Part A: English Edition

Journal of Textiles and Polymers

Vol. 9, No. 1, 51-63, 2021

ORIGINAL PAPER

Effect of Brand Image and Interior Design of Sportswear Retailers on Loyalty: A Statistical Approach

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Received: 3 August 2019, accepted: 20 October 2020

***Abstract*- This paper examines the impact of interior design and brand image on repurchasing and customer loyalty for sportswear products. In doing so, stratified sampling of target markets is considered for data gathering. In this respect, we apply C-means clustering technique regarding crucial attributes affecting customers' market of sportswear. The data are collected using a self-administered questionnaire from respondents belonging to the resultant clustered market. We make the most of factor loads and t-test analysis to investigate the proposed conceptual model. Moreover, this study is performed by using SPSS to verify the reliability, and validity of the measured variables. Hypothesis tests are done utilizing structural equation model (SEM) as a statistical method. The results of this paper indicate the significant relations among interior design, brand image and customer loyalty. Finally, one-way and two-way analyses of variance (ANOVA) are conducted in order to clarify dependency of findings to demographical variables.**

***Keywords*: clothing marketing, statistical analysis, brand loyalty, interior design of clothing stores, structural equation modeling**

I. INTRODUCTION

In today's marketing world, brand is not known just as a simple identification of products by labels, and it becomes the aggregation of ideas and product characteristics such that it generates customer's value. As such, brand is composed of two groups of elements: tangible and intangible elements, which are generally interpreted by consumers [1]. The tangible elements include certain subsets such as, brand name, logo and signs, packaging of product, product design, communication marketing, designs of point-of-sale (POS), and performance of product. On the contrary, the intangible elements contain brand image, brand personality, brand heritage, market share and social message [2].

Keller [3] defined brand image as "perception of a brand which develops in the customer's memory". Campbell [4] suggested that a mixture of customer's perceptions and beliefs of a brand create brand identity. Moreover, the brand image is known as an overall impression of the product held by the customers. Likewise, brand attitude is a set of customer's beliefs about a brand. Put simply, these two interrelated concepts generate the brand knowledge. Brand image consists of four subsets. The first part is the type of association between consumer and brand for measuring the brand image developed in consumer's mind. Brand favorability, as the second subset, is determined by following the brand and also consumer's inclination to buy other products of the brand. The third subset is the brand strength which consumer perceive in his mind. The last part, brand uniqueness, is of the physical characteristics of product itself or other aspects of the brand [5]. The interested reader may refer to Keller [4] for more details.

Brand equity for a company results from customer loyalty (CL). In the case of valuation of a brand, brand loyalty (BL) is known as a one of the major features. This is because a pool of loyal customers could create a flow of sales and profit for the brand owner. Due to the unique values of products which do not exist in alternative options, a customer might pay more money to purchase them. In addition, loyalty, as an asset, could lead to sales increase [6]. By reducing the advertisement costs, BL inhibits competitors from entering the market niche. And it turns

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into business leverage for occupying more space in the consumer's mind [7]. BL creates a suitable brand and offers the opportunity of competitive reaction to competitors' motions. Furthermore, BL could contribute to development of product and brand [8].

Despite the fact that brand image and personality affect sales, the store's interior design has an influence on the formation brand image and personality in the customers mind. Interior design and store's architecture and atmosphere could affect brand identity. By store's interior architecture, the store tends to intentionally show that the brand and its related products are consistent with lifestyle, images and customers' ideals. It could generate values for the customers. In this respect, the store should reflect social beliefs and messages of organization to customers in an inspiring manner. Through this, as they enter into the stores they believe that they have entered a different world with certain beliefs and ideals.

In retailing channels, different brands use specific styles for their store designs which result in unique design of each brand. In sports clothing stores, the essence of brand plays a more significant role in attraction of consumers' demand. Contrastingly, interior design and the customer's feeling induced at the time of purchase affect customer's demand and behavioral-cognitive model.

While the importance of brand in clothing marketing has been investigated by both practitioners and scholars, few papers have focused on the branding elements and in-store design especially for sportswear apparels. This is a crucial research area in which the marketers are able to realize the customers' behavior regarding interior design and brand equity. To address this gap, this paper tries to in-depth analysis of customers' behavior, i.e., loyalty and return to store in relation to brand image and interior design of sportswear stores. Our study examines whether the customers' behavior is influenced by the relationship between brand image and store design for clothing marketing.

The remainder of this paper is constructed as follows: Section I. A reviews the related literature. Section II. A presents the methodology and sampling method. Section II. B is about the conceptual model and research hypotheses. Data analyses including demographic and structural equation modeling are provided in section III. A. This is followed by one-way and two-way analysis of variance (with mutual effect) in sections III. B and IV. A concludes the paper.

A. Literature Review

In this section, closely relevant papers are reviewed to analyze previously published papers on the clothing marketing and branding. We review those papers related to BL and brand image in section I. A.1 Then, the role of interior store design in marketing is considered in section 2.2.

