of KAP analysis were classified in seven clusters and then Topsis technique was used to analysis each cluster.

Results: Results showed that there are a significant relationship between attitude and practice and also between knowledge and practice because of t-values greater than 1.96 and path coefficient greater than 0.1. Moreover, the results indicated that the most and the least important factors for success of cosmetics' marketing are place (distribution and dispensing) and price, with sorted Cli of 0.9 and 0.1 respectively.

Conclusion: It demonstrates that appropriate sales and distribution strategies, scientific and enough information and strong marketing at the point of purchase are the most important key success factors in the marketing of cosmetics, and price has a minimum drawing effect on cosmetics' marketing.

Introduction

Cosmetics means any products which are used for the human body by means of rubbing, sprinkling, or by similar application for cleaning, beautifying, promoting attractiveness, altering the appearance of the human body, and for maintaining health of the skin and hair.[1] They are becoming of more importance in daily life and are one of the most growing markets in the world especially in developing countries like Iran. The global cosmetic market was 460 billion USD in 2014, which is about 0.5 % of gross domestic product (GDP) and is estimated to reach 675 billion USD in 2020 by growing at a rate of 6.4%.[2,3] According to the statistics from Iran central bank, average annual expenditure on cosmetics in Iran has been estimated to be around 1.9 % of the total household expenditure which has been located in the seventh position in the world.[4] Based on growing trends of cosmetics' consumption, it is necessary to identify the key success factors (KSF) of these products in the markets. In order to specify these factors, at first, lots of information should be gathered from the population. Knowledge, attitude, and practice (KAP) analysis is a representative study of a population to collect information on what is known, believe and done in relation to the specific topic. It tells us what people know about certain things, how they feel, behave and allow the program to be tailored more appropriately to the needs of the community.[5]

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In most KAP analysis, data are collected orally by an interview using a structured and standardized questionnaire.

There are lots of studies that used the KAP analysis to assess the awareness of the community about different subjects. Memon et al[6] assessed the Knowledge, Attitude and Practices (KAP) towards diabetes and diabetic retinopathy in the general population of Karachi in 2015. Their results showed that there is a lack of knowledge of diabetes in the surveyed community, more marked in females, illiterate and the individuals not suffering from diabetes. Another study was designed to determine knowledge, attitude and practice towards antibiotic use. The key findings of this study provided further insight in designing future multifaceted interventions to promote rationalize antibiotic use and prevent development of antibiotic resistance.[7] In this study, the KAP analysis was used to identify KSF in cosmetic marketing in the Iran market. For this purpose, we used the marketing mix theory that contains product, place, price, people, process, physical evidence and promotion (7 P).[8] In 1964, Borden developed the concept of marketing mix, and defined marketing manager as one who produces a profitable enterprise. Marketing mix is defined as a set of controllable marketing tools that a firm uses to create a desired response in the targeted market.[9] Lots of studies have used the marketing mix theory to highlight the principal decisions that the marketing managers makes in configuring their offerings to suit customers' needs. Su-Mei Lin investigated the importance ranking of marketing mix (7P) in fast food industries.[10] In another study, influences of 7P marketing mix variables on purchasing decision of consumers in determining appropriate marketing strategy were evaluated and the most influential marketing mix variables on purchasing decision was price.[11] Kushwaha & Agrawal[12] examined the effects of services marketing mix elements on Indian customers for making the appropriate marketing mix strategy in banking services context. Their results showed that physical evidence, process, place, and people have a positive and significant effect on customers.

