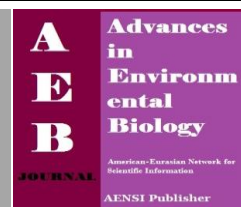




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Journal home page: <http://www.aensiweb.com/aeb.html>**Assessing the Relationship Between Marketing Mix Strategy and Physicians' Satisfaction Through Perceived Value in Yemeni Pharmaceutical Industry**<sup>1</sup>Mohsen Ali Murshid, <sup>2</sup>Mohd Suberi Bin AB.Halim and <sup>3</sup>Abdullah Bin Osman<sup>1</sup>School of Business Innovation and Technopreneurship University Malaysia Perlis (UniMAP)<sup>2</sup>School of business Innovation and Technopreneurship University Malaysia Perlis (UniMAP)<sup>3</sup>School of business Innovation and Technopreneurship University Malaysia Perlis (UniMAP)**ARTICLE INFO****Article history:**

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**ABSTRACT**

This study had brought together many areas such as marketing, relationship marketing, medicinal marketing, and industrial marketing. The purpose of this study was to investigate the relationship between three key variables, namely marketing mix strategy, customers' perceived value and physicians' satisfaction in the pharmaceutical industry in Yemen. The independent variables in this study consisted of the elements of marketing mix strategy that were empirically examined and found to be the antecedent of the customers' perceived value, while the physicians' satisfaction was the consequence of the perceived value. The theoretical model was tested using data collected from a self-administrated questionnaire distributed to 300 specialist physicians in Sana'a city. Out of the 300 questionnaires, 170 were returned by the end of September 2013. The SPSS results of this study showed that the marketing mix strategy had a significant and positive impact on the customers' perceived value and physicians' satisfaction. In addition, the result showed that the customer perceived value had a significant impact on the physicians' satisfaction. The research results obtained empirically proved that the customers' perceived value mediated the relationship between the marketing mix strategy and physicians' satisfaction.

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**INTRODUCTION**

In the last few years, the pharmaceutical industry has witnessed profound changes in the global progress, intensive competition and the fights to gain market share create new threats for manufacturers of drugs. In addition, the pharmaceutical market has witnessed rapid and complex changes. However, the pharmaceutical industry is still one of the most inventive and profitable industry of the so-called (high-tech) industry and it is one of the largest potentials in the world [45]. Therefore, the pharmaceutical industry, without doubt, still needs further research to understand these changes especially the relationships between the pharmaceutical manufacturers and apothecaries and the relationships between the manufacturers and physicians. In the practical side, the pharmaceutical companies spend, on average, about 16% of their sales into research and development (R&D) and even more, approximately 26% or more into marketing activities. Therefore, the pharmaceutical companies that want to achieve market success with a new product need to invest strongly into sales and marketing activities [45]. Furthermore, the basic R&D, together with the sales and marketing activities are two of the most important operative and even more strategic priorities of the world pharmaceutical industry [45].

Nowadays marketing has become the backbone of all industries even in the medicinal and pharmaceutical industries. Although the pharmaceutical industry produces life-saving drugs, they also need marketing [7]. Recently, the pharmaceutical industry has become an example of business to consumer marketing and has attracted the attention of marketing academics [42]. The pharmaceutical sector in many countries especially in Yemen is turning from a subsidized entity to a source for earning money. Thus, all marketing concepts and theories can be applied in this sector. The pharmaceutical industry in Yemen is considered significantly more competitive and profitable. It can be regarded as one of the most important and strategic industries in the manufacturing sector. At present, there are nine (9) registered Yemeni pharmaceutical manufacturers; all basically are branded as generic manufacturers and they play an important role in the economy and labor market [8]. The local pharmaceutical companies cover a small percentage of the total market need (6.85% in 2006,

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10.8% in 2010) whereas imported medicines via private sector agents cover most of the needs of the country (around 85%) [1].

Recently, the Ministry of Health report [8] showed that the Yemeni market is becoming more open to foreign pharmaceutical companies where many global pharmaceutical companies have entered the market with strong brands and focused on building of the relationship with physicians. In addition, the belief inherited in Yemen is the appreciation and admiration of everything that is foreign and a negative view toward everything which is local including drugs. These issues may lead to the failure of the local pharmaceutical manufacturers which play an important role in the economy and labor market. Therefore, the manufacturers, policy-makers and academics are seriously concerned about the lack of adequate knowledge of what influences customers' satisfaction especially physicians towards the locally manufactured pharmaceutical products.