A.1. Brand Image and Loyalty

Nguyen and LeBlanc [9] studied the effects of customer satisfaction, service quality and value of approaches and CL on services of companies. In addition, their findings suggested that those customers who receive higher quality of services develop more desirable image of companies. Similarly, customer satisfaction and viewpoints have been found as factors influencing loyalty to services. Hsieh and Lee [10] investigated the effect of brand image on public communication and CL. They found that customers' viewpoints of performance of the public relations departments' performance is prior to loyalty. To find the relationship between BL and reliability, Matzler *et al.* [11] further analyzed the association between customers' risk aversion and BL.

In an interesting study, Kuusik and Varblane [12] analyzed the ways of customers' prevention from rejecting a brand. They found that the identical behavior toward all customers to increase their loyalty is not a proper measure. Cretu and Brodie [13] analyzed different aspects of brand image and organizational fame on customer's perception of product as well as the difference of service quality, customer value and BL. The obtained results suggest that brand image exerts distinct effect on customers' perceptions of high-quality products or services. Nyadzayo and Khalajzadeh [14] studied the effect of CL and brand image on customer satisfaction. The required information was collected through a questionnaire on a South African engine building brand and analysis was done through Likert scale, multivariate equations and AMOS Software. They found that CL will increase if brand image is strong. In a similar vein, Durrahi *et al.* [15] investigated the association of brand image and BL with satisfaction and purchase point of consumers of Toyota cars. Their results suggest that development of brand image, resulting from available resources and quality, positively affects customer satisfaction and their purchasing point. The association of BL with brand image and brand trust was analyzed by Al-Haddad [16]. In his study, the questionnaires were distributed among 286 students of Business Management Institute. The collected data was analyzed through regression method and the obtained results suggested that brand image affects BL and brand trust significantly. Pettijohn and Mellot [17] found that retailer's image is dependent on brand's image using Heidar's formula for determining congruent relationships. In a similar vein, Vhia and Paswan [18] analyzed the association between brand image and store image of national brands through empirical study. Their finding indicates the critical role of

store atmosphere and store quality in customers' behavior. Rahmon and Islom [19] addressed the effect of brand image and brand favorability on customer commitment to garment fashion brands. The data analysis was conducted through structural equation modeling (SEM). They found that brand image affects customer's commitment to brand. In another study, Kim *et al.* [20] discussed the associations between different characteristics of male consumers, fashion participation, fashion innovation, and BL. The questionnaires were distributed among some fashion-wearing men of the age range of 18 year to 27 years. The collected data were analyzed through SEM and factor analysis.

In textile marketing, Prabhu and Srividhya [21] sought to determine the brand development strategy of sports clothing market for the people living in India so as to highlight the effect of brand image on garment brand development. The results suggested that initial image of product and the approach of the brand to environment affect brand image.

A.2. Interior Store Design and Image

Park and Lennon [22] analyzed the brand promotion in terms of notions of online purchase. They determine the effect of brand name and brand promotion on customer's perceived value, image of store and willingness to buy. They suggested that brand name exerts a positive effect on perceived image of the store in customer's mind. Dawana and Davis [23] also measured the effect of brand labelling and store image on the perception of clothing characteristics. In this case, reactions of people to identical clothes with different logos were analyzed so as to study the brand image. The results suggested that brand image significantly affects consumer's perception of presented clothes. Calince and Carmel [24] conducted a study on interior design as a branding deriver. The variables consisted of certain elements of environment of retail stores as well as buyer's response to such elements. The results suggested that the way of using the stores' space and the way of products' presentation exert the highest positive effect on attracting the customers. Another study on sport wears was conducted by Sherma [25] by investigating the association between store image and brand equity by regression method.

Moreover, numerous studies on brand image and CL have been conducted. However, their association in clothing industry has not yet been studied independently. This is more vivid in the case of sport clothes on which numerous studies have been conducted. As suggested in literature review, interior design has not drawn the attention of researchers working on papers on BL. This is while interior design could affect attraction of customer demand and his/her reaction. To the best of our knowledge, the previous studies have not addressed the concurrent effect of tangible and intangible elements, effect of these two categories of elements on each other, and their effect on BL especially in clothing industry. Table I shows some of the studies on clothing sector and their analytical methods as well as relevant details of present study.

As can be seen in Table I, the body of research works on this field is thin and in the case of sport wears, most of previously conducted studies emphasize engineering characteristics (i.e., their heat transfer capabilities). This means that the effect of brand image on consumer loyalty has not been sufficiently addressed in this area. The only paper in which store design and brand image have been studied is that of Pettijohn and Mellot [17]. They only considered the congruence between design and brand

TABLE I
CLASSIFICATION OF THE MOST RELEVANT PAPERS IN THE LITERATURE

References	Research variables			C-means clustering	ANOVA between target respondents	Tangible elements of branding	Research method	Type of apparel
	Loyalty	Store design	Brand image					
23		✓				✓	SEM	-
18			✓				ANOVA	Women dress
17		✓	✓			✓	SEM	Women dress
20	✓						SEM	Youth (21 year to 23 years old)
27		✓					Descriptive	Men (18 year to 27 years old)
19			✓				χ^2	-
21			✓				SEM	Fashion
25		✓				✓	SEM	Sports wears
This research	✓	✓	✓	✓	✓	✓	SEM	Sports wears

image without involving customer behavior in re-purchase or return to store. Hence, reinforcement of available brands and study of customer behavioral patterns in dealing with brand and interior store design affect competitiveness of domestically produced clothes. Most importantly, we apply a well-known algorithm in clustering (i.e., C-means) in our sampling process. Notably, previous research works consider cluster analysis as a predetermined parameter (exogenous input). Through this, we are able to take into consideration different attributes affecting sportswear market. Moreover, we analyze the dependency of our results on demographic variables of target respondents through one-way and two-way ANOVA.