The present study was performed based on the above mentioned and identification of the key success factors affecting cosmetic marketing in Iran. In our study, knowledge, attitude and practice of consumers towards cosmetics' consumption in Iran were evaluated and key success factors in marketing based on the mix marketing theory were identified using technique for order preference by similarity to the ideal solution (Topsis) model, a model proposed by Hwang and Yoon in 1981.[13] It is a multi-criteria decision making model used to compare a set of choices by determining weights for each measure.[14-17] Lost of studies have been presented in the area of marketing using Topsis technique. Mehralian et al[18] have identified and prioritized the critical success factors within pharmaceutical industries by Topsis technique. Results of the data analyses showed that information and analysis, management commitment, relationship with suppliers, and customer focus are the top four critical success factors in the pharmaceutical sector. In another study, a five-step decision support framework was provided using Topsis technique to determine the most appropriate marketing strategy in an efficient manner. Their results showed that differentiation strategy is the best choice among the marketing strategy.[19]

Materials and Methods

The aims of our study were to analyze knowledge, attitude and practice (KAP) of consumers towards cosmetic products, and to identify key success factors in marketing based on the mix marketing theory in Iran's market. This study is considered as a descriptive and analytical study. Deep interviews and closed-ended questionnaires were used to collect data. The final questionnaire was comprised of two sections, section A containing socio-economic characteristics of respondents, and section B encompassing 54 questions with the Likert scaling system related to research objectives of the study. The latter was categorized in three main sections of knowledge (15 questions), attitude (18 questions) and practice (21 questions). Content validity of the questionnaire was confirmed with the reference to the literature review and experts' viewpoints. They were asked to evaluate relevance, comprehensiveness, clarity and scoring of each question. The Cronbach's Alpha Coefficient for each question was determined to test the reliability of the questionnaire. Cronbach's Alpha Coefficient more than 0.75 for each question was acceptable. The correlation of each question with others was higher than medium levels and there was no negative correlation (an inverse relationship) between questions. Finally, the questionnaire containing 54 questions were prepared. The sample population of this study was 1200 people including men and women with the ages of 20-60 years who had turned to the pharmacies, clinics, beauty salons and hospitals in different cities and areas of Iran. Out of 1200 questionnaires, 844 were found to be completely and accurately filled and the rest 356 were discarded due to incomplete information. The marketing mix theory was used to identify key success factors. It includes 7P (product, price, promotion, place, people, processes and physical evidence). Products are goods produced by manufacturers to end users. The price is cost of customers to buy products or services. Promotion is a variety of tactics and ideas implemented by marketers to encourage end users to be aware of the

brand. Place refers to the location where the products and services available can be sold or bought. People are becoming an important factor in the service marketing. Physical evidence is the last element of the marketing mix. Elements of physical evidence include interior design, equipment, staff qualification, and environmental hygiene.[20]

In our study, questionnaires were designed in 7 clusters based on 7P marketing mix approach including product (P_1), price (P_2), promotion (P_3), place (P_4), people (P_5), processes (P_6) and physical evidence (P_7).

People were provided with questionnaires. After explaining the purpose of the study, briefly, they were requested to fill in the questionnaire. SPSS version 16.0 was used to analyze gathered data from completed questionnaires. Normality of the data was tested using the Kolmogorov-Smirnov test. For evaluation of knowledge, attitude and practice of respondents, Binomial test was used. It was used to analyze the statistical significance of deviations from a theoretically-expected distribution of observations into two categories. In Binomial test, the significance level less than 0.05 mean two possible outcomes:

1. More than assumed average (> 2.5)
2. Less than assumed average (≤ 2.5)

If 60% of each question's frequency was placed in group 1, it means that knowledge, attitude and practice of respondents are more than the assumed average and vice versa. Furthermore, the significance level more than 0.05 means that there are not two possible outcomes. In addition, structural equation modeling (SEM) was carried out to examine the possible causal linkage between knowledge, attitude and practice. Usually, in SEM, path coefficients greater that 0.1 with t-values greater that 1.96 are significant at the 0.05 level, indicating the relationship between the variables.