Marketing mix strategies namely, product, price, promotion and place are considered the needed tools used by the pharmaceutical companies to influence physicians' satisfaction [77]. Many studies confirmed the importance of the marketing mix namely, product, price, promotion and place (4P's) to improve customers' satisfaction and to achieve a high level of satisfaction and to create values to customers in the target market [61,46,59,2,35,86,82]. However, to our knowledge, there are no previous studies on the effect of the marketing mix elements on the physicians' satisfaction in the pharmaceutical industry.

## 2. Literature Review:

### 2.1 Marketing Mixed strategy:

Marketing mix strategy is one of the basic concepts in the modern marketing theory which has received a considerable academic and business industry attention [46]. Marketing strategy is defined by three factors namely customers, competitors, and company [69]. According to McCarthy [61] who has a unique definition for the marketing mix strategy, it is the elements of marketing mix (product, price, place and promotion) used by a company to fulfill the needs and wants of the target customers which is integrated, interrelated and equally important. The introductory marketing literature suggests that all parts of the marketing mix (product, price, promotion and place) (4Ps) are equally important since a deficiency in any one can mean a failure. According to Kotler *et al.* [54] the marketing mix strategy is a set of controllable marketing tools that a firm uses to create a desired response in the targeted market. The main objectives of the marketing mix are delivering more values to customers and building long-term relationships with them [52]. In the pharmaceutical industry, marketing mix is related to the product, price, place and promotion which are considered a tool used by the pharmaceutical companies to satisfy the needs of the physicians, pharmacists and patients [77]. According to Kesic [45], the most important marketing strategies for the pharmaceutical companies are: 1) Products strategy to obtain market shares and to drive the sales growth through promotional activities; 2) R & D methods to create new products including research marketing and sales; 3) Distribution strategy of products to increase the geographic expansion in the market; 4) Promotional strategy and sales activities in order to compete in the markets.

### 2.2 Product:

Product is anything that can be offered in the market for attention, use, acquisition, or consumption that might satisfy the needs and wants of the customers in terms of goods and services. The ability of a product to perform its functions includes the product overall durability, reliability, precision, ease of use and other valued attributes [53]. According to Fadel [27], product value is the total benefits of using the product or service. For Borden [14], product is characterized by design, quality, features, brand name and sizes. According to Zeithaml [92], product can be viewed as a bundle of perceived, intrinsic and extrinsic attributes. The intrinsic attributes include the physical composition of the product. The extrinsic attributes are related to a product-related aspect but not the product as well as attributes related to performance such as durability and reliability. Customers' satisfactions can be derived from product [20,74] which is related to the customers' evaluation of the product performance based on such properties as durability, value, technical sophistication, and ease of use. In the pharmaceutical industry, a product value can be measured based on the product properties. In the case of pharmaceuticals, special significance is associated with quality, sizes, packaging, and trade name [91]. Lapierre [58] identified the benefits of product (pharmaceutical) in seven dimensions such as alternative solutions, product quality, product customization, responsiveness, reliability, flexibility and technical competence. According to Orville [70] the product drug level is a set of expectations formed by patients, prescribers, and payers at the existing level of knowledge of the therapeutic possibilities in treating a particular disease. Expectations are formed in relation to the therapeutic effect, treatment efficiency and effectiveness, drug administration route, frequency of therapy administration, total length of therapy, and adverse effects.

### 2.3 Price:

Price is one of the most important elements in the 4Ps outlined in the marketing mix for any firm. Price is considered the most significant element in the marketing mix strategy that affects consumers' choice [48]. According to Kotler *et al.* [56], price is the amount of money exchanged for a product, or the sum of the values

that customers exchange for the benefits of acquiring the product or service competition, material costs, product identity and the customer's perceived value of the product. Customers' satisfactions can be derived from the price [5]. For some offerings, high prices may not prevent purchase because consumers believe that the products or services are of higher quality or are more prestigious. However, many of today's value-conscious consumers may buy products more based on the price than others [75]. While in the pharmaceutical sector, it may be different where consumers may buy drug products based on the attributes of the product rather than the price.

#### 2.4 Place:

According to Kotler *et al.* [48], a distribution of product refers to the availability of the product to the targeted customers. According to Copley [21], an organization should pay more attention to the decisions of the distribution because of the importance of the distribution of the product and consumption to occur at the same time and place. In addition, it should pay attention on how it can be delivered on the right time and place and which channel would be used to deliver the product to the customers. The dimensions of the distribution are channel distribution, coverage, location assortment, inventory, and transport [14]. The pharmaceutical companies can adopt several channels to get consumers to their products; these channels can be direct and indirect to the customers [50]. The choice of the channel distribution has a strong effect on the sales and customers' satisfactions [44]. In the pharmaceutical industry, there are a number of aspects of the distribution strategy which is important apart from the competitive product pricing which include the frequency, reliability of deliveries, convenience of delivery times and stock availability. The relative importance of these competitive factors is likely to vary between the pharmaceutical manufacturers and/or wholesalers as distributors [9].

