

# Identifying indicators and factors affecting consumers' purchase intention of cosmeceutical masks through content analysis and the Delphi technique

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## Abstract

This study was performed with the aim of identifying indicators and factors affecting consumers' purchase intention of cosmeceutical masks made of Nano-gelatin textiles in Iran in three steps. In the first step, indicators affecting the purchase intention were identified based on a systematic review of theoretical literature and qualitative content analysis of the indicators and using NVIVO software. In this step, the opinions of 12 university experts were analyzed by the Delphi technique in EXCEL software, and 57 main indicators were confirmed. In the third step, in order to classify indicators and identify factors affecting the intention to buy cosmeceutical masks made of Nano-gelatin textiles, 10 final factors were extracted by performing exploratory and confirmatory factor analysis. These included the Firm's functional actions, Firm strategic measures, Cultural factors, Knowing the consumer, Consumers' behavior, Personal factors, Interpersonal factors, Consumers' attitude, competitors and consumers' beliefs. In general, competitive advantage for companies is achieved through value creation for customers by providing differentiated products with more benefits compared to competitors based on core competencies. In general, achieving a competitive advantage for companies is achieved through value creation for customers by providing differentiated products with more benefits than competitors based on core competencies. The main focus of marketing strategy is the appropriate allocation and coordination of marketing activities and resources to meet the company's operational goals in a specific product market. Strategic market planning is also a tool that helps companies to gain a competitive advantage and create synergies by making a suitable plan to combine marketing elements according to the needs and desires of potential customers in the target market.

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## 1 Introduction

Purchase intention has always been considered as a vital concept in marketing. Purchase intention is a plan by which a person has the desire to buy a specific product or service in the near future. Of course, the timing of the purchase depends on the person's planning. The purchase intentions express internal actions or desires related to the brand on the part of the buyer. People's purchase intention depends on their attitude. Attitudes represent the consumers' evaluations, while intention means the individual's motivation and conscious planning that shapes the effort to perform a behavior. Therefore, the purchase intentions can be considered as reasonable consumer plans to try to buy a specific brand or product [20]. Purchase intention is an essential and primary indicator for evaluating consumer behavior because it determines the probability of a buyer using the product. The higher the purchase intention, the readier the consumer will be to buy a product [27]. Marketing managers continuously use purchase intention as a tool to make decisions about new and existing products. In the case of new goods, the purchase intention is used to determine the value of product development, or in the planning step of product supply, to determine the geographic market or customer group [62].

The desire to have a beautiful face regardless of gender, for having more influence or live a better life, is a reality. The current society put emphasis on physical attractiveness as an admirable feature. The cosmeceutical industry, which is growing rapidly around the world, could have a significant impact on physical attractiveness. It has proven itself to be a business with "magical powers" [18]. On the other hand, consumers' purchase intention is an analytical tool that helps marketers to understand how and what factors influence consumers' decisions in marketing activities [16]. The Cosmeceutical industry is related to two prominent values health and beauty. The consumption of cosmeceutical products in Iran is very high, and according to the head of the country's Food and Drug Organization, the per capita consumption of cosmeceutical products in Iran is 2.5 times the world average [35].

The consumption trend in the cosmeceutical industry has changed over the last few years. Examining this shows that using optimal raw materials and optimal production methods are prioritized, and manufacturers seek to improve the quality of their products by attending to environmental issues and consumer's health at the request of their customers. The dominance of these trends has motivated various scholars to examine the factors influencing purchase intention in this industry by focusing on these trends. Scholars including [18, 35, 47, 57], have pointed out such trends in the purchase intention. Part of the result of this research shows that factors such as the quality of raw materials and products, no damage to the environment, protection of consumer health, and anti-allergy are of great importance. Many manufacturing brands have paid attention to these features and are looking for a product that has high quality, does not harm the environment and guarantees the health of the consumer.

With the rapid growth of Nanoscience, the cosmeceutical industry shows interest in using Nano textiles. Therefore, entrepreneurs in this field are in tight competition to improve the quality and efficiency of cosmeceutical products in order to maintain their customers' satisfaction. In fact, after realizing the effects of applying Nano knowledge in increasing the quality and efficiency of services/products, cosmeceutical producers focused on it as a chance for winning in the competitive market. On the other hand, the fraud market for using Nano-textiles is rapidly expanding and fraudsters use the word "Nano" to attract customers and get a market share. However, Iranian customers have different views on the intention to buy these products, and therefore, factors affecting the purchase intention in Iran may be different from those in other countries. A serious obstacle to persuading customers and predicting their behaviors and purchase intentions in the cosmeceutical industry is the lack of a suitable model for this industry. Meanwhile, marketers are unaware of global trends in this industry. Rare studies have investigated the impact of these factors on purchase intention in Iran. Therefore, an interdisciplinary study is needed to get enough information. According to the scope of this research, those who may benefit from its findings include companies manufacturing cosmeceutical products, leading health companies that use Nanomaterials, and marketers of Non-made products. Although extensive studies have investigated indicators and factors affecting consumers' purchase intention, and each scholar has pointed to one or more factors, but no comprehensive study focused on identifying the indicators and factors affecting consumers' purchase intention of cosmeceutical masks made of Nano-gelatin textiles in Iran. Therefore, the current research seeks to determine the indicators of consumers' purchase intention of cosmeceutical masks made of Nano-gelatin textiles localized in Iran. The main aim of this research is to identify indicators and factors affecting consumers' purchase intention of cosmeceutical masks made of Nano-gelatin textiles in Iran.

## 2 Theoretical Framework

The purchase intention refers to the decision to buy goods/services, and may eventually turn into actual purchase behavior. The stronger the consumers' purchase intention, the greater the consumers' desire to buy a product/service. Scholars have defined behavioral intention as the mental probability of forming a specific behavior. The best single

predictor of a person's behavior is his/her intention to perform that behavior [8]. The intention to buy products is defined as the consumers' desire to have a specific behavior regarding an object/product, and the purchase intention is defined as the consumers' desire to buy an advertised product/service. Intention to purchase a particular product is recognized as a good predictor of actual behavior for purchasing a product by actual customers. Purchase intention could be used to identify the possibilities of purchasing goods during a certain period of time [78].

Consumers buy a product if they believe in its good quality. The purchase intention is a combination of consumers' interest in purchasing a product and the likelihood of purchasing it in the future. Many studies reported a strong relationship between approach and attitude and preference towards a brand or product. Therefore, to measure the purchase intention, it is assumed that consumers' future behavior depends on their attitudes. The purchase intention is considered an attitudinal variable to measure customers' future contributions to a brand [17]. Previous studies confirmed that the intention to purchase products/services is determined by the level of satisfaction. In other words, satisfied customers usually have strong the purchase intentions, while dissatisfied customers are more likely to switch to another competitor [36].

Due to lack of competitiveness, low access to global brands, and large number of fake brands in the Iranian market without proper quality, purchase intention of consumers in Iran may be different from those in global markets. Iranian consumers have different views on the intention to buy cosmeceutical products, and for this reason, the factors affecting the purchase intention of these products in Iran may be different from those identified in other countries. Considering the significant rate of consumption of cosmeceutical products in Iran, and findings of Morganti et al. [47] and Olivia [57] regarding improving the quality of raw materials, optimal production, making eco-friendly products, and attending to consumers' health around the world as a trend, identifying customers' behavior and purchase intention has become a marketing goal in this industry. Investigating the indicators and factors affecting the purchase intention of Nano-gelatin textiles in the cosmeceutical industry helps economic activists and marketing managers to predict customers' behavior and facilitate reaching their marketing goals.