A technique for order preference was applied for ranking of 7P by similarity to ideal solution (Topsis model). It was performed in seven steps as follows:

1. Draw the fuzzy adaptive matrix of "m" alternatives and "n" criteria
2. Matrix normalization
3. Calculate the weighted normalized decision matrix
4. Determine the worst and the best alternative
5. Calculate the distance between the target alternative and the worst condition
6. Calculate the similarity to the worst conditions:
7. Rank the alternatives according to the descending order of Cli

For each test, a P-value of less than 0.05 was considered statistically significant. In our study, the effect of sex and marital status were analyzed using Mann-Whitney test and effects of education and age group were tested using Kruskal-Wallis test.

For evaluating the respondent validation, we tested initial results with participants to see if they still ring true. The respondents were asked to determine accuracy and completeness of the study and they were affirmed that the results reflect their views, feelings, and experiences.

Results

The study was conducted on 844 people. The demographic characteristics of the mentioned respondents were shown in Table 1.

The mean age ($\pm$ standard deviation) of people in our study was 32.4 ± 11.9. Regarding sex and marriage status, 608 respondents (72%) were female, and the majority of respondents (573 (68%)) were married. Table 2 represents education status of respondents. As shown in Table 2, most respondents had the academic education.

Table 1. Socio-economic characterizations of respondents.

Variables	Frequency	Relative frequency (%)
Gender		
Male	232	28
Female	608	72
Age group		
20-30	425	51
31-40	267	32
41-50	112	13
51-60	36	4
Marital status		
Single	267	32
Married	573	68

Table 2. Education status of people.

Variables	Frequency	Relative frequency (%)
Education		
Academic	569	67.7
Non academic	271	32.3

About the effects of sex, marital status, age group and education, in most cases, P value was greater than 0.05 and the effects of variables were not significance. Based on this, sex, marital status, age group and education were not interfering with the results.

According to overall scoring of knowledge and practice sections and answer of respondents, knowledge of people about cosmetics was estimated to be 72.85 % of the defined level in questionnaires; additionally, their practice was estimated 71.475 which are positive to using. It means that their knowledge and practice were in a good level. Based on the results, the respondents also had consumer attitude.

Table 3. Binomial test results for knowledge section.

Question No.		Category	N	Observed Proportion	Test Proportion	Exact Sig. (1-tailed)
1	Group 1	<= 2.5	232	.3	.6	.000[a]
	Group 2	> 2.5	608	.7		
	Total		840	1.0		
2	Group 1	<= 2.5	629	.7	.6	.000
	Group 2	> 2.5	211	.3		
	Total		840	1.0		
3	Group 1	<= 2.5	150	.2	.6	.000[a]
	Group 2	> 2.5	690	.8		
	Total		840	1.0		
4	Group 1	<= 2.5	66	.1	.6	.000[a]
	Group 2	> 2.5	774	.9		
	Total		840	1.0		
5	Group 1	<= 2.5	281	.3	.6	.000[a]
	Group 2	> 2.5	559	.7		
	Total		840	1.0		
6	Group 1	<= 2.5	159	.2	.6	.000[a]
	Group 2	> 2.5	681	.8		
	Total		840	1.0		
7	Group 1	<= 2.5	148	.2	.6	.000[a]
	Group 2	> 2.5	692	.8		
	Total		840	1.0		
8	Group 1	<= 2.5	107	.1	.6	.000[a]
	Group 2	> 2.5	733	.9		
	Total		840	1.0		
9	Group 1	<= 2.5	49	.1	.6	.000[a]
	Group 2	> 2.5	791	.9		
	Total		840	1.0		
10	Group 1	<= 2.5	87	.1	.6	.000[a]
	Group 2	> 2.5	753	.9		
	Total		840	1.0		
11	Group 1	<= 2.5	509	.6	.6	.441
	Group 2	> 2.5	331	.4		
	Total		840	1.0		
12	Group 1	<= 2.5	511	.6	.6	.396
	Group 2	> 2.5	329	.4		
	Total		840	1.0		
13	Group 1	<= 2.5	375	.4	.6	.000[a]
	Group 2	> 2.5	465	.6		
	Total		840	1.0		
14	Group 1	<= 2.5	107	.1	.6	.000[a]
	Group 2	> 2.5	733	.9		
	Total		840	1.0		
15	Group 1	<= 2.5	114	.1	.6	.000[a]
	Group 2	> 2.5	726	.9		
	Total		840	1.0		

Table 4. Binomial test results for attitude section.