#### 2.5 Promotion:

Promotion is a set of activities carried out by a company in order to communicate with its existing and potential customers. In fact, there are several channels to communicate to different parties (customers and distributors) and different methods could be used to do the promotion [50]. For example, advertising, sales promotion, personal selling, public relations and direct marketing are the components of a promotion mix used by companies to achieve the promotion and marketing objectives [53]. According to Wong [87], the tools of promotion mix such as advertising, personal selling, sales promotions and publicity could affect the consumers' behavior toward the products. In the pharmaceutical industry, promotion is very popular by which the pharmaceutical companies use the promotion tools such as appointing physicians to give talks and lectures, participating in medical conferences and symposia, and organizing excursions, for their marketing purposes [60].

#### 2.6 Customer perceived value:

Customer perceived value becomes the paramount importance for companies to be competitive in the marketplace [53]. The creation value for customers has also become one of the most addressed topics in the theoretical discussion in a business to business marketing [57]. Marketing academics and researchers have identified the customer perceived value as one of the best research programs. The Marketing Science Institute has consistently included the customer perceived value in its list of research priorities [42]. However, the subject of customer perceived value is still under discussion among researchers and academic marketing. Thus, the current study is trying to contribute to the literature by enriching this concept and reach a clear measure of the customer perceived value in the pharmaceutical industry. Zeithaml, [92] has a unique definition for customers' perceived value. It is defined as "the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given". According to Kotler & Koller [53], customer perceived value is the difference between the evaluation of customer for all the benefits and all the costs (time, effort and cost) of the products. Eggert and Ulaga [26] provided a practical definition of customers' perceived value in commerce marketplace as "the trade-off between the multiple benefits and sacrifices of a supplier's offering". In a similar definition, Dodd *et al.* [25] conceptualized customers' perceived value as a trade-off between the perceived qualities and perceived psychological as well a monetary sacrifice. Monroe argued that customer perceived value involves customers per purchase evaluation of rate of perceived benefits and perceived sacrifices. Thus, customer perceived value is seen as: 1) consumers' perceptions of what you (customers) get for what you pay?(Tradeoff) [92,26]. 2) Measure of the benefits (perceived quality) and for the costs (time, effort and cost) by customers.

Furthermore, the traditional view of customers' perceived value in any industry including pharmaceutical industry is as a construct which contains two parts, first is the benefits received (perceived quality) and second, the sacrifices made (cost /price, effort and time) by the customers [25,22]. The benefits are the outcomes of the product or service that lead to a higher level value perceived by the customers. It can be measured by attributes, quality, and benefits of the product. The perceived sacrifices refer to a preferred maximum loss, as this assumes that the customers generally want to minimize the sacrifices in essence. It can be measured by the costs of purchasing and using product. Nevertheless, despite multidimensional visions of researchers and authors for

customers' perceived value, they do not take into account the perceived quality and perceived sacrifices as the basic dimensions to measure it [62]. Thus, this study focuses on those dimensions to measure the perceived value in the pharmaceutical industry context.

### 2.7 Physicians' satisfaction:

In recent years, the topic of customers' satisfaction has received great attentions among researchers and practitioners as one of the most popular research topics in marketing [90,85,84]. It is commonly recognized that studies on consumers' satisfaction have become the subject of much attention in the marketing literature [79]. The significant role of customers' satisfaction is a necessary foundation for a company to retain the existing customers and also the key element in any customers' retention strategy in the future [34,71]. Thus, it can influence the customers' future intention and lead to profitability, market share, and investment return [4]. According to Kotler [53], "One key to customers' retention is customers' satisfaction, a satisfied customer stays loyal longer". Hence, customers' satisfaction is very important for any industry even the pharmaceutical industry [35].

The concept of customers' satisfaction is well-known in literature. Customers' satisfaction has been an established concept in several areas such as marketing, consumer research, economic psychology, welfare economics, and economics [10]. Thus, the current study seeks to establish customers' satisfaction in the pharmaceutical industry particularly the physicians' satisfaction. According to Kotler [51], customers' satisfaction depends on the product perceived performance relative to a buyer's expectations. If the product performance is not raised to the expectation level, the customers dissatisfy; if the performance matches the expectations they satisfy; if the performance exceeds the expectations the customer would be highly satisfied and delighted. Empirically, researchers have suggested two different general perceptions of customers' satisfaction, namely transaction specific satisfaction and cumulative /overall satisfaction [13]. The transaction specific satisfaction is defined as the customer's evaluations of his or her experiences and subsequent reactions to a specific product [20,71]. On the other hand, the cumulative/overall satisfaction has been defined as the customers' overall evaluations of the product based on the consumption experiences over time [29,6]. According to Johnson [41], there is a need to adopt the cumulative /overall definition of customers' satisfaction because it is an important indicator of the market or firm past, present, and future performance. Moreover, it motivates the firm investment in customers' satisfaction [6]. While the transaction specific satisfaction offers valuable information in particular short-term products or services.