Given what said before, this study attempts to answer the following questions:

1. What are the indicators affecting the purchase intention?
2. What are the localized and effective indicators of the purchase intention of cosmeceutical masks made of Nano-gelatin textiles?
3. How are the indicators affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles classified?

### 3 Methodology

This research was conducted in three steps. The first step was dedicated to identify the factors affecting the purchase intention. In the second step, the factors affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles were recognized. Finally, in the third step, the factors affecting the purchase intention of these products were identified. This is an applied study with an interpretive paradigm. It follows a comparative approach and has an exploratory-analytical nature. A mixed approach was used to gather the data, since strategies of each step is different from the other two steps. For identifying indicators affecting purchase intention, qualitative content analysis was performed, while for distinguishing indicators and factors affecting consumers' intention to purchase cosmeceutical masks made of Nano-gelatin textiles, the survey method was conducted. Note-taking in the first step, and questionnaires in the second and third steps were used to gather data.

In the first step, the statistical population included all articles related to "the purchase intention" subject. These articles were gathered thorough targeted sampling method by searching in SID database (for Persian articles; N=54), Emerald database (2020-2021, N=80) and Science Direct database (2020-2021, N=67). 201 articles were found. Then, based on the entrance criteria (including purchasing intent models, intent to purchase products, not services), finally 94 articles were selected for content analysis. In the second step (extraction of indicators affecting the intention to buy cosmeceutical masks made of Nano-gelatin textiles), the statistical community, university professors and experts with the condition of knowledge about the intention to buy cosmeceutical products are considered. The sample size at this step was 12 experts who were selected by purposeful sampling. In the third step (extraction of factors affecting the intention to buy cosmeceutical masks made of Nano-gelatin textiles), the statistical population consisted of postgraduate students in business administration. Using the available sampling method through the following equation, 240 students were selected to form the sample.

$$n = \frac{Z_{\frac{\alpha}{2}}^2 S^2}{d^2} = \frac{(1.96)^2 \times 0.153}{(0.05)^2} = 239.73 \quad (3.1)$$

In the first step, library research method was used and the scholar made notes from articles related to the study subject. In the second and third steps, the data were gathered by Questionnaires. Validity and reliability in the first step were assessed by the Lincoln and Guba's evaluation method, used to validate qualitative researches. According to Mohsenpour [46], validity and reliability in qualitative studies should be assessed based on four axes of validity, verifiability, repeatability and provability. At this step, four criteria of acceptability, reliability, transferability and conformability were used for confirming validity and reliability. First, content analysis was performed for 15 articles, and the items' validity and reliability were confirmed by the experts. In the second step, the Delphi technique was used, and in the third step, construct validity and Cronbach's alpha were conducted.

The analysis method in the first step was the qualitative content analysis performed thorough NVIVO software. Content analysis deals with the systematic, objective, quantitative and generalizable examination of communication messages. In the second step, the Delphi technique was used, and the results were recorded in Excel software. In the fuzzy Delphi method, qualitative variables are usually defined as triangular or trapezoidal fuzzy numbers. In this method, first, the intended indicators are identified using a comprehensive review of the theoretical foundations of the research. Then the opinions of decision-making experts are collected. The third step was dedicated to the confirmation and screening of the indicators, which was done by comparing the acquired value of each indicator with the threshold value. The threshold value is calculated in several ways, and a value of 0.7 is usually considered as the threshold value. First, the triangular fuzzy values of experts' opinions should be calculated, then their fuzzy average should be calculated to calculate the average of n respondents' opinions.

The calculation of the fuzzy number for each of the indicators is done using the following equations:

$$\tilde{a}_{ij} = (a_{ij}, b_{ij}, c_{ij}), \quad i = 1, 2, \dots, n, \quad j = 1, 2, \dots, m \quad (3.2)$$

$$a_j = \min(a_{ij}) \quad (3.3)$$

$$b_j = \left( \prod_{i=1}^n b_{ij} \right)^{\frac{1}{n}} \quad (3.4)$$

$$c_j = \max(c_{ij}) \quad (3.5)$$

In the above equations, the index "i" refers to the experts, and "j" refers to the decision-making index. Also, the de-fuzzy value of the average fuzzy number is obtained from the following equation:

$$Crisp = \frac{a + b + c}{3} \quad (3.6)$$

In the third step, the data were analyzed by exploratory and confirmatory factor analysis using SPSS and LISREL software.

## 4 Findings

The aim of the study is to identify the indicators affecting consumers' purchase intention cosmetic masks made of Nano-gelatin textiles, which is investigated in two steps.

### 4.1 Identifying indicators affecting the purchase intention

The data in this step were analyzed the qualitative content analysis approach. Content analysis t deals with the systematic, objective, quantitative and generalizable examination of communication messages. Factors and indicators affecting the purchase intention mentioned in international and domestic articles were qualitatively analyzed to determine the initial framework.

Performing content analysis method and NVIVO software, the following results were identified as factors influencing the purchase intention. Figures 1 and 2 show the output of the diagram and histogram of the indicators.

Table 1 presents a qualitative analysis of the articles. By systematically reviewing the theoretical literature and analyzing the qualitative content of indicators through NVIVO software, 81 key indicators on the purchase intention were extracted.