II. EXPERIMENAL

A. Sampling

To collect the required data in a way that the extracted information could be analyzed through statistical methods, a questionnaire is designed. In detail, the questionnaire design has been done in multiple steps. First, the factors affecting brand image and interior design are identified. Through field studies and interview with experts of interior design, important factors to be considered in clothing sports stores are determined, and addressed in the questionnaire. In other words, customers' attention to interior designs and effects of such designs on customers' visitation were measured. Finally, effect of designs of stores on customers' attraction, loyalty and consequent visitation were measured. After questionnaire items were developed, the questionnaires were initially distributed in a statistical sample consisting of 30 subjects so as to verify their face validity. Based on the experts' opinions, final adjustments of the questionnaire were done and final version of the questionnaire was prepared. Fig. 1 is a schematic representation of our questionnaire design process.

The brand image questionnaire consists of 20 items and the questionnaire of interior design of store includes 19 items. In fact, the items of both questionnaires were designed in closed manner (multi-choice option) because the intended data can be extracted quantitatively. The analysis of gathered data will be also simpler. The scoring system is considered based on five-point Likert scale (i.e., very low, low, medium, high, and very high). The brand image questionnaire has three constructs namely, brand image measurement, loyalty and re-visitation, and measurement of image of multiple sports brand of the market. In addition, the constructs of store interior design questionnaire include the characteristics of location, internal facilities, distinction, and loyalty and re-visitation. The statistical population includes the users of sportswear in Tehran City at the age of 15 years to 40 years. In other words, if we select a sample as a representative of intended population, each of its members is research sample who is studied through intended questionnaire items. Since size of the population is infinite ($N \to \infty$), statistical sample size is estimated through Cochran's formula [26]:

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N}\left(\frac{z^2 pq}{d^2} - 1\right)} \tag{1}$$

Where, d is a desirable probable precision such that the value of which could be selected arbitrarily from 0.01 to 0.05. Since this quantity signifies acceptable error, its lower value is correlated with higher precision. Since total number of representative observations should be acceptable in terms of relevant costs and time, the researchers selected the value 0.05. Therefore, the statistical sample size is obtained as follows. To sum up, desired confidence level (α), desired level of precision (d) and estimated proportion of the attribute (p) are 0.95, 0.05, and 0.5, respectively:

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 385 \tag{2}$$

The acceptable sample size, for the statistical population of Tehran City, is computed 385. Since some of the returned

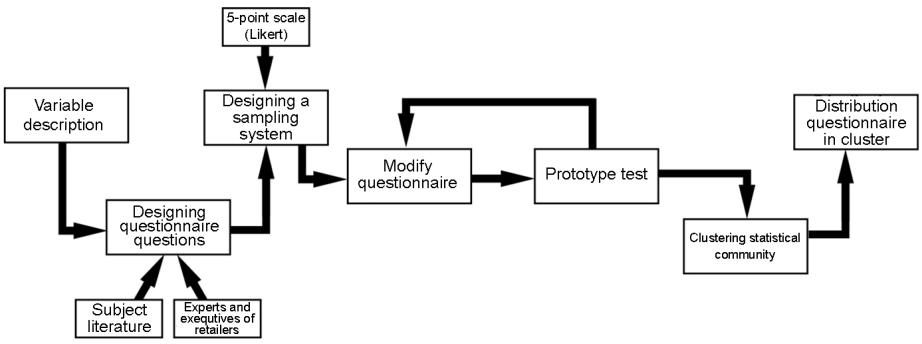

Fig. 1. Sampling process and questionnaire design.

TABLE II
IMPORTANT INDICATORS AFFECTING THE MARKET OF SPORT GARMENTS

Row	Indicators
1	Income
2	Population in each region
3	Employment rate
4	Number of families per district

questionnaires may not be applied, about 400 questionnaire forms are distributed among members of intended statistical population during winter 2017. In regard to choice between simple random sampling and stratified sampling, the latter method was adopted. Statistical population size of Tehran City is high and the people in the statistical population have different purchasing tastes and capabilities. In the case of adaptation of simple sampling method, information of each family living in Tehran should be enlisted separately. Hence, this method is highly costly and time-consuming. Therefore, adaptation of stratified sampling method is more desirable. In order for intended sample of sportswear users represent the population, the sample was classified into certain clusters based on measures of statistical population. Then, samples were included into the cultures. In one of the previously conducted studies on urban planning of Tehran City, certain measures for classification of 22 regions were introduced (see Table II). The measures were income, demographic density, rate of employment, number of families, and sports index.