Currently, physicians' satisfaction is a topic that needs further research and interest in the pharmaceutical industry [35]. Physicians' satisfaction is a component of the overall customers' satisfaction which could be described as the physicians' overall evaluation of a drug based on the consumption experience over time [29,6]. The recent stream of pharmaceutical studies is considered as a marketing mix strategy related to a product, price, promotion and place which are the major constructs affecting physicians' satisfaction [77]. Furthermore, every matured and highly competitive "pharmaceutical industry" requires the satisfaction of customers as a sign of customers' retention [71,76,22]. Fornell [29] identified many benefits for companies from customers' satisfaction level. It increases customers' loyalty and reduces the costs of failed marketing of new customers' creation, lowers consumers' price, reduces operating costs due to the increase in the number of customers, improves the effectiveness of promotion and advertising, and supports the business reputation for a company.

### 2.8 Relationship between Marketing Mix Strategies, Customers' Perceived Value and Physicians' Satisfaction:

Evidence from marketing literature has indicated that the relationship between marketing mix (4Ps) and customers' satisfaction is highly expressed among researchers [93] particularly within the pharmaceutical industry where researchers have theoretically established a positive relationship between marketing mix strategies and product, price, place, promotion, and physicians' satisfactions. Similarly are some previous studies such as Hani *et al.* [35] that cited some empirical research that has suggested a linkage between some marketing strategies and physicians' satisfactions. Meanwhile, many researchers have examined the effect of the marketing mix on customers' satisfactions [2,35,82] where they found a significant positive relationship between the marketing mix elements and customers' satisfactions in different industries (curative tourism, tourist, and banking industries). An empirical study by Wang *et al.*, [86] established a positive relationship between the marketing mix elements and tourists' satisfactions. All of these studies have established a relationship between the marketing mix and customers' satisfactions in the service sector rather than goods as in this study which gives the researcher stronger evidence.

Marketing scholars as McCarthy [61], Kotler [46] and Li *et al* [59] have all theoretically emphasized the effect of the marketing mix strategy on customers' perceived value. In return, marketing researchers like Yoo *et al.* [90] and Molner, [63] have all empirically confirmed that customers' perceived value is a result of the marketing mixed strategy. Other previous studies such as Cengiz *et al.* [16] have proven the existence of a positive relationship between the marketing mix (price, product, promotion and place) and perceived value. Similarly, Mohammad *et al.* [64] empirically argued a significant positive relationship between the marketing

mix and customers' perceived value in the banking industry. Many authors also pointed to a direct relationship of product strategy with customers' perceived value [83,78,31].

Perceived value is the consequence of an overall assessment of perceived quality and perceived sacrifices, whereas satisfaction is an overall evaluation of the product value received from customers [78]. The literature review shows the concept of customers' perceived value and customers' satisfaction differs in two ways: customers' perceived value is a more specific concept based on product and features, while satisfaction can result from any dimensions (e.g. expectations and loyalty). In addition, customers' satisfaction is the result of customers' perceived value [31], and customers' perceived value leads directly to the formation of the overall satisfaction to customers [20]. Therefore, customers' perceived value is the determinant of the customers' satisfaction [53,63]. And Chen *et al.*, considered the perceived value as one of the most important factors to determine satisfaction. Furthermore, other evidence from the existing pharmaceutical industry literature shows there exists a positive relationship between CPV dimensions (specifically perceived quality), and physicians' satisfaction [42]. Therefore, based on the literature by previous researchers, this research would like to know whether customers' perceived value dimensions has a significant relationship towards physicians' satisfaction in the pharmaceutical industry.

The literature review supports the marketing mix strategy and customers' perceived value which are the antecedents of the customers' satisfaction and customers' perceived value. They have a critical mediating role [16] which has a direct positive relationship with customers' satisfaction [90]. Marketing mix strategy has an effect on customers' perceived value that leads to a positive satisfaction [64]. In this research, a mediator variable will be presented and tested in order to understand the mediation impact of customers' perceived value in relation with marketing mix strategy and physicians' satisfaction as recommended [62]. Thus, this shows that there is a clear gap which the researcher has tried to fill in the current study thereby contributing to the literature by measuring customers' perceived value and customers' satisfaction in Yemeni pharmaceutical industry.