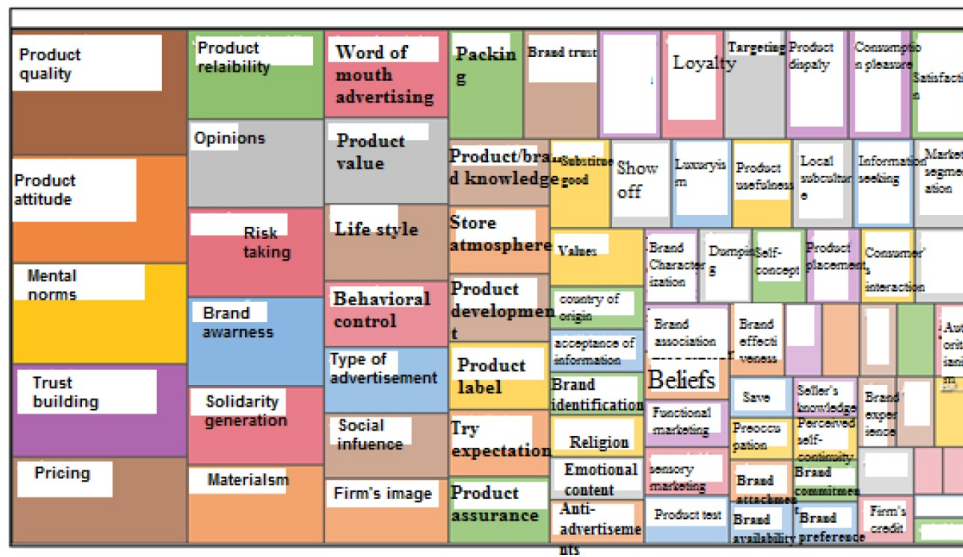


Figure 1: Output of the coding diagram from NVIVO 12 software

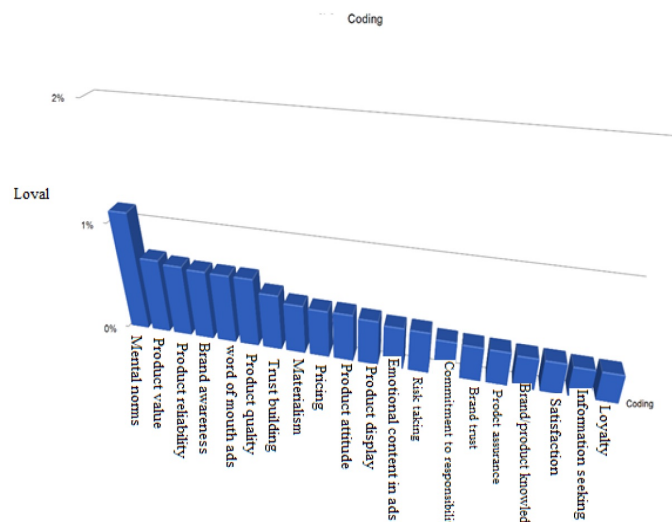


Figure 2: Histogram output of categories by NVIVO 12

Table 1: Qualitative analysis of the selected articles

Row	Indicators	Sources
1	Market segmentation	[14, 30, 61, 70]
2	Targeting	[3, 14, 30, 61, 70]
3	Brand placement	[14, 77]
4	Brand identification	[7, 24, 72]
5	Brand characterization	[7, 39, 72]
6	Product development	[19, 30, 39, 43, 53]
7	Pricing	[6, 9, 10, 14, 23, 24, 53, 61, 70, 72, 73]
8	Product quality	[2, 9, 22, 23, 30, 41, 42, 48, 52, 53, 59, 61, 65, 70, 71, 72]
9	Product reliability	[2, 7, 14, 22, 26, 72, 76, 77]
10	Product value	[3, 19, 30, 39, 43, 51, 53, 61]
11	Product usefulness	[14, 55, 61, 73]
12	Packing	[7, 9, 14, 19, 23, 44]
13	Product label	[14, 33, 55, 70, 72]
14	Product availability	[5, 38]
15	Seller's Knowledge	[14, 33]
16	Store atmosphere	[14, 30, 61, 64, 67]

17	Product display (Showcase)	[14, 30, 61, 64, 67]
18	Emotional/logical content in advertisements	[13, 14, 26]
19	Source of information in advertisements	[20, 31]
20	life style	[1, 10, 14, 32, 63, 72, 79]
21	Religion	[11, 22, 41]
22	Local subculture	[1, 14, 74, 79]
23	Acceptance of information	[4, 14, 28]
24	Behavioral control	[1, 2, 14, 68, 74, 79]
25	Brand experience	[4, 24]
26	Perceived effectiveness	[2, 14, 77]
27	Risk taking	[2, 22, 39, 65, 67, 70, 72, 73]
28	Brand awareness	[5, 38, 42, 54, 61, 72]
29	Product/brand knowledge	[22, 38, 59, 71, 72]
30	Consumers' participation	[31, 61, 66]
31	Consumers' interaction	[31, 61, 66]
32	Information seeking	[32, 38, 71, 73]
33	Brand commitment	[58, 61]
34	Loyalty	[5, 38, 42, 53, 73]
35	Product test	[2, 37, 41]
36	Satisfaction	[2, 7, 25, 50, 61]
37	Commitment to social responsibility	[1, 14, 24, 33, 65]
38	Materialism	[1, 10, 14, 28, 32, 63, 74, 79]
39	Self-concept	[21, 37, 75]
40	Luxuryism	[1, 24, 33]
41	Solidarity generation	[4, 20, 30, 41, 48, 53, 60, 80]
42	Social influence	[2, 28, 30, 31, 53, 63]
43	Authoritarianism	[21, 75]
44	Show off	[28, 30, 53, 63]
45	Brand associations	[5, 38, 42]
46	Brand preference	[7, 14]
47	Brand attachment	[34, 58]
48	Performance expectation	[5, 38]
49	Try expectation	[40, 41, 50, 67, 73]
50	Brand trust	[2, 14, 22, 61, 64, 70]
51	Product assurance	[3, 14, 30, 61, 70]
52	Substitute good	[14, 30, 61, 70]
53	Dumping	[65]
54	Anti-advertisements	[13, 14, 26]
55	Beliefs	[14, 32, 63]
56	Values	[3, 37, 61, 80]
57	Opinions	[3, 9, 13, 14, 24, 29, 53, 61, 72]
58	Compliance with consumption trends	[51, 65]
59	Social prestige	[61, 65]
60	Save money	[52, 61]
61	Trust building	[2, 14, 24, 40, 41, 61, 64, 67, 70, 72]
62	Preoccupation	[21, 75]
63	Product attitude	[1, 2, 10, 11, 14, 22, 28, 40, 41, 68, 72, 74]
64	Consumption pleasure	[2, 28, 37, 41, 49]
65	Firm's image	[14, 30, 33, 61, 64, 67]
66	Firm's credit	[14, 33]
67	Country of origin	[22, 59, 80]
68	Emotional response to the brand	[69, 12]
69	Word of mouth advertising	[14, 24, 28, 32, 38, 56, 71, 73]
70	Type of advertisement	[4, 12, 14, 28, 29, 77]
71	Tendency to advertising	[13, 34]
72	Perceived self-continuity	[15, 12]
73	Consumer attachment	[37, 45, 80]
74	Social interaction	[28, 29, 31]
75	Commitment to social media	[31]
76	Sensory marketing	[37, 56, 69]
77	Emotional marketing	[37, 56]
78	Intellectual marketing	[56]
79	Practical marketing	[14, 56, 72]
80	Relational marketing	[56]
81	Mental norms	[1, 2, 10, 14, 21, 28, 32, 51, 63, 68, 72, 74, 79]

## 4.2 Identification of indicators affecting consumers' purchase intention cosmeceutical masks made of Nano-gelatin textile

In the second step, the scholar referred to the experts to identify the indicators affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles, and by presenting a video about the improved characteristics of Nano-gelatin textiles with the Delphi method, localized these features. In this section, a question was answered: "What indicators affect consumers' the purchase intention of cosmeceutical masks made of Nano-gelatin textiles?" In order to answer this question, 81 indicators extracted in the previous step are presented to the experts in the form of a questionnaire. In this research, Kendall's coordination coefficient was used to determine the level of consensus among experts using the Delphi method. To check the level of general agreement and consensus among the members, the Kendall W coefficient greater than or equal to 0.5 is considered as a measure of the correlation of the participants' opinions.

Step 1: Distributing the Delphi questionnaire among experts and calculating the average of each index:

Table 2: Results of the first round survey and the average of opinions by the Delphi technique

Row	Indicator	Average of opinions in the first round
1	Market segmentation	2.33
2	Targeting	2.42
3	Product placement	3.58
4	Brand identification	3.92
5	Brand characterization	3.50
6	⋮	⋮
7	Relational marketing	2.58
8	Mental norms	3.58

Step 2: Distributing an 81-indicator questionnaire among the experts, along with the average of each indicator in the first step and its score by each expert in the previous step. After collecting the data in the second step, the average of each indicator, and the difference between the two steps were calculated. Indicators with an average difference of less than 0.15 reached a consensus and were removed from the next step of analysis by the Delphi technique.

Table 3: Results of the second round survey and the average difference between the second and first rounds by the Delphi technique

Row	Indicator	Average of opinions in the first round	Average of opinions in the second round	Average difference of opinions between the second and first rounds
1	Market segmentation	2.33	2	0.33
2	Targeting	2.42	2.25	0.17
3	Product placement	3.58	3.79	0.21
4	Brand identification	3.92	3.9	0.02
5	⋮	⋮	⋮	⋮
6	Relational marketing	2.58	2.39	0.19
7	Mental norms	3.58	3.53	0.05

Given the difference between the average of the second and first rounds of experts' opinions, 23 indicators were agreed upon and excluded from the next steps of analysis by the Delphi technique.

Step 3: Distributing a 58-indicator questionnaire among the experts, along with the average of each indicator in the second step and its score by each expert in the previous step. After collecting the data in the third step, the average of each indicator, and the difference between the average of the third and second steps were calculated. Indicators with an average difference of less than 0.15 reached a consensus and were removed from the next step of analysis by the Delphi technique.

