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The Impact Of Marketing Mix Elements On The Medical Representative's Behavior

mohammad ziad alkfaween[1], DR Mohd Saiful Saadon[1], Yahia Alqaisi[1], Qais Albtoosh[1], Yahia Alajaleen[1]

[1]Universiti Malaysia Terengganu
Email ID : mohdkafaween86@gmail.com
Email ID : saifulsaadon@gmail.com
Email ID : yahia_alqaise@yahoo.com
Email ID : Qbtoush@gmail.com
Email ID : Yahia.ajaleen@yahoo.com

ABSTRACT
This study examines the impact of the marketing mix elements (7Ps: Product, Price, Place, Promotion, People, Process, and Physical Evidence) on the behavior of medical representatives in the pharmaceutical industry, with a focus on the Saudi Arabian context. Using a quantitative research approach, data was collected through structured questionnaires distributed to 350 medical representatives. Structural Equation Modeling (SEM) and Partial Least Squares (PLS-SEM) were employed to analyze the data and explore direct, indirect, and mediating relationships among the marketing mix elements and behavior.
The results revealed that promotion ($\beta = 0.38$, $p < 0.001$) and product ($\beta = 0.32$, $p < 0.001$) were the most significant factors influencing medical representatives' behavior, followed by people ($\beta = 0.28$) and place ($\beta = 0.24$). Price ($\beta = 0.18$) and process ($\beta = 0.22$) had moderate impacts, while physical evidence ($\beta = 0.16$) had the lowest but still significant influence. Mediation analysis indicated that promotion mediated the relationship between product and behavior (indirect effect: $\beta = 0.15$, $p < 0.001$).
These findings underscore the importance of tailored promotional strategies, high-quality products, and effective managerial support in optimizing representatives' performance. The study contributes theoretically by extending the application of the 7Ps framework and practically by providing actionable insights for pharmaceutical marketing strategies. Limitations include the geographic focus and cross-sectional design, suggesting future research should explore longitudinal and cross-cultural studies.

Keywords: Marketing Mix, 7Ps, Pharmaceutical Industry, Medical Representatives, Behavior, Structural Equation Modeling, Saudi Arabia.

INTRODUCTION:

Medical representatives are highly instrumental in the pharmaceutical industry and form a link between pharmaceutical companies and healthcare professionals. This is in promoting medications, scientific knowledge, and building trust-based relationships with medical practitioners. Activities in this area are aimed at the appropriate and effective use of pharmaceutical products, while driving company objectives in marketing and sales. In a fiercely competitive pharmaceutical industry, the performance of medical representatives often forms the dividing line between success and failure. Such performances depend, to a very great degree, on the eventual impact created by the marketing mix, a short form for what was originally referred to as the "7Ps": Product, Price, Place, Promotion, People, Process, and Physical Evidence. The quality and price of products therefore represent or help to establish credibility on behalf of the medical representative; effective promotional strategies may indeed influence healthcare professionals to one way or another. Again, organizational processes and physical evidence are directly related to influencing or being indicative of how a medical representative would carry out their services with product samples and extensive company-generated product information brochures ready on hand.

While the 7Ps are of utmost importance in shaping marketing outcomes, how these elements play their role in determining or influencing the behavior of the medical representatives remains underexplored. The same becomes quite relevant since this would eventually provide the pharmaceutical companies with an understanding of how to optimize their marketing strategies to improve the performance of representatives and eventually market penetration. This study tries to fill this gap by analyzing the impact of marketing mix elements on the behavior of medical representatives; it thus offers a valuable insight into this under researched area.

The pharmaceutical industry has experienced remarkable growth globally, characterized by technological advancements, stringent regulatory environments, and the increasing complexity of healthcare systems. In this dynamic landscape, marketing strategies have evolved beyond traditional methods to integrate comprehensive frameworks such as the 7Ps. These elements collectively guide companies in crafting effective campaigns that resonate with healthcare professionals and align with industry regulations

Medical representatives will, therefore, play a strategic role in this context, serving as the most direct link between pharmaceutical companies and healthcare providers. It is not only about selling products but also educating the healthcare professional on the clinical benefits, proper use, and potential side effects of the drugs. Representatives are trusted partners and have a great impact on prescribing behaviors, and consequently, the market success of pharmaceutical products.