### 3. Research Methodology:

#### 3.1 Population and Sample:

Based on the nature of the research objectives and research questions, this study was of a survey design. A sample of 300 specialist physicians was surveyed from the list of 492 listed by the Ministry of Health and Population in Yemen [8]. Out of the 492 questionnaires, 192 were returned by the end of September, 2013. Many excuses and obstacles were found by the researcher during the data collection for example, most respondents (physicians) were busy with treatment or patients in their clinics and did not have time to answer the questionnaire and it was difficult to reach them at their clinics. However, only 170 questionnaires were usable for the final analysis with 56.67% was a usable response rate.

#### 3.2 Research Instrument:

The questionnaire was developed with eight sections in order to make instructions comprehensible and clear. The cover letter begun with the goal of this study, questionnaire sections, and estimated time the respondents would take to answer the questions. To test the validity of the instruments, this study used reliability analysis and the factor analysis (FA). The data were analyzed using SPSS 19 version to test the proposed relationships in the structural model of the research. A significance level of 0.05 was used in this study in order to decide the acceptance or rejection of the hypotheses.

#### 3.3 Operationalization of Variable:

The main objective of this study is to promote the pharmaceutical industry in Yemen. Each variable was measured using reliable scales developed: product (6 items), adapted from Bradley [15], price (3 items) by Bradley [15] and Yoo *et al* [90], place (5 items) by Bradley [15] and Yoo *et al.* [90], promotion (5 items) by Prashant *et al.* [77] and Bradley [15] and customers' perceived value, perceived quality (4 items) by Yoo *et al.* [90], perceived sacrifice (5 items) by Cronin *et al.* [22]. Finally, physicians' satisfaction (5 items) was drawn from Bloemer *et al* [12]. The five Likert scales used in the questionnaire ranged from "Strongly disagree" (1) to "Strongly agree" (5). To test the validity of the instruments, this study used reliability analysis and the factor analysis (FA).

### 4. Data Analysis:

#### 4.1 Factor Analysis on Marketing Mix Strategies:

Table 1 shows the results of the exploratory factor analysis of the Marketing Mix Strategies including four dimensions namely, Product, Price, Place, and Promotion. Of the 19 items used to measure the Marketing Mix Strategies (MMS), six items were used for the Product (P), three items for the Price (PRI), five items for Place (PL), and five items for Promotion (PROM).

**Table 1:** Factor loading for Marketing Mix Strategy (MMS) and its related variables.

Items	P	PROM	PL	PRI
Product (P3)	0.776			
Product (P2)	0.766			
Product (P1)	0.739			
Product (P6)	0.739			
Product (P5)	0.687			
Product (P4)	0.613			
Promotion (PROM3)		0.832		
Promotion (PROM5)		0.823		
Promotion (PROM4)		0.724		
Promotion (PROM2)		0.671		
Promotion (PROM1)		0.579		
Place ( PL3)			0.833	
Place ( PL4)			0.715	
Place ( PL5)			0.683	
Place ( PL2)			0.647	
Place ( PL1)			0.603	
Price ( PRI3)				0.766
Price ( PRI1)				0.711
Price ( PRI2)				0.677
Eigenvalues	5.809	2.555	2.322	1.210
Percentage of Variance Explained	19.94	14.94	14.52	13.19
Total Variance Explained	62.613			
KMO	0.843			
Bartlett's test of sphericity approx	1451.163			
D f	171			
P	.000			

As presented in Table 1, the KMO test for the Marketing Mix items was 0.843. The Bartlett's test of sphericity was significant at ( $\chi^2 = 1451.163$ , with  $p < .05$ ). Thus, the exploratory factor analysis for these items indicated that it was suitable to be conducted. The Eigenvalues for each dimension exceeding one is 5.80, 2.55, 2.32, and 1.21 respectively. These dimensions cumulatively explained 62.61 percent of the total variance. The Product (P), six items, accounted for 19.94 % of the total variance explained. Its items had a factor loading ranged from 0.613 to 0.776. Promotion, five items, accounted for 14.49 percent of the total variance. The items had a factor loading ranged from 0.579 to 0.832. Place or distribution, five items, accounted for 14.52% of the total variance. Factor loading for this dimension ranged from 0.507 to 0.836. Price, three items, accounted for 13.09% of the total variance. Factor analysis for its items ranged from 0.677 to 0.766. Moreover, the result of the correlation matrix of all the items exceeded 0.40 [37]. Thus, all the results had statistically emphasized that the factor analysis for the Marketing Mix (MM) dimensions was very appropriate for this research and resulted in retention of all the 19 items for additional data analysis.