To divide the statistical population into subgroups for further initiation of studies, target population sampling was investigated through K-means clustering method. The measures are represented in Table II along with classification of Tehran City into 22 regions. For this algorithm, different forms were offered but all of them have repetitive routine. For a fixed number of clusters, the following items will be estimated:

- Determination of certain points as clusters centers,
- Attribution of each data sample to a cluster so that the data is at a minimum distant from the center of the cluster.

Eq. (3) stipulates the objective function of K-means clustering method which applied to segment the statistical population [27]:

$$J = \sum_{j-1}^{k} \sum_{i-1}^{n} \| x_i^j - c_j \|^2 \tag{3}$$

Where, $\|.\|$ is norm, c_j is the center of the jth cluster, and x_i^j is the ith point of the jth cluster. In our statistical population, number and member of selected cluster are reported in Table III and Fig. 2, respectively.

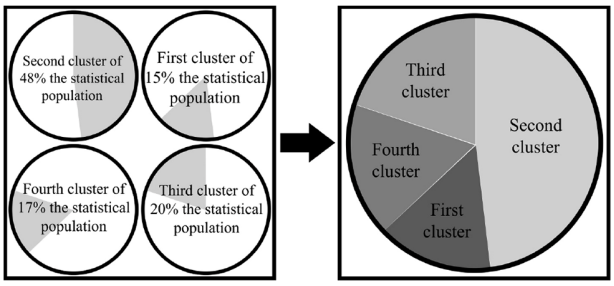

Fig. 2. Statistical subpopulation in our stratified sampling.

TABLE III
MEMBERS OF CLUSTERS

Cluster	Cluster members
1	1, 3, 6, and 7
2	2, 4, 5, 8, 11, 12, 13, and 14
3	9, 15, 19, 20, and 21
4	10, 16, 17, 18, and 22

As tabulated in Table III, the first sampling cluster includes regions 1, 3, 6, and 7. The second cluster consists of regions 2, 4, 5, 8, 11, 12, 13, and 14. The regions 9, 15, 19, 20, and 21 are included in the third cluster. Finally, the fourth cluster includes regions 10, 16, 17, 18, and 22.

B. Conceptual Model and Research Hypotheses

To investigate the effective relationships of research variables, two general hypotheses are considered. The first is the brand's image, which is that brand image formed in the mind of the customer has direct impact on BL and return to the store. For this purpose, first, brand image and then loyalty are measured. Brand image also affects the interior design of the store and the customer receives it, in other words brand image has an indirect effect on BL. In the second part, it is hypothesized that the interior design also affects BL, and return to the store. Therefore, in the interior design questionnaire, the points that are taken into consideration in clothing stores are considered. Fig. 3 shows the conceptual model of the research including all the hypotheses. As it is obvious in the brand image, the overall image of the brand is taken into account along with

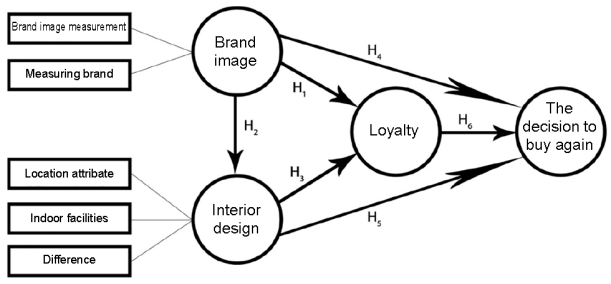

Fig. 3. Hypotheses in our conceptual model.

the brands' measurement. The attributes of the location, interior features and distinctive image are taken into account in the interior design. The research hypotheses under consideration are shown in Fig. 3 to discover the relationship among research variables.

H_1: Brand image affects CL to brand,
H_2: Brand image affects the interior design of the store,
H_3: In-store design has an influence on CL to brand,
H_4: The brand's reputation affects customers return to the store,
H_5: The interior design has an effect on the customers return to the store,
H_6: BL leads to return to the store.

Through these hypotheses, we are able to find credible information about the type of relationship existing among the variables. Hence, the results of these tests provide guidelines on the status of the relationship, i.e., the behavior of the sports clothing customer. To determine the reliability of the questionnaires, the Cronbach's alpha is calculated for each structure, and the deviation of each group is also measured relative to the total. To be specific, the brand image questionnaire has three main elements of brand image, loyalty and re-purchasing decisions. The result of the test is provided in Table IV along with the output of SPSS software.