Given the difference between the average of the third and second rounds of experts' opinions, 17 indicators were agreed upon and excluded from the next steps of analysis by the Delphi technique.

Step 4: Distributing a 41-indicator questionnaire among the experts, along with the average of each indicator in the third step and its score by each expert in the previous step. After collecting the data in the fourth step, the average of each indicator, and the difference between the average of the fourth and third steps were calculated. Indicators with an average difference of less than 0.15 reached a consensus and were removed from the next step of analysis by the Delphi technique.

Given the difference between the average of the fourth and third rounds of experts' opinions, 21 indicators were agreed upon and excluded from the next steps of analysis by the Delphi technique.

Table 4: Results of the third round survey and the average difference between the third and second rounds by the Delphi technique

Row	Indicator	Average of opinions in the second round	Average of opinions in the third round	Average difference of opinions between the third and second rounds
1	Market segmentation	2	1.78	0.22
2	Targeting	2.25	2.29	0.04
3	Product placement	3.79	3.63	0.16
4	Brand characterization	3.69	3.76	0.07
5	Pricing	4.27	4.36	0.09
6	⋮	⋮	⋮	⋮
7	Practical marketing	2.71	2.42	0.29
8	Relational marketing	2.39	2.28	0.11

Table 5: Results of the fifth round survey and the average difference between the fourth and third rounds by the Delphi technique

Row	Indicator	Average of opinions in the third round	Average of opinions in the fourth round	Average difference of opinions between the fourth and third round
1	Market segmentation	1.78	1.94	0.16
2	Product placement	3.63	3.57	0.06
3	Product quality	4.38	4.19	0.19
4	Product reliability	3.68	3.52	0.16
5	Packing	3.69	3.52	0.17
6	⋮	⋮	⋮	⋮
7	Intellectual marketing	2.71	2.71	0
8	Practical marketing	2.42	2.42	0

Step 5: Distributing a 20-indicator questionnaire among the experts, along with the average of each indicator in the fourth step and its score by each expert in the previous step. After collecting the data in the fifth step, the average of each indicator, and the difference between the average of the fifth and fourth steps were calculated. Indicators with an average difference of less than 0.15 reached a consensus and were removed from the next step of analysis by the Delphi technique.

Table 6: Results of the fourth round survey and the average difference between the fourth and third rounds by the Delphi technique

Row	Indicator	Average of opinions in the fourth round	Average of opinions in the fifth round	Average difference of opinions between the fifth and fourth rounds
1	Market segmentation	1.94	1.94	0
2	Product quality	4.19	3.98	0.21
3	Product reliability	3.52	3.66	0.14
4	Packing	3.52	3.66	0.14
5	Life style	3.59	3.38	0.21
6	⋮	⋮	⋮	⋮
7	Sensory marketing	3.42	3.52	0.1
8	Emotional marketing	2.42	2.42	0

Given the difference between the average of the fifth and fourth rounds of experts' opinions, 13 indicators were agreed upon and excluded from the next steps of analysis by the Delphi technique.

Step 6: Distributing a 7-indicator questionnaire among the experts, along with the average of each indicator in the fifth step and its score by each expert in the previous step. After collecting the data in the sixth step, the average of each indicator, and the difference between the average of the sixth and fifth steps were calculated. Indicators with an average difference of less than 0.15 reached a consensus and were removed from the next step of analysis by the Delphi technique.

Given the outcomes of the sixth steps of Delphi technique, the experts reached a consensus for all 81 indicators. Therefore, distributing a questionnaire was stopped. On the other hand, indicators with average less than 3 were removed in this step. Additionally, Table 8 shows the results of Kendall's W correlation coefficient test in various Delphi rounds. The values of W vary from 0 (No agreement) to 1 (Complete agreement). Obviously, the closer the value of W is to one, the higher the agreement. In the Kendall's W test, there is no assumption about the nature of the probability distribution, and any number ( $k$ ) of treatment or population can be investigated. Suppose that subject "i" has a rank equal to  $r_{i,j}$ , where the index "j" indicates the experts' number. On the other hand, there are "n" subjects and "m" experts (treatments) in the data set. The sum of all ranks for the "ith" subject is called  $R_i$  and



Table 7: Results of the sixth round survey and the average difference between the sixth and fifth rounds by the Delphi technique

Row	Indicator	Average of opinions in the fifth round	Average of opinions in the sixth round	Average difference of opinions between the sixth and fifth rounds
1	Product quality	3.98	3.86	0.12
2	Life style	3.38	3.38	0
3	Show off	3.43	3.43	0
4	Performance expectation	3.76	3.86	0.1
5	Substitute good	3.43	3.43	0
6	Social prestige	2.43	2.43	0
7	Country of origin	3.43	3.43	0

calculated as follows:

$$R_i = \sum_{j=1}^m r_{i,j} \quad (4.1)$$

The average ratings for all observations are obtained with this equation:

$$\bar{R} = \frac{1}{n} \sum_{i=1}^n R_i. \quad (4.2)$$

To obtain Kendall's  $W$ , the sum of the squares of the ranks' differences to the average is calculated and called "S":

$$S = \sum_{i=1}^n (R_i - \bar{R})^2 \quad (4.3)$$

So, Kendall's  $W$  is defined as:

$$W = \frac{12S}{m^2(n^3 - n)} \quad (4.4)$$

Clearly, if all experts (treatments) have a same rating,  $W$  will be 1, while it will be 0 if there are completely contradictory results in their votes. Except for the first step, where Kendall's  $W$  is less than 0.5, this figure is more than 0.5 in the next steps, which indicates the appropriate level of agreement among experts.

According to the results, out of a total of 81 indicators, 24 indicators were eliminated and 57 indicators were identified as those affecting the purchase intention cosmeceutical masks made by Nano-gelatin textiles. The results are presented in Table 9.

### 4.3 Identifying the factors affecting consumers' the purchase intention of cosmeceutical masks made of Nano-gelatin textiles

In the third stage, a 57-item questionnaire was distributed among postgraduate students in business management in order to identify the factors affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles. The sample size in this step was 240 students. In order to ensure the maximum return of questionnaires, 260 questionnaires were distributed and finally, 244 questionnaires were returned. Before the distribution of the questionnaire, the subjects were given sufficient knowledge about the new product by presenting a video of the improved properties of Nano-gelatin textiles in the cosmeceutical industry.

The factors affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles were identified through exploratory and confirmatory factor analysis methods. Exploratory analysis is used when there is not enough previous and pre-experimental evidence to form a hypothesis about the number of factors underlying the data, and the scholar wants to explore the data to determine the number or nature of the factors that justify the variance between the variables. The purpose of confirmatory factor analysis is to confirm a special factor structure; Also, the hypotheses about the number of factors are clearly stated and the fitness of the suggested factor structure in the hypothesis with the covariance structure of the measured variables is tested. In confirmatory factor analysis, the scholar tries to design a model that is supposed to describe, explain or justify the experimental data based on a relatively few parameters.