#### 4.2 Factor Analysis on Customers' Perceived Value Dimensions (CPV) as Mediator Variable:

The factor of the Customers' Perceived Value (CPV) was used as a mediating variable in this study. The CPV comprises of two dimensions namely perceived quality (4 items) and sacrifice (5 items) which reflect the physicians' perceived value towards local manufactured drugs. Table 2 shows the results of the varimax-rotated analysis for customers' perceived value and its related variables.

**Table 2:** Factor loading for Customer Perceived Value (CPV) and its related variables.

Items	PQ	PS
Perceived Quality (PQ2)	0.857	
Perceived Quality (PQ3)	0.851	
Perceived Quality (PQ4)	0.850	
Perceived Quality (PQ1)	0.825	
Perceived Sacrifice (PS4)		0.828
Perceived Sacrifice (PS3)		0.732
Perceived Sacrifice(PS5)		0.654
Perceived Sacrifice (PS1)		0.654
Perceived Sacrifice (PS2)		0.614
Eigenvalues	4.61	1.35
Percentage of Variance Explained	36.75	29.65
Total Variance Explained	66.41	
KMO	0.879	
Bartlett's test of sphericity approx. chi square	767.79	
D f	36	
P	.000	

As shown in Table 2, the value of the KMO for the Customer Perceived Value was .0879. The Bartlett's test was significant ( $p < .05$ ). Thus, the factor analysis (FA) for all these items was very appropriate to be conducted.

The results of the factor analysis indicated that the two factors of CPV (PQ & PS) have eigenvalues greater than the one that explained about 66.41 of the total Variance. Perceived Quality have eigenvalues of 4.61 explained about 36.75 % of the total variance explained, while Perceived Sacrifices with 1.35 of eigenvalues and has accounted for 29.65 % of the total variance. The factor loading for perceived quality items ranged from 0.825 to 0.857 and 0.614 to 0.828 for Perceived Sacrifices. Thus, the results indicated a goodness of the current research factor measurements and hypothesis testing and the analysis of multivariate.

#### 4.3 Reliability Analysis:

Reliability test refers to the consistency and stability of the instrument which measures the concepts and helps the researcher to assess the goodness of the instrument [80]. Cronbach's alpha was applied to measure the internal consistency and stability of the instrument. Theoretically, the Cronbach's alpha coefficient test of 0.60 is considered acceptable [81,37], however some other researchers have suggested a more conservative benchmark of 0.70 [67,68]. Thus, the cut-off level of 0.70 was applied in this research. **Table 3** shows the values of Coefficient alpha which represent the results of the reliability test for all variables.

**Table 3:** The Reliability analysis results for all variables.

Variable	Number of Items	Cronbach's alpha
Product	6	0.850
Price	3	0.798
Place	5	0.816
Promotion	5	0.809
Overall Marketing Mix Strategy	19	0.867
Perceived quality	4	0.902
Perceived sacrifice	5	0.797
Overall perceived value	9	0.870
Physician satisfaction	5	0.935

All the findings of the Cronbach's alpha were  $> 0.7$ , which meant the data obtained from the questionnaire were reliable and acceptable.

#### 4.5 Regression Analysis:

In this study, the multiple regression technique was used to test the causal relationships between the independent variable of the marketing mix strategy (Product, Price, Place, and Promotion), the mediator variable of the perceived value (Perceived Quality and perceived Sacrifice) and the dependent variable of the physicians' satisfaction, H1, H2, H3, and H4, respectively. Marketing Mix Strategy was measured by Product, Price, Place and Promotion. Customers' Perceived Value was measured by perceived quality and sacrifices. Furthermore, the significant level of  $p .05$  was utilized. The significant F value indicated whether the combination of the independent variables was significant.

##### 4.5.1 The Relationship between Marketing Mix Strategies and Physicians' Satisfaction:

*H1: There is a significant relationship between marketing mix and physicians' satisfaction*

To test the hypothesis, a regression analysis was conducted. **Table 5** shows the results of the multiple regression analysis.

**Table 5:** Regression result of Marketing Mix with Physicians' Satisfaction.

<b><math>R^2 = 0.557</math>    Adjusted <math>R^2 = 0.554</math>    Standard Error =0.5815    F = 208.547    Sig.(p)=.000</b>					
Variable	B	SE	$\beta$	t	Sig.(P)
(Constant)	-.882-	0.275		-3.203	.002
Marketing Mix	1.275	.0888	0.746	14.441	.000

$p < .005$

As shown in **Table 5**, the ANOVA F-test presents a significant finding ( $F= 208.547$ ,  $p < .005$ ) for the marketing mix which is a composite of the Product, Price, Promotion, and Place predicted by Physicians' Satisfaction. The results also show that marketing mix explained 55.4% of the variance for Physician Satisfaction. Based on the table above, the results indicate that there is a strong, positive, significant relationship with  $\beta = 0.746$ ,  $t = 14.44$ , at the significance level of  $p < 0.05$  between Marketing Mix and Physicians' Satisfaction with locally manufactured drug. Hence, the Marketing Mix has a significant positive relationship with Physicians' Satisfaction toward the Yemeni manufactured drug. Thus, H1 was accepted.