Question No.		Category	N	Observed Proportion	Test Proportion	Exact Sig. (1-tailed)
1	Group 1	<= 2.5	247	.3	.6	.000a
	Group 2	> 2.5	593	.7		
	Total		840	1.0		
2	Group 1	<= 2.5	656	.8	.6	.000
	Group 2	> 2.5	184	.2		
	Total		840	1.0		
3	Group 1	<= 2.5	44	.1	.6	.000a
	Group 2	> 2.5	796	.9		
	Total		840	1.0		
4	Group 1	<= 2.5	60	.1	.6	.000a
	Group 2	> 2.5	780	.9		
	Total		840	1.0		
5	Group 1	<= 2.5	545	.6	.6	.047
	Group 2	> 2.5	295	.4		
	Total		840	1.0		
6	Group 1	<= 2.5	315	.4	.6	.000a
	Group 2	> 2.5	525	.6		
	Total		840	1.0		
7	Group 1	<= 2.5	656	.8	.6	.000
	Group 2	> 2.5	184	.2		
	Total		840	1.0		
8	Group 1	<= 2.5	339	.4	.6	.000a
	Group 2	> 2.5	501	.6		
	Total		840	1.0		
9	Group 1	<= 2.5	438	.5	.6	.003a
	Group 2	> 2.5	402	.5		
	Total		840	1.0		
10	Group 1	<= 2.5	128	.2	.6	.000a
	Group 2	> 2.5	712	.8		
	Total		840	1.0		
11	Group 1	<= 2.5	205	.2	.6	.000a
	Group 2	> 2.5	635	.8		
	Total		840	1.0		
12	Group 1	<= 2.5	719	.9	.6	.000
	Group 2	> 2.5	121	.1		
	Total		840	1.0		
13	Group 1	<= 2.5	315	.4	.6	.000a
	Group 2	> 2.5	525	.6		
	Total		840	1.0		
14	Group 1	<= 2.5	322	.4	.6	.000a
	Group 2	> 2.5	518	.6		
	Total		840	1.0		
15	Group 1	<= 2.5	268	.3	.6	.000a
	Group 2	> 2.5	572	.7		
	Total		840	1.0		
16	Group 1	<= 2.5	550	.7	.6	.028
	Group 2	> 2.5	290	.3		
	Total		840	1.0		
17	Group 1	<= 2.5	468	.6	.6	.070a
	Group 2	> 2.5	372	.4		
	Total		840	1.0		
18	Group 1	<= 2.5	542	.6	.6	.060
	Group 2	> 2.5	298	.4		
	Total		840	1.0		

Table 5. Binomial test results for practice section.