Table 8: Results of Kendall's W coefficient of concordance

	N	12
<b>First step of Delphi technique</b>	Kendall's W coefficient of concordance	0.442
	Chi-square test	424.101
	df	80
	Sig.	0.000
	N	12
<b>Second step of Delphi technique</b>	Kendall's W coefficient of concordance	0.502
	Chi-square test	514.101
	df	80
	Sig.	0.000
	N	12
<b>Third step of Delphi technique</b>	Kendall's W coefficient of concordance	0.522
	Chi-square test	518.208
	df	57
	Sig.	0.000
	N	12
<b>Fourth step of Delphi technique</b>	Kendall's W coefficient of concordance	0.571
	Chi-square test	523.221
	df	40
	Sig.	0.000
	N	12
<b>Fifth step of Delphi technique</b>	Kendall's W coefficient of concordance	0.579
	Chi-square test	524.31
	df	19
	Sig.	0.000
	N	12
<b>Sixth step of Delphi technique</b>	Kendall's W coefficient of concordance	0.634
	Chi-square test	534.38
	df	6
	Sig.	0.000

Table 9: Indicators affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textile

Row	Final indicators	Row	Final indicators	Row	Final indicators
1	Brand placement	20	Local subculture	39	Brand association
2	Brand identification	21	Behavioral control	40	Brand preference
3	Brand characterization	22	Brand experience	41	Brand attachment
4	Product development	23	Perceived effectiveness	42	Performance expectation
5	Pricing	24	Risk taking	43	Brand trust
6	Product quality	25	Brand awareness	44	Product assurance
7	Product reliability	26	Product/brand knowledge	45	Substitute good
8	Product value	27	Information seeking	46	Anti-advertisements
9	Product usefulness	28	Brand commitment	47	beliefs
10	Packing	29	Loyalty	48	values
11	Product label	30	Product test	49	Opinions
12	Product availability	31	Satisfaction	50	Trust building
13	Seller's Knowledge	32	Commitment to social responsibility	51	Product attitude
14	Store atmosphere	33	Materialism	52	Firm's image
15	Product display (Showcase)	34	Self-concept	53	Firm's credit
16	Emotional/logical content in advertisements	35	Luxuryism	54	Country of origin
17	Source of information in advertisements	36	Solidarity generation	55	Word of mouth advertising
18	Life style	37	Social influence	56	Sensory marketing
19	Religion	38	Show off	57	Mental norms

#### 4.4 Exploratory factor analysis

Confirming the adequacy of sampling is a prerequisite for the implementation of exploratory factor analysis. According to the results of the KMO-Bartlett test in Table 10, the implementation of the exploratory factor analysis steps is unimpeded. Since KMO was greater than 0.6, sampling adequacy was confirmed. The confidence level of zero for Bartlett's test supported the appropriateness of the cited factor model. In all stages of the analysis, factors were extracted by conducting the Principal Component Analysis with a Varimax rotation.

In this step, the correlation between the intended variable's variance with that of the other variables was checked. The initial column shows the commonalities extracted from the primary data, where high level (maximum 1) is a sign

Table 10: Results of KMO and Bartlett's tests

<b>KMO measure of sampling adequacy</b>		0.784
<b>Bartlett's test</b>	Approx. Chi-Square	6152.092
	df	1596
	Sig.	0.000

of the appropriateness of factor analysis. On the other hand, a value greater than 0.5 in the second column, which shows the commonality extracted from the factors, confirms the suitability of the data for factor analysis. Low value for a variable means that this variable is not suitable for factor analysis.

Table 11: Commonalities

Extraction	Initial	Indicators	Extraction	Initial	Indicators	Extraction	Initial	Indicators
0.595	1.000	Brand association	0.684	1.000	Opinions	0.644	1.000	Show off
0.788	1.000	Product development	0.649	1.000	Anti-advertisements	0.669	1.000	Solidarity generation
0.758	1.000	Pricing	0.725	1.000	Brand commitment	0.733	1.000	Store atmosphere
0.731	1.000	Trust building	0.729	1.000	Product test	0.754	1.000	Product label
0.570	1.000	Brand attachment	0.701	1.000	Product/brand knowledge	0.544	1.000	Social influence
0.636	1.000	Country of origin	0.798	1.000	Perceived effectiveness	0.698	1.000	Product usefulness
0.700	1.000	Luxuryism	0.774	1.000	Risk taking	0.602	1.000	Source of information in advertisements
0.705	1.000	Materialism	0.771	1.000	Brand experience	0.713	1.000	Product availability
0.654	1.000	Self-concept	0.754	1.000	Behavioral control	0.724	1.000	Seller's Knowledge
0.732	1.000	Satisfaction	0.686	1.000	Satisfaction	0.712	1.000	Emotional/logical content in advertisements
0.776	1.000	Word of mouth advertising	0.761	1.000	Beliefs	0.714	1.000	Packing
0.742	1.000	Loyalty	0.744	1.000	Local subculture	0.796	1.000	Product value
0.657	1.000	Firm's image	0.766	1.000	Religion	0.740	1.000	Product reliability
0.726	1.000	Product display (Showcase)	0.694	1.000	Values	0.751	1.000	Product quality
0.685	1.000	Life style	0.671	1.000	Brand identification	0.691	1.000	Brand trust
0.706	1.000	Product attitude	0.706	1.000	Firm's credit	0.781	1.000	Performance expectation
0.686	1.000	Commitment to social responsibility	0.731	1.000	Brand placement	0.808	1.000	Mental norms
0.522	1.000	Information seeking	0.765	1.000	Sensory marketing	0.690	1.000	Product assurance
0.729	1.000	Brand preference	0.730	1.000	Brand characterization	0.702	1.000	Substitute good

#### 4.4.1 Total Variance Explained

This table shows the number of factors extracted from the data (primary variables). If eigenvalue of factor (in the total column) is greater than 1, it is known to be effective. According to the last column, all the factors together show some percentage of the variability of the main variables. The results of Table 12 show that the eigenvalue for 10 factors is greater than one. Therefore, the proposed factorial structure will have 10 factors that cover more than 70.87% of the cumulative variance. 13.76% of the total variance is explained by the first factor, 11.63% by the second factor, 7.65% by the third factor, and 7.29% by the fourth factor. The next factors explain less variance in order.

The factor extraction criterion based on the eigenvalue higher than 1 is mostly used in factor analysis using the Keyser method, and performing other extraction methods is doubtful since the number of significant factors in the correlation matrix in some circumstances may be underestimated. In large matrices, this solution greatly overestimates the number of factors. Therefore, to extract the number of factors, it is important to consider the amount of variance explained by each factor, especially by the scree plot. For this reason, a scree plot was drawn.

According to the scree plot, only 10 factors from are higher than the line slope of the line, and the remaining factors are almost in the same range and close to each other. In other words, 10 underlying factors underlie the 57 factors affecting the purchase intention of cosmeceutical masks made of Nano-gelatin textiles.