Table IV suggested that the brand image questionnaire has three constituents, which the first two are of rank quality and the third is of nominal quality that Cronbach's alpha related to it is not mentioned. The Cronbach's alpha in both

TABLE IV
RELIABILITY OF BRAND IMAGE STRUCTURES

Structures	Output SPSS	
	Cronbach's alpha	Number
Brand image	0.934	12
Loyalty and return	0.829	5

TABLE V
RELIABILITY OF INTERIOR DESIGN STRUCTURES

Structures	Output SPSS	
	Number	Cronbach's alpha
In-store layout	6	0.890
Interior facilities	7	0.953
Innovation in in-store decoration	4	0.836
Loyalty and re-purchasing	2	0.844

structures is computed higher than 0.7. The acceptable level for Cronbach's alpha is 0.7 [26]. Therefore, the reliability of our questionnaire is acceptable. The questionnaire for the interior design consists of four constituents. The results of the Cronbach's alpha test are shown in Table V.

In-store layout includes the placement of items within the store. It also helps recognize the pattern of customers' flow passing through the store. Interior facilities of shopping stores are about everything makes the shopping more comfortable. For instance, furniture, shelving, pegboard fixtures, standard fitting rooms, long mirrors are used as facilities for shoppers. Moreover, innovation in in-store decoration includes flooring styles, lighting, walls, and ceiling colors.

As can be seen from Table V, the reliability of the test is 0.7. In Table V, it is obvious that all constituents have an acceptable value of Cronbach's alpha. In Table V, Cronbach's alpha of the entire research is shown and, as can be seen, both questionnaires have acceptable reliabilities. The highest value of Cronbach's alpha, 0.935, is related to the internal facilities and the lowest value of Cronbach's alpha is loyalty and the reciprocation decision, which is 0.899, and has a meaningful significance value.

III. RESULTS AND DISCUSSION

A. Data Analysis

A.1. Demographic Analysis

Questionnaires are considered with regard to some qualitative variables such as gender, age, education, and

TABLE VI
DEMOGRAPHIC ANALYSIS

Age		Income		Education	
15-20	13%	Under 500	25.5%	Diploma	26%
20-25	38%	500-1000	23%	Associate Degree	12%
25-30	20%	1000-1500	24%	Master	49%
30-35	12%	1500-2000	13.6%	PhD	13%
35-40	17%	Upper 2000	13.6%		

*Female: 58%, Male: 42%

TABLE VII
MEASURING VARIABLES

Variable	Corresponding number	Average	Standard deviation
Brand image	q_1-q_2	5.91	0.346
Interior design	t_1-t_{17}	6.02	0.843
BL	t_{18}, q_{13}-q_{17}	5.78	0.540
Return	t_{19}, q_{18}	7.05	0.403

income. Considering the distribution of the number of questionnaires, a descriptive study of them in the first step of the statistical analysis of this research with their frequency is as follows.

As shown in Table VI, there is a relative balance in the case of questionnaires' respondents, but the female population is higher. The maximum sample size is between the ages of 20 and 25, and the second group is between 25 and 30, and the majority of people are youth. Regarding the education of respondents, the number of people with undergraduate education is more than the rest. Eventually, about a quarter of people have up to 500,000 Toman (Iranian currency) incomes.

A.2. Structural Equations Modeling and Factor Analysis

Since the conceptual model and relations between variables

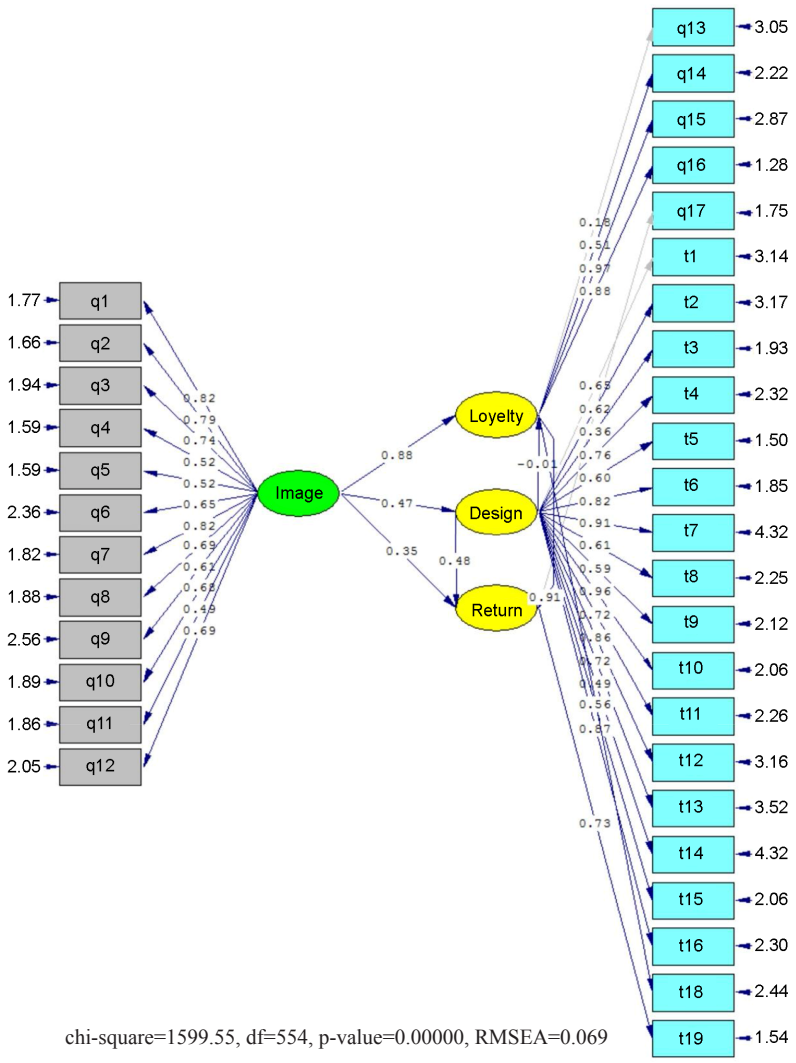

Fig. 4. Factor load results of hidden and observed variables.