##### 4.5.2 The Relationship between Marketing Mix Strategy and Customers' Perceived Value:



*H2: There is a significant relationship between marketing mix and customers' perceived value*

To test the hypothesis, a regression analysis was conducted. **Table 6** shows the regression result between marketing mix and customers' perceived value.

**Table 6:** Regression result between marketing mix with customers' perceived value.

$R^2 = 0.424$ Adjusted $R^2 = 0.421$ Standard Error = 0.5138 F = 122.429 Sig.(p)=.000					
Variable	B	SE	$\beta$	t	Sig.(P)
(Constant)	0.272	0.243		11.118	.265
Marketing Mix	0.861	0.078	0.652	11.065	.000

As presented in **Table 6** the ANOVA F-test shows a significant finding (F= 122.429 , p<.005) between marketing mix comprises of the Product, Price, Promotion, and Place and Customers' Perceived Value comprises of Perceived Quality & Sacrifices, and it explains 42.1% of the variance in Perceived Value. The results also present that there is a strong, positive, and significant relation ( $\beta = 0.652$ ,  $t = 11.065$ ,  $p < 0.05$ ) between Marketing Mix and Customers' Perceived Value. Thus, H2 was accepted.

#### 4.5.3 Relationship between Customers' Perceived Value and Physicians' Satisfaction:

*H3: There is a significant relationship between customer perceived value and physicians' satisfaction.*

**Table 7** shows the results of the multiple regression analysis between Customers' perceived value and Physicians' Satisfaction.

**Table 7:** Regression result between Customers' Perceived Value with Physicians' Satisfaction.

$R^2 = .413$ Adjusted $R^2 = .410$ Standard Error =.6690 F = 116.995 Sig.(p)=.000					
Variable	B	SE	$\beta$	t	Sig.(P)
(Constant)	0.614	0.230		2.662	.000
Perceived value	0.829	0.077	0.643	10.816	.000

p<.005

As presented in **Table 7** , the result of ANOVA F-Test shows that Customers' Perceived Value with a composite of Perceived quality and Sacrifices is significantly (F = 116.995, p<.005) connected with Physicians' Satisfaction and this explained 41.0 % of the variance in Physicians' Satisfaction. This means that 41.0% of the variance in Physicians' Satisfaction was explained by Perceived value for customer /physician dimensions of Perceived quality and Sacrifices. Based on the results, there is a positive, strong, and significant relationship ( $\beta = 0.643$ ,  $t = 10.816$ ,  $p < 0.05$ ) between Customers' Perceived Value and Physicians' Satisfaction. Furthermore, the Perceived value has a positive significant relationship with Physicians' Satisfaction in the pharmaceutical industry. Thus, H3 was accepted.

#### 4.5.4 The Relationship between Marketing Mix and Physicians' Satisfaction through Customers' Perceived Value:

*H4: Customers' Perceived Value mediates the relationship between marketing mix strategies and Physicians' Satisfaction*

According to Baron and Kenny approach [11], mediation analysis of Customers' Perceived value towards Satisfaction needs four important steps to be followed. First, there is a significant relationship between the independent variable namely Marketing Mix Strategies (Product, Price, Place and Promotion) and Physicians' Satisfaction. Second, there is a significant relationship between the independent variable, namely marketing mix (product, price, place and promotion) and customer perceived value .Third, a significant relationship exists between the Customer Perceived Value and Physicians' Satisfaction. Fourth, a full mediation happens when the significant relationship between the independent variable and the dependent variable is reduced and is not significant after the mediating variable enters the equation.

In addition, the partial mediation occurs when the significant relationship between the independent variable and dependent variable does not change. The first, second and third steps have been tested in the previous multiple regression analysis (Refer to **Tables 5, 6** and **7**). The regression results show that the independent variable and mediating variable have a significant and positive effect on Physicians' Satisfaction. **Table 8** shows the summary of the beta value for the independent variable on physicians' satisfaction before and after including the customers' perceived value variable in the regression analysis.



**Table 8:** Summary of Beta Value on the Relationship of Customer perceived value between Marketing mix and Physicians' Satisfaction.