Table 12: Results related to cumulative variance of dimensions

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Product quality	12.910	22.648	22.648	12.910	22.648	22.648	7.843	13.759	13.759
Product reliability	8.434	14.796	37.444	8.434	14.796	37.444	6.629	11.629	25.388
Product value	4.527	7.941	45.386	4.527	7.941	45.386	4.309	7.560	32.949
Product usefulness	2.966	5.203	50.589	2.966	5.203	50.589	4.152	7.285	40.234
Packing	2.638	4.627	55.216	2.638	4.627	55.216	3.229	5.664	45.898
Product label	2.179	3.822	59.038	2.179	3.822	59.038	3.073	5.391	51.288
Product availability	1.936	3.397	62.435	1.936	3.397	62.435	2.924	5.129	56.417
Seller's Knowledge	1.787	3.135	65.571	1.787	3.135	65.571	2.909	5.104	61.521
Store atmosphere	1.423	2.818	68.389	1.606	2.818	68.389	2.840	4.983	66.504
Product display (Showcase)	1.103	2.497	70.886	1.423	2.497	70.886	2.498	4.382	70.886
Emotional/logical content in advertisements	0.997	2.158	73.044						
Source of information in advertisements	0.957	1.935	74.979						
Firm's image	0.869	1.749	76.728						
Firm's credit	0.857	1.679	78.407						
Trust building	0.798	1.524	79.931						
Sensory marketing	0.769	1.400	81.332						
Brand placement	0.751	1.318	82.650						
Brand identification	0.698	1.225	83.875						
Brand characterization	0.664	1.165	85.039						
Product development	0.632	1.108	86.148						
Pricing	0.619	1.085	87.233						
Brand association	0.529	0.928	88.161						
Brand preference	0.511	0.896	89.058						
Brand attachment	0.465	0.816	89.874						
Performance expectation	0.413	0.724	90.598						
Mental norms	0.394	0.691	91.289						
Brand trust	0.384	0.674	91.963						
Product assurance	0.351	0.615	92.578						
Product attitude	0.336	0.590	93.167						
Behavioral control	0.319	0.561	93.728						
Brand experience	0.302	0.530	94.258						
Perceived effectiveness	0.262	0.460	94.718						
Risk taking	0.251	0.440	95.159						
Brand awareness	0.229	0.402	95.560						
Product/brand knowledge	0.218	0.382	95.942						
Solidarity generation	0.213	0.375	96.317						
Social influence	0.204	0.359	96.675						
Show off	0.183	0.320	96.996						
Word of mouth advertising	0.159	0.278	97.274						
Loyalty	0.142	0.249	97.523						
Satisfaction	0.135	0.236	97.760						
Information seeking	0.130	0.228	97.988						
Brand commitment	0.120	0.210	98.198						
Product test	0.113	0.198	98.396						
Commitment to social responsibility	0.109	0.191	98.587						
Materialism	0.107	0.187	98.775						
Self-concept	0.094	0.164	98.939						
Luxuryism	0.093	0.162	99.101						
Life style	0.085	0.150	99.251						
Religion	0.079	0.138	99.389						
Local subculture	0.070	0.122	99.511						
Beliefs	0.065	0.113	99.624						
Values	0.055	0.096	99.721						
Opinions	0.053	0.092	99.813						

Substitute good	0.040	0.069	99.882
Anti-advertisements	0.037	0.064	99.946
Country of origin	0.031	0.054	100.000

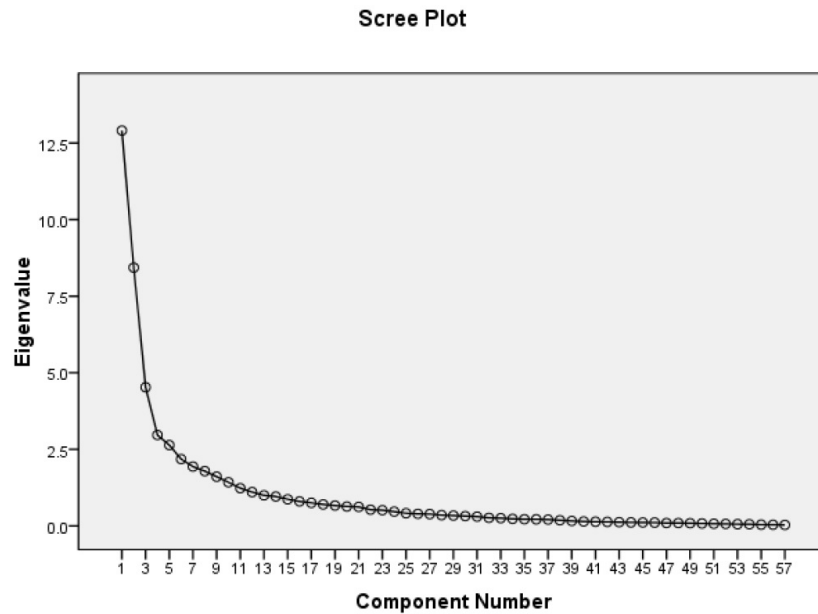


Figure 3: Scree plot to determine the number of factors

#### 4.4.2 Rotated Component Matrix

The final factor structure is presented in the rotated matrix, which includes the contribution of the variables' explained variance by the factors. The results included in this matrix are the basis for classifying variables, and a number of variables with high factor loads (at least 0.4) are added to each factor. But since in extracting factors, each question must be assigned only to one factor (or in other words, each question on a factor must have a load above 0.4), and no factor should be without load (or without assigned question), varimax rotation was used to modify the factors' composition. On the other hand, since a variable often has a high load on more than one factor, it becomes difficult to define and classify variables in factors. For this purpose, by using the rotation of the coordinate axes, it is possible to reach a favorable interpretation without affecting the results, since due to the rotation of the coordinate axis, each variable will be closest to only one factor. Each of the elements of this table shows a partial correlation between the desired structure (row) and the rotated factor (column).

As seen in the final rotated matrix, the questions have a high load on only one factor. The factors obtained from this matrix are listed in Table 14.

Figure 4 represents the tree diagram of factors and indicators affecting purchase intention of cosmeceutical masks made of Nano-gelatin textile.

#### 4.5 Confirmatory factor analysis

Confirmatory factor analysis in LISREL software was performed to measure validity. The results of this analysis regarding factors affecting purchase intention of cosmeceutical masks made of Nano-gelatin textile are shown in terms of significant figures in 5.

Outcomes of the confirmatory factor analysis of the model for measuring purchase intention of cosmeceutical masks made of Nano-gelatin textile in the standard mode, which includes the factor loadings of the indicators, can be observed in Figure 6 and Table 15.

According to Figure 5, all relationships are significant since the absolute values of significance test are all greater than 1.96. Also, since all factor loadings in Table 15 are greater than 0.4, the items explain the construct well, and the construct of purchase intention has a good factor validity.

Given the loading factors values, Show off (0.96), Behavioral control (0.94) and Brand attachment (0.9) indicators have the highest factor loading and influence purchase intention more than other ones. Also, Risk taking (0.32), Brand

Table 13: Rotation matrix

Component	Kolmogorov-Smirnov									
	1	2	3	4	5	6	7	8	9	10
Product quality	0.852									
Product reliability	0.839									
Product value	0.837									
Product usefulness	0.776									
Packing	0.766									
Product label	0.754									
Product availability	0.750									
Seller's Knowledge	0.703									
Store atmosphere	0.670									
Product display (Showcase)	0.638									
Emotional/logical content in advertisements	0.622									
Source of information in advertisements	0.588									
Firm's image		0.564								
Firm's credit		0.796								
Trust building		0.794								
Sensory marketing		0.794								
Brand placement		0.767								
Brand identification		0.761								
Brand characterization		0.748								
Product development		0.736								
Pricing		0.721								
Brand association			0.706							
Brand preference			0.638							
Brand attachment			0.598							
Performance expectation			0.870							
Mental norms			0.826							
Brand trust			0.760							
Product assurance			0.739							
Product attitude			0.498							
Behavioral control				0.770						
Brand experience				0.761						
Perceived effectiveness				0.738						
Risk taking				0.706						
Brand awareness				0.613						
Product/brand knowledge				0.513						
Solidarity generation					0.730					
Social influence					0.601					
Show off					0.538					
Word of mouth advertising					0.723					
Loyalty						0.711				
Satisfaction						0.671				
Information seeking						0.428				
Brand commitment						0.791				
Product test						0.722				
Commitment to social responsibility						0.434				
Materialism							0.737			
Self-concept							0.642			
Luxuryism							0.625			
Life style								0.482		
Religion								0.742		
Local subculture								0.712		
Beliefs									0.593	
Values									0.486	
Opinions									0.774	
Substitute good										0.683
Anti-advertisements										0.551
Country of origin										0.488

awareness (0.37) and Word of mouth advertising (0.42) indicators have the lowest factor loading with the least impact on purchase intention. Table 16 presents the most effective indicator for each factor.