TABLE VIII
OBSERVED VARIABLES IN THE STRUCTURAL EQUATION MODEL

Variables	Corresponding number in the questionnaire
Brand image	q_1-q_{12}
Interior design	t_1-t_{17}
BL	t_{18}, q_{13}-q_{17}
Return	t_{19}, q_{18}

have been preset in this research, the purpose of the factor analysis is to confirm or reject this framework in advance. We deal with a multi-composite model in this research. Therefore, LISREL software, and structure equation modeling method are used to modify the proposed model.

Table VII shows the standard deviation of the main variables of the research hypothesis with their means. Evaluation of the variables is done with the questions of the research constituents in the questionnaires, in other words, the average response of a set of questions is the average of the main variables of the research. Fig. 4 shows the factor load or, in other words, the standard regression between hidden and obvious variables. In Fig. 5, which is the output of LISREL software, there are a number of arrows, the variable that the arrows start from is an explicit variable, and the arrow head is a latent variable, and the number indicated on the arrows indicates the factor load between the variables. For an acceptable relation between two variables, the absolute value of the factor load must be more than 0.3.

In LISREL output model, the rectangles represent observed variables, and the ellipses represent hidden variables. Observed variables are those variables that form the questionnaire. As shown in Fig. 5, each of the main

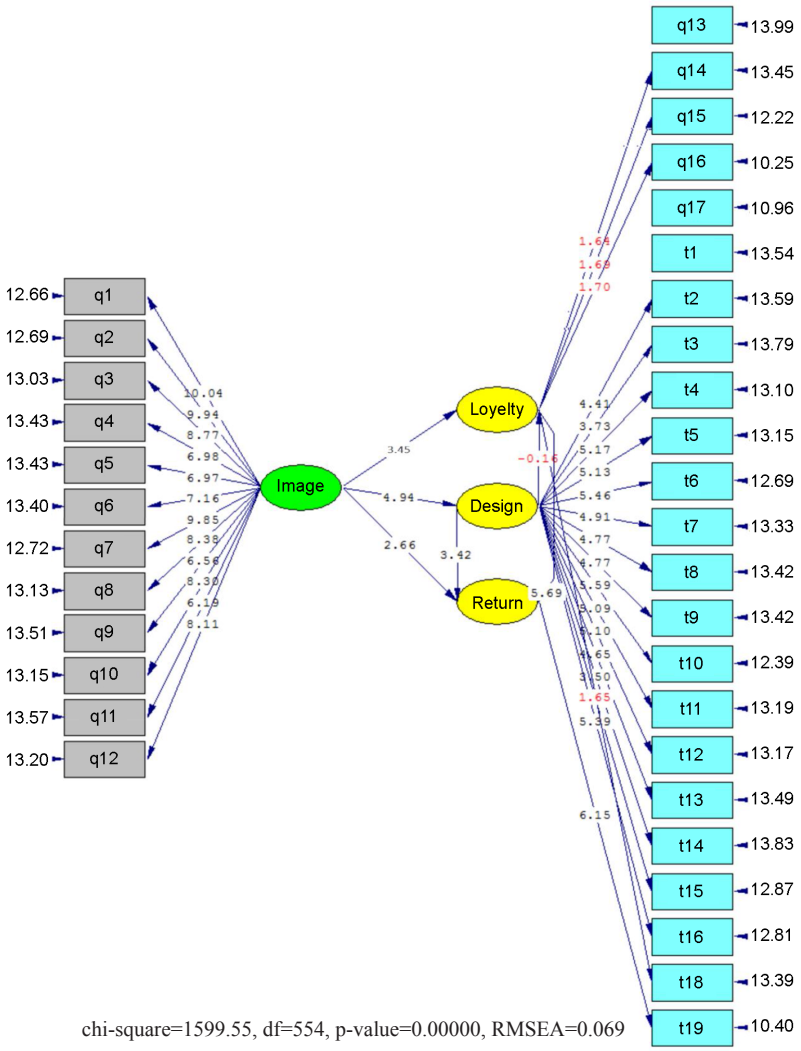

Fig. 5. T-test results.