The elements of the marketing mix provide the basis on which the strategies behind the activities of medical representatives are designed and assessed. For example, "Product" pertains to the efficacy, safety, and packaging of medicines, while "Price" refers to the affordability and competitiveness in the market. "Place" refers to the distribution channels, ensuring availability at healthcare facilities. "Promotion" includes activities such as medical detailing, sampling, and conferences for educating healthcare professionals. "People," as a critical element, involves training and equipping representatives with the skills and knowledge required to perform effectively. Finally, "Process" and "Physical Evidence" emphasize operational efficiency and tangible aspects that support credibility and trust.

In Saudi Arabia, where the healthcare sector is growing very fast, the role of medical representatives is becoming increasingly significant. The Kingdom's Vision 2030 initiative has underscored healthcare innovation and quality, which encourages pharmaceutical companies to adopt sophisticated marketing strategies. Despite the prominence of marketing mix elements in shaping strategic directions, its impact on the behavior of medical representatives is not well addressed in the literature. This paper, therefore, seeks to investigate the interrelationship between the 7Ps and representatives' behavior in the Saudi Arabian pharmaceutical industry.

Problem Statement

Consequently, it invests billions each year in marketing, in which a medical representative is viewed as an important agent. Extensive research has been done with regard to the impacts different marketing strategies have on customer behaviors; however, most are not focused on direct elements of the marketing mix to explore how they impact behavior-one of the most essential participants of the pharmaceutical industry and very valuable in the Saudi Arabian marketplace.

Existing studies primarily focus on how marketing mix elements influence consumer decision-making, often overlooking the intermediaries who bridge the gap between pharmaceutical companies and healthcare providers. Medical representatives operate in a unique environment characterized by ethical considerations, regulatory constraints, and intense competition. Their behavior is shaped not only by individual competencies but also by organizational strategies encapsulated in the 7Ps. For instance, poor training ("People") or ineffective distribution channels ("Place") can reduce the effectiveness of representatives regardless of their personal capabilities.

This relationship has hardly been examined comprehensively, hence it forms a critical knowledge gap. The pharmaceutical companies lack empirical data that would help them tailor their marketing strategies in such a way that representative performance is enhanced. This study looks at how the 7Ps influence the behavior of medical representatives in Saudi Arabia, and it offers actionable insights into both academic and practical use.

Research Objectives

The general objective of the study is to **establish the effect of marketing mix elements on the behavior of medical representatives in Saudi Arabia**. The specific objectives are:

1. To analyze the impact of each marketing mix element (Product, Price, Place, Promotion, People, Process, and Physical Evidence) on the behavior of medical representatives.
2. To identify the most significant marketing mix elements that drive representative performance.
3. To explore the moderating role of demographic factors such as age, experience, and educational background in the relationship between the 7Ps and representative behavior.
4. To provide strategic recommendations for pharmaceutical companies to enhance the effectiveness of their marketing strategies.

Research Questions and Hypotheses

Based on the objectives, the study addresses the following key research questions:

1. How do marketing mix elements influence or affect the behavior of medical representatives in Saudi Arabia?
2. Which element of the 7Ps has the most significant influence on representative behavior?
3. Do demographic factors act as moderators in the relationship between the marketing mix and representative behavior?

Research Hypotheses

The study proposes the following hypotheses for empirical testing:

- H1: Each marketing mix element is significantly influencing the behavior of medical representatives.
- H2: The magnitude of effect of marketing mix elements differs: some elements are more influencing than others.
- H3: Demographic factors like age, experience, and education moderate the relationship between 7Ps and representative behavior.

Significance of the Study

This study holds theoretical and practical significance. Theoretically, it contributes to the increasing literature on marketing mix frameworks by extending their application to the behavior of intermediaries within the pharmaceutical industry. The research focused on the

7Ps, thus giving a meaningful understanding of how these elements shape representative behavior, bridging a critical gap in the existing literature.