Table 14: Factors affecting purchase intention of cosmeceutical masks made of Nano -gelatin textile

Factor name	Factors	Factor name	Factors
consumers' behavior	Sixth factor	Firm's functional actions	First factor
Personal factors	Seventh factor	Firm's strategic actions	Second factor
Cultural factors	Eighth factor	Consumers' attitude	Third factor
Consumers' belief	Ninth factor	Knowing the consumer	Fourth factor
Competitors	Tenth factor	Interpersonal factors	Fifth factor

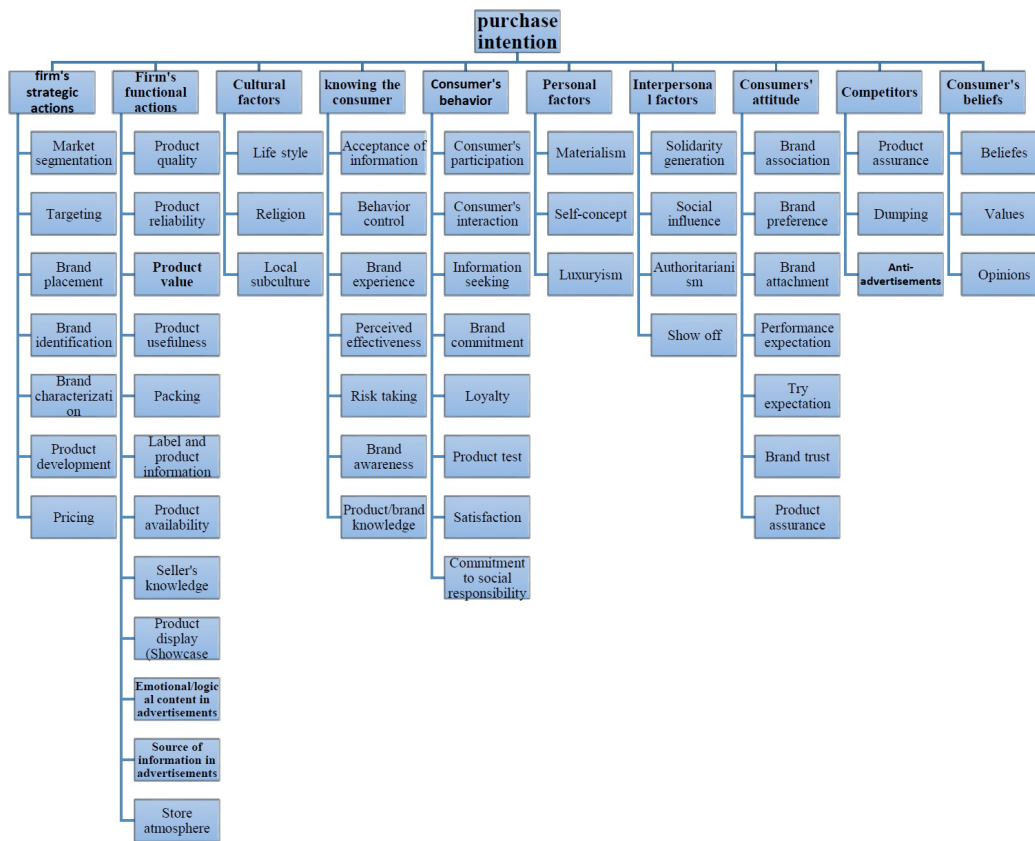


Figure 4: Tree diagram of factors and indicators affecting purchase intention of cosmeceutical masks made of Nano-gelatin textile

## 5 Discussion and conclusion

Customers are the core principle of any business and attracting and retaining them satisfied with products/services is becoming more difficult day by day. In competitive markets, there are many brands available for each product, and each organization tries to increase its market share. The performance of any business depends on the success of keeping customers in the long term. Considering the strengthening of competition between companies in finding customers for products/services, as well as increasing the power of customers in the modern competitive world, companies should not only focus on attracting new customers but should attend to maintaining former customers and establishing stronger relationships. The modern world is laden with changes, including changes in technology, information, people's desires, consumers' needs, and global markets. Among the most important changes in businesses, is the change in values that could be offered to customers, which is known as the main principle of success in current organizations. That is why leading organizations in every industry owe their success to the ability to supply and provide more value to customers compared to their competitors. Experts in marketing science believe that only by focusing resources on opportunities and creating value for customers, a sustainable competitive advantage can be achieved and an organization will have solid support to maintain its leadership position in the competition.

Due to the fierce competition among sellers and manufacturers, marketing managers want to use tools that may increase their chance of winning over competitors to sell their products more easily and quickly. An attended subject in recent years is factors influencing the purchase intention of customers. In measuring the purchase intention, it

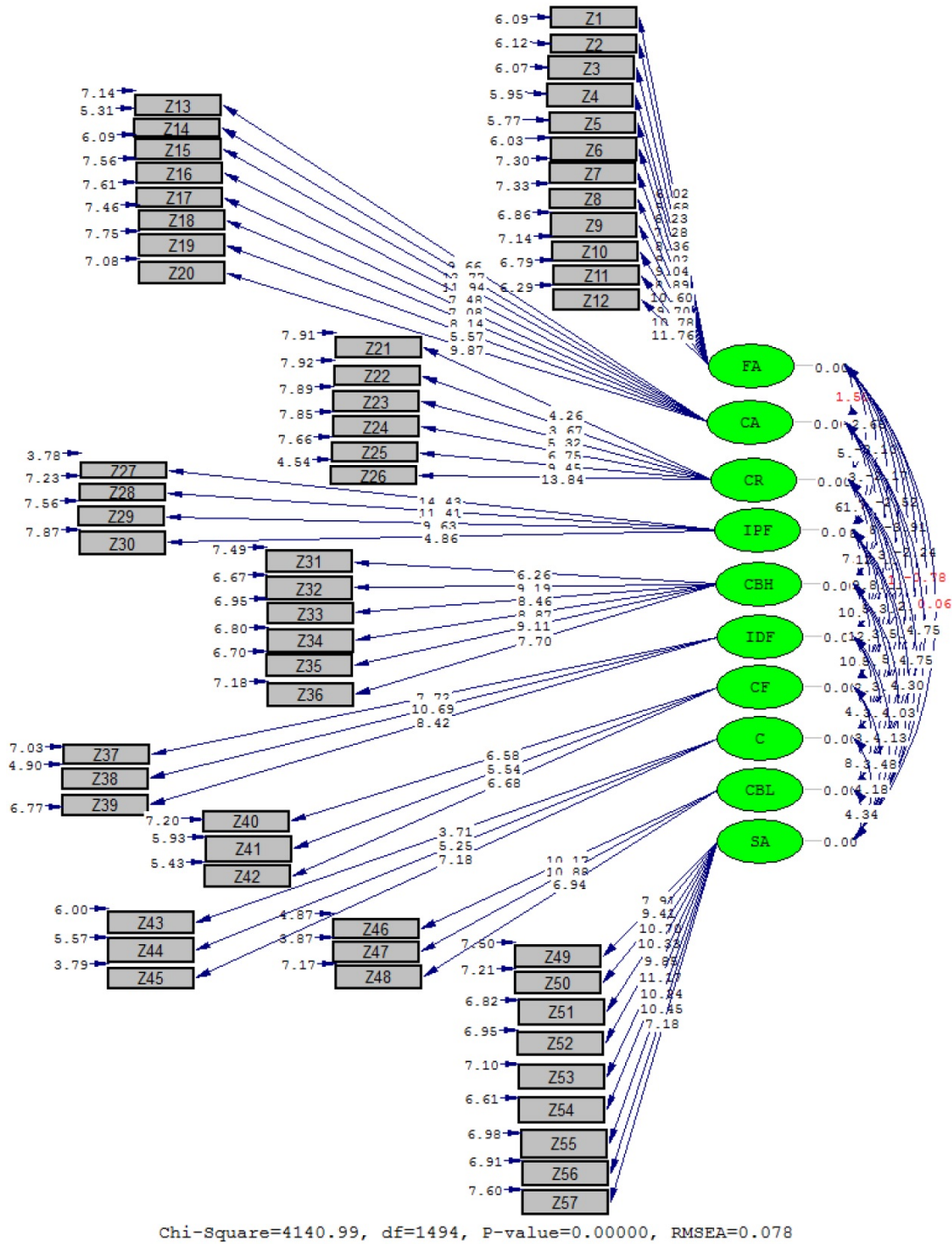


Figure 5: Confirmatory factor analysis for purchase intention of cosmeceutical masks made of Nano-gelatin textile are in terms of significant figures