TABLE IX
FACTOR LOAD MATRIX OF VARIABLES

Structure	Return again	BL	Interior design	Brand image
Brand image	0.35	0.78	0.47	-
Interior design	0.48	-0.01	-	0.47
BL	0.91	-	-0.01	0.88
Return again	-	0.91	0.48	0.35

TABLE X
ANALYSIS OF FACTOR LOAD RESULTS

Hypothesis	Hypothesis	Factor load	Relationship status
Brand image affects the interior design of the store	H_1	0.47	Acceptable
Brand's image affects BL	H_2	0.88	Acceptable
Brand image affects returning to the store	H_3	0.35	Acceptable
Interior design of the shop relates to CL to the brand	H_4	-0.01	Weak
Interior design is related to the customer's return to the store	H_5	0.48	Acceptable
CL to the brand leads to a return to the store	H_6	0.91	Strong

variables consists of a number of questions, which are summarized in Table VIII.

Table IX presents the factor load between hidden and observed variables. In Fig. 6, the relationship between interior design and BL is weak. Contrastingly, the relationship between brand image and interior design, and the relationship between brand reputation and return to store are acceptable. Likewise, the relationship between branding and BL, and also the relationship between BL and return are significant. It should be noted that at this stage, conclusion could not be made, and only the strength of the variables is determined. Decision on the relationship between constituents is presented in Table X.

It is apparent that the factor load is not only a sufficient test to conclude on the existence or non-existence of a relationship between the variables. In LISREL, the t test is applied on the data to make definitive conclusions. In this respect, the acceptable level to prove the existence of a relationship is that the absolute value of the t test should be at least 1.96. In other words, if the absolute value of the t test statistic (between the two variables) is greater than 1.96, a significant relationship is recognized between them. In Fig. 5, the final test results are displayed and the t statistic value is displayed on the arrows. The results are also summarized in Table XI.

The Table represents that t test between the interior design and BL (H4) with a value of 0.01 is less than 1.96, and the relationship between these two variables, in which interior store design is a dependent variable and loyalty to brand is an independent variable, is rejected. But other research hypotheses are acceptable and confident. Table XI also shows that brand image affects interior store design, BL and return to the store. The interior design also affects return to store and it is concluded that the loyal customer will return to the store. To measure the accuracy of obtained from LISREL software, there are two indicators that should be within a specific range that is extensively listed in Table XII. As can be observed from Table XI, brand's image

TABLE XI
ANALYSIS OF T-TEST RESULTS

Hypothesis	Hypothesis	T-value	Hypothesis state
Brand image affects the interior design of the store	H_1	4.94	Confirmed
Brand's image affects BL	H_2	3.45	Confirmed
Brand image affects returning to the store	H_3	2.66	Confirmed
Interior design of the shop relates to CL to the brand	H_4	-0.16	Reject
Interior design is related to the customer's return to the store	H_5	3.42	Confirmed
CL to the brand leads to a return to the store	H_6	5.69	Confirmed

TABLE XII
TEST MEASUREMENT INDICATORS

Index name	Abbreviation	Acceptable level	The amount obtained in the model	Decision
Root mean squares estimated error	RMSEA	Under 0.08	0.069	Confirmed
Chi-square/degree of freedom	χ^2/df	Equal to and smaller than 3	2.88	Confirmed

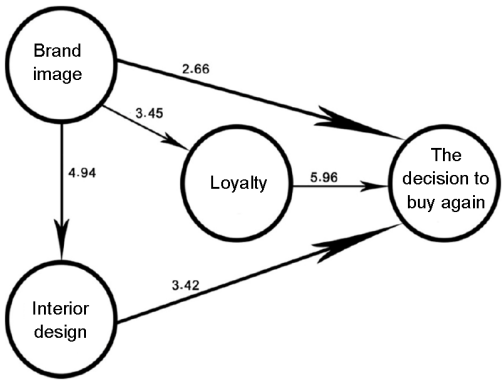

Fig. 6. Verification of research model by structural equation modeling.

affects BL. Notably, this finding is in line with that of Rahmon and Islom [19] in which they also found a direct relationship between brand image and CL for fashion apparel customers. However, they did not conclude any relationship between loyalty and return to store, our results show that CL to the brand leads to a return to the store.

In Table XII, both indicators are within the approved range, and it can be mentioned with certainty that the tests conducted in the conclusion path with LISREL software have the necessary qualifications for the conclusion. It is concluded that the initial research hypotheses (cf. Fig. 4) are confirmed as Fig. 6.

As can be seen from Fig. 6, brand image and BL have significant relationship. Moreover, interior design affects re-purchasing decisions of customers. Loyalty to the brand is in relation with return, and the interior design is only in relation with return to the store. This finding is in line with Vahie and Paswan [18]. Nevertheless, they found direct relationship between store design and perceived quality by customers. In fact, our finding generalizes that of Vahie and Paswan [18] to customers' behavior whilst facing interior design.

B. Analysis of Variance (ANOVA)

In this section, we are apt to examine whether our findings depend on demographic variables or not.