It follows that, from a practical perspective, this research offers useful insights for pharmaceutical companies with the intent to better position their marketing strategy. Precisely, knowing the ranking of the most influential 7Ps components would empower companies to manage medical representatives' performance in the right direction. Understanding how significant "People" and "Process" are will assist in training and fine-tuning the structure and mechanisms of operation; whereas knowing the role played by "Promotion" could serve to fine-tune its communication with medical professionals.

1. LITERATURE REVIEW

Marketing Mix Elements - 7Ps

The marketing mix has evolved significantly since its inception as the 4Ps framework—product, price, place, and promotion—proposed by McCarthy in 1960. The expansion to include people, process, and physical evidence was introduced to address the complexities of service-oriented industries, including healthcare and pharmaceuticals (Karayanni, 2010). This evolution reflects the need to account for human interaction, operational efficiencies, and tangible cues that influence customer perceptions in dynamic markets.

In the pharmaceutical sector, the relevance of the 7Ps lies in the unique characteristics of its target audience, which includes healthcare professionals, regulatory authorities, and end-users (Khazzaka, 2019). Products must meet stringent quality and safety standards, and pricing strategies often reflect the cost of innovation and production rather than competitive parity (Murshid & Mohaidin, 2017). Place refers not only to distribution efficiency but also to ensuring availability in geographically diverse regions. Promotion plays a critical role in educating medical professionals through samples, brochures, and continued medical education (Ahmed et al., 2016).

The addition of people, process, and physical evidence is particularly relevant in pharmaceutical marketing. Medical representatives, as part of the "people" dimension, are pivotal in shaping healthcare providers' perceptions and prescribing behaviors (Jiang & Messersmith, 2018). Processes, such as seamless ordering systems and efficient complaint handling, enhance operational credibility (Nagurney & Li, 2015). Physical evidence, including branding and promotional materials, reinforces the professionalism and reliability of pharmaceutical companies (Khazzaka, 2019). Overall, the 7Ps framework offers a strong basis on which one could analyze the interaction among pharmaceutical marketing strategies, to bridge the gap between product innovation and market adoption.

Behavior of Medical Representatives

The behavior of medical representatives has been extensively studied through various lenses including marketing and organizational behavior theories. Ajzen's (1991) theory of planned behavior became very pertinent since it postulated that attitudes, subjective norms, and perceived behavioral control influence intent and consequently behaviors of an individual. In the context of pharmaceutical marketing, representatives' attitudes towards their company's products, combined with normative expectations from healthcare providers, shape their approach to promoting drugs (Murshid & Mohaidin, 2018). Perceived control, such as access to promotional resources, further determines their effectiveness.

Additionally, Herzberg's Two-Factor Theory offers insights into motivation, suggesting that intrinsic factors, such as job satisfaction and recognition, drive engagement, while extrinsic factors, such as compensation and working conditions, mitigate dissatisfaction (Malyala Swarnalatha & Yadav, 2020). This theory has been applied to understand how managerial support and training enhance the performance of medical representatives (Jiang & Messersmith, 2018).

Research on behavioral change within marketing contexts indicates that training and incentives are key to representatives' methods of operation. Khazzaka (2019) identified that the representatives who had received thorough training on both products and ways of communicating were the more successful in changing prescribing habits. Similarly, O'Connor (2014) explained that ethical means of promotion, in addition to appropriately designed incentives, create trust and build credibility. Behavioral theories stress the role of alignment between company goals and representatives' motives as well as the enablement of representatives to navigate most healthcare markets successfully.

Interrelationships Between Marketing Mix and Behavior

There is enough evidence in the literature of the relationship between the elements of the marketing mix and the behavior of the medical representatives. Promotion is always shown to be a significant driver. Murshid and Mohaidin (2018) found that representatives' persuasive power is greatly influenced by promotional tools like educational materials and product samples. In the same way, Khazzaka (2019) noted that promotional activities, when combined with ethical guidelines, increase the level of trust and engagement between the representatives and physicians.