Question No.		Category	N	Observed Proportion	Test Proportion	Exact Sig. (1-tailed)
1	Group 1	<= 2.5	150	.2	.6	.000a
	Group 2	> 2.5	690	.8		
	Total		840	1.0		
2	Group 1	<= 2.5	399	.5	.6	.000a
	Group 2	> 2.5	441	.5		
	Total		840	1.0		
3	Group 1	<= 2.5	474	.6	.6	.107a
	Group 2	> 2.5	366	.4		
	Total		840	1.0		
4	Group 1	<= 2.5	690	.8	.6	.000
	Group 2	> 2.5	150	.2		
	Total		840	1.0		
5	Group 1	<= 2.5	533	.6	. 6	.115
	Group 2	> 2.5	307	.4		
	Total		840	1.0		
6	Group 1	<= 2.5	99	.1	.6	.000a
	Group 2	> 2.5	741	.9		
	Total		840	1.0		
7	Group 1	<= 2.5	191	.2	.6	.000a
	Group 2	> 2.5	649	.8		
	Total		840	1.0		
8	Group 1	<= 2.5	741	.9	.6	.000
	Group 2	> 2.5	99	.1		
	Total		840	1.0		
9	Group 1	<= 2.5	194	.2	.6	.000a
	Group 2	> 2.5	646	.8		
	Total		840	1.0		
10	Group 1	<= 2.5	307	.4	.6	.000a
	Group 2	> 2.5	533	.6		
	Total		840	1.0		
11	Group 1	<= 2.5	389	.5	.6	.000a
	Group 2	> 2.5	451	.5		
	Total		840	1.0		
12	Group 1	<= 2.5	670	.8	.6	.000
	Group 2	> 2.5	170	.2		
	Total		840	1.0		
13	Group 1	<= 2.5	312	.4	.6	.000a
	Group 2	> 2.5	528	.6		
	Total		840	1.0		
14	Group 1	<= 2.5	487	.6	.6	.253a
	Group 2	> 2.5	353	.4		
	Total		840	1.0		
15	Group 1	<= 2.5	172	.2	.6	.000a
	Group 2	> 2.5	668	.8		
	Total		840	1.0		
16	Group 1	<= 2.5	118	.1	.6	.000a
	Group 2	> 2.5	722	.9		
	Total		840	1.0		
17	Group 1	<= 2.5	74	.1	.6	.000a
	Group 2	> 2.5	766	.9		
	Total		840	1.0		
18	Group 1	<= 2.5	82	.1	.6	.000a
	Group 2	> 2.5	758	.9		
	Total		840	1.0		
19	Group 1	<= 2.5	446	.5	.6	.008a
	Group 2	> 2.5	394	.5		

Table 5 Continued.

	Total		840	1.0		
20	Group 1	<= 2.5	580	.7	.6	.001
	Group 2	> 2.5	260	.3		
	Total		840	1.0		
21	Group 1	<= 2.5	159	.2	.6	.000a
	Group 2	> 2.5	681	.8		
	Total		840	1.0		

Table 6. Results of SEM[a].

Relationship	T Value	Relation	Path Coefficient
Attitude on practice	2.439	Significant	0.63
Practice on attitude	3.392	Significant	0.63
Knowledge on practice	6.617	Significant	0.65
Practice on knowledge	4.515	Significant	0.65
Attitude on knowledge	1.225	Nonsignificant	0.57
Knowledge on attitude	1.203	Nonsignificant	0.57

[a] Structural Equation Modeling.

Binomial test results for knowledge, practice and attitude were shown in Tables 3, 4 and 5. As shown, the significance level less than 0.05 mean two possible outcomes:

3. More than assumed average (> 2.5)

4. Less than assumed average (≤ 2.5)

If 60% of each question's frequency was placed in group 1, it means that knowledge, attitude and practice of respondents are more than the assumed average and vice versa. Furthermore, the significance level more than 0.05 means that there are not two possible outcomes. In this case, knowledge, attitude and practice of respondents were in the assumed average level. As illustrated in Table 3, 4 and 5, most questions showed the significance level less than 0.05, and 60% of each question's frequency was placed in group 1. Therefore, in most questions knowledge, attitude and practice of respondents were more than the assumed average.

Structural equation modeling (SEM) was used to examine the possible causal linkage between knowledge, attitude and practice (Table 6). Usually, in SEM, path coefficients greater that 0.1 with t-values greater that 1.96 are significant at the 0.05 level, indicating the relationship between the variables. As shown, there was a significant relationship between attitude and practice because of t-values greater than 1.96 and path coefficient greater than 0.1. There was also a significant relationship between knowledge and practice with t-values greater than 1.96 and path coefficient of 0.65. As depicted in Table 6, there was no significant relationship between knowledge and attitude. Topsis technique was used for identification of key success factors. According to the results (Table 7), from consumers' points of view, the most and least important factor in the marketing of cosmetic products was place (P_3) and price (P_2), respectively.