Variable	Criterion Variable		Result
	without	with	
Marketing Mix	0.746	0.569	p

*P* = Partial mediator *p* <.005

As presented in **Table 8**, the customers' perceived value has a mediation effect on the relationship between marketing mix strategy and physicians' satisfaction because the beta value with customers' perceived value (0.569) is less compared to the beta value without customers' perceived value (0.74).

## 5. Discussion and Limitation:

### 5.1 Marketing mix strategy and physicians' satisfaction:

The results showed that marketing mix (product, price, place and promotion) had a significant effect on physicians' satisfaction. This finding was supported by many previous findings [86,62,35,2,82,16,40]. Also this finding supported the proposition of Kotler and McCarthy [61] that all the elements of marketing mix 4Ps (product, price, place and promotion) were integrated, interrelated and equally important and should be considered at the same time to achieve successful strategies and objectives in marketing. In the pharmaceutical industry, the findings were supported by an empirical recent study by Prashant *et al.* [77] who found that the marketing mix strategy related product, place, price and promotion had a significant influence on the physicians' behavior, with strong suggestions to further research exploration related to MM strategies that would assist in achieving the physicians' satisfaction. Therefore, this finding is the major contribution of this study to the extended literatures on factors that determine physicians' satisfaction in the pharmaceutical industry such as the product, price, promotion and place.

### 5.2 Marketing mix strategy and customers' perceived value:

The results in the empirical research found that there was a significant and positive relationship between marketing mix strategy (product, price, promotion and place) and customers' perceived value. This finding was confirmed by many researchers who had investigated the relationship between marketing mix variables and customers' perceived value [64,16,90]. This supported Kotler's proposition [51] that strategies of marketing mix (4Ps) were delivering more values to customers to build a long-term relationship. The results were also confirmed by Moliner *et al.* [63] who stated that customers' perceived value was the result of the marketing mix strategy. Moreover, the result was also supported by many marketing scholars such as McCarthy [61], Kotler [46] and Li *et al* [59] who had all theoretically emphasized the effects of the marketing mix strategies on the customers' perceived value.

### 5.3 Customers' perceived value on physicians' satisfaction:

The tested hypothesis findings indicated a significant and positive relationship between customers' perceived value and physicians' satisfaction. This finding had been confirmed by several researchers who had examined the relationship between customers' perceived value variables and customers' satisfaction [29,26,36,64]. This result was supported by a recent study of Joseph *et al.* [42] which indicated that the perceived values (benefits) had more influence on the overall satisfaction of the physicians in the veterinary pharmaceutical industry sector. The findings of the empirical study indicate that the perceived value is the antecedent of the physicians' satisfaction and has been identified as the key variable in the formation of satisfaction [63]. This indicates or at least helps to understand better the key role of the perceived value in building long term relationships with customers. It is thus fundamental to pay attention to customers' perceived value and its different dimensions.

### 5.4 The mediation effect of the customers' perceived value:

Based on the evidence and suggestions from available research [16,62], this research has hypothesized that customers' perceived value to be regarded as a potential mediator. Customers' perceived value has been theoretically conceptualized and hypothesized as a potential mediator of the relationships between marketing mix strategies and physicians' satisfactions. The hypothesis testing findings of the mediating relationship has empirically indicated that customers' perceived value in the pharmaceutical industry has a significant impact on the marketing mix strategy and physicians' satisfaction. It is consistent with the view of Cengiz *et al.* [16]. Moreover, this result is consistent with a study done by Mohammed *et al.* [64] where they conceptualized that the marketing mix strategy which was the antecedent of the customers' perceived value and in return led to customers' satisfaction.

### 5.5 Practical implications:

The study shows that marketing mix (4Ps) variables namely product, price, promotion and place, has a significant and positive physicians' satisfaction. It means that the physicians are satisfied with the quality, price, promotion, and delivery of drug products of Yemen. Therefore, marketing management in the pharmaceutical companies and practitioners should take into consideration the important role of these strategies in improving the physicians' satisfaction with locally manufactured drugs. Thus, marketing managers can improve the physicians' satisfaction by improving the quality of the drugs produced by using the latest technology. Providing affordable prices and improving and extending promotions might also enhance the physicians' satisfaction.

### 5.6 Limitations and Future research:

The limitations of this study are due to lack of research regarding marketing mix strategy and physicians' satisfaction in pharmaceutical industry sector. In this study we consider the impact of marketing mix strategy on physicians' satisfaction. However, there are several other potential research areas for example promotional strategies of drugs may impact physicians' satisfaction too. Other research can be conducted with other influential factors such as product quality and medical representatives. The findings of this study were conducted by using the regression analysis technique. Nevertheless, the relationships between the three variables could also be conducted by using other advanced statistical techniques.

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