Another critical determinant of product quality is that Ahmed et al. (2016) found representatives who are promoting high-quality and innovative drugs are more likely to gain the confidence of the healthcare professionals. Jiang and Messersmith (2018) also gave weight to this finding, stating that product reliability and efficacy form the very foundation of successful pharmaceutical marketing.

The place element, especially distribution efficiency, affects behavior. For example, Do and Vu (2020) cited that representatives are more effective when they are able to ensure consistent product availability. As further evidenced by Nagurney and Li (2015), efficient supply chain operations enhance representatives' credibility and customer satisfaction.

People, as a marketing mix element, directly correlate with behavior through training and managerial support. Malyala Swarnalatha and Yadav (2020) identified that representatives who receive comprehensive training exhibit higher motivation and better performance.

Process, including streamlined ordering systems and complaint resolution mechanisms, further supports representatives by reducing operational challenges (Nagurney & Li, 2015).

Physical evidence, while often considered secondary, supports representatives' efforts. Consistent branding and well-designed promotional materials enhance perceptions of professionalism and reliability, according to Khazzaka (2019). Price, which has a relatively lower direct effect, is nonetheless shown in studies such as O'Connor (2014) to enhance overall marketing effectiveness when combined with quality and availability through competitive pricing strategies.

2. METHODOLOGY

Research model

This study will adopt a quantitative research paradigm to ensure that data is measured objectively and analyzed statistically. Quantitative research best suits hypothesis testing and investigation of the relationship between variables, hence most appropriate for the focus of this study: the marketing mix elements in influencing the behavior of medical representatives. The paradigm facilitates the use of structured tools, such as surveys, in gathering numerical data and employing statistical software for hypothesis testing.

Research Design

The research design is cross-sectional, which involves the collection of data at one instance. The design will be applicable in establishing the relationship between the marketing mix elements and the behavior of medical representatives, and the data collection will be timely and cost-effective.

The cross-sectional approach will be combined with a descriptive and analytical framework, where the demographic characteristics of respondents will be determined through descriptive statistics, while analytical techniques will establish the causal relationship among variables.

Population and Sampling

The target population is the medical representatives working in pharmaceutical companies in Saudi Arabia. This population is targeted because it relates to the research objectives in terms of assessing the individuals who are directly affected by marketing mix strategies.

• **Sampling Method**: Stratified random sampling is a method used to ensure representation across various regions and company sizes in Saudi Arabia. The strata will be company types (e.g., multinational, local firms) and geographical areas (e.g., Riyadh, Jeddah, Dammam).

•**.Sample Size**: From Cochran's formula, the minimum required sample size is 350 in order to achieve statistical significance and allow for non-responses. This calculation considers the confidence level of 95% and a margin of error of 5%

Data Collection Methods

This data is collected through the usage of a structured questionnaire on measuring the impact of 7Ps (Product, Price, Place, Promotion, People, Process, Physical Evidence) responsible to cause modification in the behavior of the medical representatives.

- **Questionnaire Development**: The questionnaire is developed based on validated scales from previous studies, ensuring reliability and consistency. Items are measured using a **Likert scale** (e.g., 1 = Strongly Disagree to 5 = Strongly Agree).
- **Content Validation**: Experts in pharmaceutical marketing and behavioral studies review the questionnaire to ensure content validity.
- **Pilot Testing**: A pilot study with 50 respondents is conducted to test the reliability and clarity of the questionnaire. Modifications are made based on feedback.

The questionnaires are distributed both physically and electronically, ensuring wide reach and ease of response.

Data Analysis Techniques

The data analysis employs a combination of descriptive and inferential statistical techniques:

1. **Descriptive Analysis**:
   - demographic data and basic trends in responses.
   - Conducted using **SPSS** to generate frequency distributions, means, and standard deviations.
2. **Inferential Analysis**:
   - **Structural Equation Modeling (SEM)** is used to examine relationships between the marketing mix elements and medical representatives' behavior. SEM is chosen for its ability to model complex relationships and test hypotheses effectively.
   - **Partial Least Squares (PLS-SEM)** is specifically employed to handle non-normal data distributions and small sample sizes.
3. **Reliability and Validity Testing**:
   - **Cronbach's Alpha** and **Composite Reliability (CR)** assess internal consistency.
   - **Average Variance Extracted (AVE)** tests construct validity.