Table 7. Topsis technique results for 7P categories.

No	Sorted Cli
P_3	0.9
P_6	0.89
P_5	0.69
P_7	0.67
P_4	0.24
P_1	0.12
P_2	0.1

Discussion

This is, to the best of our knowledge, the first study in Iran to comprehensively demonstrate knowledge, attitudes, and practice towards cosmetic products. It is also first one to identify KSF based on KAP analysis. The present findings would provide baseline quantitative data of cosmetic products' consumers, expecting to aid in the marketing of these products and providing further insights into designing future marketing strategies. Our study showed that average knowledge of respondents was 72.85%. According to our results, general knowledge of consumers about cosmetics was appropriate, but they were weak in professional information. Most of the times, the lack of professional information will cause excessive and inappropriate consumption. Moreover, in spite of cosmetics' safety and tolerability, adverse effects can occur by misusing cosmetics. Therefore, our policy makers should promote social awareness with presenting comprehensive information to the consumers. Another point is that consumers' knowledge is not sometimes justified scientifically. This concept means that quality has different

meanings from consumers' and producers' points of view. It is understandable that consumers' wants and needs should drive marketing decision whether that is functional or emotional. A want is a desire for products that are not necessary, but which consumers wish for. According to our results, participants believed that products with famous brands have an acceptable quality. Previous results have also shown that a brand will have associated with its overall quality not necessarily based on the knowledge of detailed specifications. Perceived quality will directly influence purchase decisions and brand loyalty, especially when a buyer is not motivated or able to conduct a detailed analysis.[21,22]

Regarding attitude, our study indicated that the average attitude of respondents was obtained 67.26% positive to using cosmetics. Based on our results, wearing makeup is something which can quickly and temporarily change the appearance, and thus can increase self-confidence. Theberge and Kernaleguen[23] reported that as use of cosmetics increased, women's satisfaction with their bodies also increased. The majority of research on women and their self-esteem has historically been related to how they feel about their appearance and makeup application, which is generally a part of overall appearance practices.[24,25]

Another point is that more than 70% of respondents preferred buying cosmetics from pharmacies, and their satisfaction might be enhanced if pharmacists spent more time on consultation services. They believe that pharmacists' consultation will also facilitate and encourage them to buy their requirements from pharmacies.

As can be seen in the result section, gender, marital status and age group of the respondent have been shown to describe their demographic characteristics. Based on our results, gender, marital status and age group were not interfering with the results.

Based on our results, there was a significant relationship between attitude and practice and also between attitude and knowledge, but there was no significant relationship between knowledge and attitude. It means that more knowledge and positive attitude will cause a better practice while having more information about these products cannot cause negative or positive attitude towards these products. Results from Topsis techniques indicated that the most and the least important factors in the marketing of cosmetic products were place and price, respectively. It demonstrated that appropriate sales and distribution strategies, scientific and enough information and better marketing at the point of purchase are the most important key success factors in the marketing of cosmetics. Price of products, unlike fast moving consumer goods (FMCG), for cosmetic products, has not a significant drawing effect to satisfy customers.

Conclusion

In our study, knowledge, attitude and practice of consumers towards cosmetics' consumption in Iran were evaluated, and key success factors in marketing based on the mix marketing theory were identified. In this study, gender, material status and age group were not interfering with the results. Our results demonstrated that appropriate distribution and place are the most important factors in the marketing of cosmetic products. Furthermore, an increase in consumer knowledge and improving their attitude, as the most important marketing tactics, will improve their attractiveness. Finally marketing at the point of purchase via pharmacists has extensive effects in the marketing of cosmetics.

Conflict of interests

The authors claim that there is no conflict of interest.

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