B.1. One-Way ANOVA

Analysis of variance is an efficient statistical method for comparing the mean of a quantitative trait at the levels of a categorical variable. An analysis of one-way variance is used to compare the mean of a quantitative trait in more than two groups. In the one-way ANOVA, H_0 and H_1 try to determine if there is significant difference between the means of three or more unrelated groups. In other words, one-way ANOVA shows if any of those means are statistically significantly different from each other (in our study, clusters consisting of 22 regions). The proposed mathematical model of this research is presented by Eqs. (4) and (5):

$$SS_T = SS_A + SS_E \tag{4}$$

$$F = \frac{MS_A}{MS_E} \tag{5}$$

Where, SS_E formulates the error effects. SS_T is also the difference of each member with the total mean. In Eq. (5), the degree of freedom of the numerator of F is obtained from the number of levels of the independent variable minus one. Also, the degree of freedom of the denominator is obtained from the multiplication of the number of independent variable levels by the number of samples in each group minus one.

The clusters are individually measured in relation to all personal information. Additionally, the significance of the research constituents in the variables within the clusters is shown. For this purpose, one-way ANOVA test was performed on clusters with each of the variables. Given that the test confidence level is 95%. When the sig value is less than 0.05, there is a significant difference. Table XIV tabulates the results of one-way ANOVA.

B.2. Two-Way ANOVA

The existence of multiple variables during sampling requires the examination of the effects of these variables with each other; since effects of these variables on each other can challenge a significant amount between clusters more than interactions. For example, demographic variables of income and age could be two distinct variables with possible interaction. Likewise, age and education could be variables with interaction. Therefore, the mathematical model of two-way ANOVA with interactions is presented:

TABLE XIV
SUMMARY OF RESULTS OF ONE-WAY ANOVA

Variable	Significant	Significant difference between clusters	Variable	Significant	Significant difference between clusters
Location attribute	-		Gender	-	-
Interior facilities	✓	Cluster 1 with 2 Cluster 1 with 4	Age	✓	Cluster 1 with 2 and 3
Innovation in in-store decoration	-	-	Income	✓	Cluster 1 with 2 and 3 Cluster 4 with 2 and 3
BL	-	-	Education	✓	Cluster 4 with 1, 2, and 3
The decision to re-purchasing	-	-	Brand image	-	-

$$x_{ij} = \mu + \alpha_i^A + \beta_j^R + (\alpha\beta)_{ij}^{AR} + \varepsilon_{ijk} \quad (6)$$

Where, the effect of the total mean, α_i^A, is the effect of factor A at level i. β_j^R is also the effect of factor R at level j. Likewise, $(\alpha\beta)_{ij}^{AR}$ means the interaction between A and R. ε_{ijk} is the random errors having normal distribution with mean zero and age variance. In the two-way analysis of variance, the sum of the corrected squares corresponding to Eq. (6) is expressed as follows:

$$SS_T = SS_A + SS_B + SS_{AB} + SS_E \quad (7)$$

Where, SS_A is the primary effects of the first variable, SS_B shows the primary effects of the second variable, SS_{AB} presents the mutual effects of the two variables and SS_E formulates the error effects, and SS_T is the difference of each member with the total mean. In the two-way variance analysis, three F tests are performed to investigate the effects of the first factor, the effects of the second factor and the interactions between the first and second factors. If the calculated F is greater than F-value (from the distribution Table F), then the hypothesis is rejected. We have reported the results of two-way ANOVA in Table XV.

IV. CONCLUSION

A. Conclusion and Future Research Directions

The purpose of this study is to clarify the inter relationship between interior design, brand image and CL in the sportswear clothing marketing. Statistical analyses and structural equations modeling are carried out to identify the variables relationships. We have also incorporated C-means clustering technique regarding crucial attributes affecting sportswear markets. To provide insight into customers' behavior in these markets, store design, brand image and customers' buying reactions are holistically studied for Iranian target market.

A.1. Practical Implications

We found that brand reputation is related to the brand consumer loyalty and return of consumers. Besides, building a strong brand image in the consumers' minds could lead to a positive impact on returning to the store. Our findings also indicated that the interior store design affects customer recruitment for returning but does not necessarily lead to BL. The brand's image, as an intangible element, influences the interior design of the store (as a tangible element).

In the light of abovementioned research findings, building a strong brand image in the consumers' minds plays an important role to boost the customers return in particular, in sportswear markets. In these markets, in-store design is also crucial to have an influence on customers' behavior. Another attribute affecting customers is brand image. Managers should focus on interior design on the

TABLE XV
TWO-WAY ANOVA ON DEMOGRAPHIC VARIABLES

Interaction	Significant	Interaction	Significant
Gender and education	-	Age and income	✓
Brand image and location attribute	✓	Age and education	✓
Brand image and interior facilities	✓	Income and education	-
Bran image and innovation in in-store decoration	-	Gender and income	-

condition that brand image is important in their target market. Most importantly, their attempts on store design do not probably bring BL and effective selling.

A.2. Future Research Directions

The following areas could be considered to extend our study:

A) Considering of other important factors such as sports clothing and geographical location of the brand or even music on customers demand could be pursued to deeply investigate customer behavior in the clothing marketing.

B) Covariance analysis for further investigation of the interactions between demographic variables is another area to develop this research.

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