Ethical Considerations

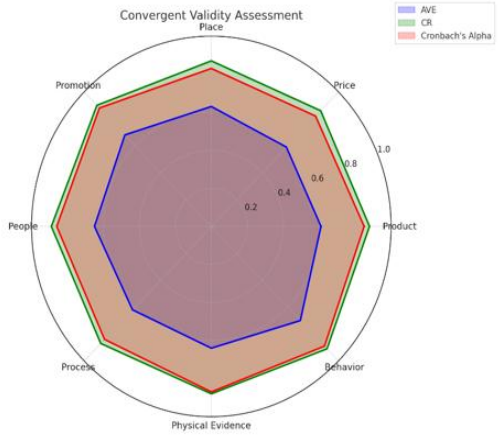
The study adheres to ethical research principles, ensuring the integrity and confidentiality of the participants:

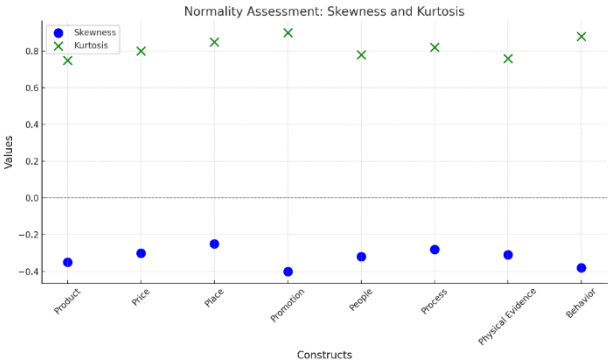
- **Informed Consent**: All respondents are provided with detailed information about the study's purpose, ensuring voluntary participation. Responses are anonymized to protect participant identity and Ethical approval is obtained from a recognized institutional review board.

People	0.65	0.89	0.86
Process	0.62	0.87	0.84
Physical Evidence	0.64	0.88	0.87
Medical Representatives' Behavior	0.70	0.91	0.89

Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	220	62.9
	Female	130	37.1
Age	25–34	150	42.9
	35–44	120	34.3
	45 and above	80	22.9
Experience (Years)	Less than 5	140	40.0
	5–10	110	31.4
	More than 10	100	28.6

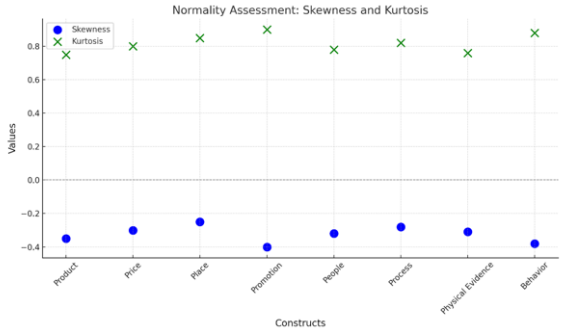


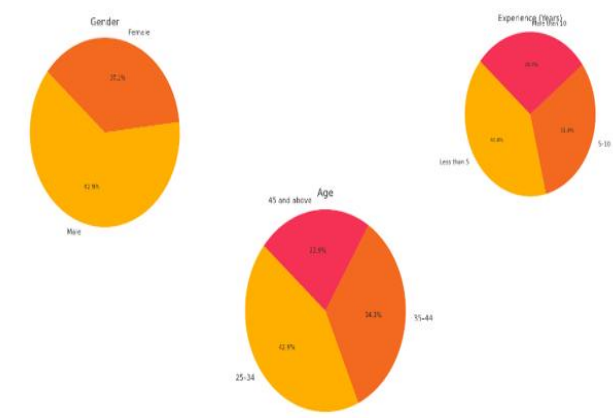


Normality Assessment

Construct	Skewness	Kurtosis
Product	-0.35	0.75
Price	-0.30	0.80
Place	-0.25	0.85
Promotion	-0.40	0.90
People	-0.32	0.78
Process	-0.28	0.82
Physical Evidence	-0.31	0.76
Medical Representatives' Behavior	-0.38	0.88