is assumed that the future behavior of consumers is formed by their attitude. Purchase intention is an attitudinal variable to measure the consumers' future partnerships with the brand; while consumers' asset is a behavioral variable to record the actual purchase. Predicting consumers' behavior in future is a critical issue for a company; therefore, it must be carefully estimated. Hence, purchase intention is a suitable concept for predicting actual purchase behavior. Buying has various reasons including the need for a specific product or service; For example, consumers may decide to buy a product for entertainment, recreation, social reactions, or mental stimulation. In fact, understanding consumers' behavior and identifying the reasons for their purchase intention plays an important role in the success of marketing





Brand placement	0.76	
Sensory marketing	0.88	
Firm's credit	0.78	
Pricing	0.79	
Firm's image	0.60	
Source of information in advertisements	0.60	
Product reliability	0.58	
Product label	0.62	
Store atmosphere	0.69	
Packing	0.76	
Product quality	0.77	
Emotional/logical content in advertisements	0.71	
Product availability	0.71	
Product display (Showcase)	0.80	
Seller's Knowledge	0.75	
Product value	0.81	
Product usefulness	0.85	
Values	0.81	
Opinions	0.86	
Beliefs	0.60	
Satisfaction	0.54	
Product test	0.74	
Brand commitment	0.69	
Information seeking	0.72	
Commitment to social responsibility	0.73	
Loyalty	0.65	
Country of origin	0.43	
Anti-advertisements	0.58	
Substitute good	0.77	
Brand awareness	0.37	
Risk taking	0.32	
Product/brand knowledge	0.45	
Perceived effectiveness	0.56	
Brand experience	0.73	
Behavioral control	0.94	
Show off	0.96	
Social influence	0.83	
Solidarity generation	0.74	
Word of mouth advertising	0.42	
Self-concept	0.65	
Luxuryism	0.83	
Materialism	0.70	
Religion	0.58	
Life style	0.58	
Local subculture	0.67	
Brand preference	0.75	
Brand attachment	0.90	
Performance expectation	0.86	
Brand association	0.62	
Product assurance	0.59	
Brand trust	0.66	
Product attitude	0.48	
Mental norms	0.76	

Table 16: Highest factor loading of the indicator for each factor

<b>Factor</b>	<b>Indicator</b>	<b>Factor loading</b>
Firm's strategic actions	Sensory marketing	0.88
Firm's functional actions	Product usefulness	0.85
Consumers' belief	Opinions	0.86
Consumers' behavior	Product test	0.74
Competitors	Substitute good	0.77
Knowing the consumer	Behavioral control	0.94
interpersonal factors	Show off	0.96
Personal factors	Luxuryism	0.83
Cultural factors	Local subculture	0.67
Consumers' attitude	Brand attachment	0.9

strategies. Studying the factors that influence the consumers' purchase intention, as well as examining the impact of each of these factors on their willingness and intention to buy, leads to understanding their behavior. This information helps marketers to offer a product that is more in line with the consumers' needs and wants. Many companies and organizations have adopted new marketing concepts and acted accordingly. They have realized that focusing on the consumers' needs is a critical requirement of marketing orientation. Thus, discovering consumers' needs and analyzing the process of their behavior, as well as prioritizing the influencing factors in this process, is the main task of marketers.

To answer the questions of this research, three stages of analysis were implemented. In the first stage, indicators affecting purchase intention were identified through a systematic review of theoretical literature and qualitative content analysis of indicators using NVIVO software. 81 indicators were the output of this step. Considering that these indicators included the general indicators of purchase intention, in order to identify final indicators specific to the purchase intention of cosmeceutical masks made of Nano-gelatin textiles, the second step of the analysis was implemented using the Delphi technique. 81 indicators were provided to the experts, who included academic professors and industry experts aware of the factors affecting the purchase intention of cosmeceutical products. Also, a video about the improved properties of Nano-gelatin textiles in the cosmeceutical industry prepared in the previous step was presented to these experts. A Delphi questionnaire was distributed six times. Then, by summarizing the final indicators specific to the purchase intention of cosmeceutical masks made of Nano-gelatin textiles, 57 final indicators were recorded. In the third step, by performing exploratory and confirmatory factor analysis, 10 factors out of these 57 indicators were extracted as final factors, including Firm's functional actions, Firm's strategic actions, Cultural factors, Consumers' knowledge, Consumers' behavior, Personal factors, Interpersonal factors, Consumers' attitude, Competitors and Consumer belief.

To design a comprehensive model in order to fully identify the factors affecting consumers' intention purchase intention of Nano-gelatin products in the cosmeceutical industry in Iran, the following are suggested:

- Companies should consider the culture, and even the subculture, of various countries and their potential customers. Social class, which affects people's values, interests and behaviors, is influenced by economic factors. In presenting their products to the market, companies should attend to the social class of their customers and offer different products for each social class to cover the needs of the majority.
- Characteristics of customers' families and reference groups influence his/her decisions to buy a product. Therefore, companies in cosmeceutical industry should provide products that fit family's values. Psycho-individual factors also affect customers' decision and purchase intention.
- Companies should offer a variety of products considering the personality and interests of potential customers.
- Stores that companies choose to supply their cosmeceutical products should have a suitable arrangement to facilitate the customers' access to these products. The hygiene condition and temperature of the store to prevent cosmeceutical products from spoiling is also important.
- Customers buy products for certain reasons. Therefore, companies should focus on customers' needs and demands, and offer various products according to their different and tastes.
- Time to buy products needs attention. Products should be presented to the market according to different times/seasons, especially in the case of cosmeceutical products (for example, in the summer, sunscreen creams are needed more).

- Regarding advertising measures, companies should focus on real features of products to create an honest mentality for their customers. In other words, with the entry of new competitors and of similar products, companies should differentiate their products from similar ones by using appropriate advertising tools.
- Branding of products made of Nano-gelatin textiles in the cosmeceutical industry should be given special attention. The consumption of Nano-gelatin textile products in this industry in the form of healthy and environmentally friendly products should be institutionalized as a value. Additionally, in order to improve the brand image, there should be a commitment to fulfill the promises made to the customers on time and based on the features provided.
- Due to the increase of fraud in the Nano and cosmeceutical industry, many people believe that advertisements are often false, and they just want to convince customers to buy products that lack the claimed characteristics. As consumers form attitudes toward brands and services, they also form attitudes toward advertising. Focusing on social important matters, including customers' attitudes values, beliefs and behaviors, increases advertisements' acceptability and leaves a better impression in customers' minds. Providing scientific results about products is beneficial for enhancing customers' trust.

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