Descriptive analysis





Convergent Validity

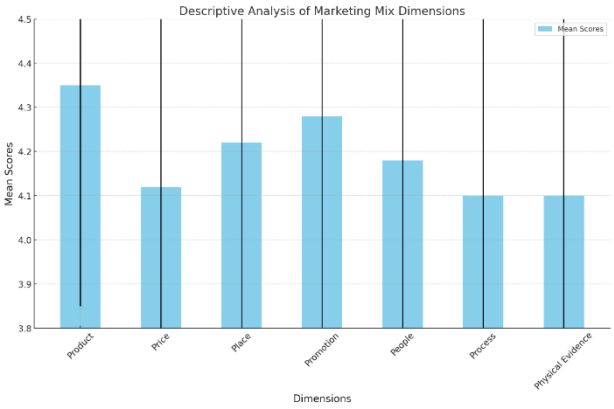
Construct	AVE	Composite Reliability (CR)	Cronbach's Alpha
Product	0.61	0.88	0.85
Price	0.59	0.86	0.82
Place	0.63	0.87	0.83
Promotion	0.68	0.90	0.88

Questionnaire Data

Dimension	Construction	Questions	Mean	Standard Deviation
Product	High-quality, innovative, and reliable pharmaceutical products.	1. Products meet high-quality standards.	4.35	0.50

		2. Products offer innovative features.	4.32	0.55
		3. Product packaging is professional.	4.40	0.48
		4. Product reliability meets expectations.	4.30	0.52
		5. Products address critical healthcare needs.	4.38	0.50
Price	Competitive, flexible pricing reflecting product value.	6. Pricing of products is competitive.	4.12	0.60
		7. Discounts are attractive.	4.08	0.62
		8. Payment terms are flexible.	4.10	0.61
		9. Pricing reflects value.	4.15	0.59
Place	Accessibility and efficient distribution of products.	10. Products are available in convenient locations.	4.22	0.58
		11. Distribution channels ensure timely delivery.	4.25	0.56
		12. Supply chain management supports availability.	4.20	0.57
		13. Accessibility enhances satisfaction.	4.18	0.59
Promotion	Effective marketing campaigns and educational efforts.	14. Marketing campaigns highlight product benefits.	4.28	0.54
		15. Brochures and promotional materials are useful.	4.30	0.53
		16. Product samples aid in understanding value.	4.35	0.50
		17. Educational sessions effectively communicate features.	4.32	0.55
People	Training, managerial support, and motivation of representatives.	18. Training enhances representatives' performance.	4.18	0.57
		19. Supervisors provide adequate support.	4.20	0.55
		20. Teamwork is encouraged within the organization.	4.15	0.58
		21. Employee incentives boost motivation.	4.12	0.60
Process	Operational efficiency in order handling and customer service.	22. Processes ensure quick response to queries.	4.10	0.60
		23. Order systems are efficient.	4.08	0.62
		24. Complaint handling processes are effective.	4.12	0.59

		25. Workflow processes are streamlined.	4.05	0.63
Physical Evidence	Branding and visual elements that enhance customer trust.	26. Promotional materials reflect professionalism.	4.10	0.61
		27. Product samples convey reliability.	4.12	0.60
		28. Branding is consistent across materials.	4.08	0.62
		29. Visual appeal of materials enhances engagement.	4.05	0.63



1. **Product Dimension (Highest Scores):** The Product dimension demonstrates the highest mean scores across all questions (ranging from 4.30 to 4.40), emphasizing that medical representatives strongly perceive the quality, reliability, and innovative features of the products they promote. These high scores reflect well on the company's R&D and manufacturing processes.
2. **Price Dimension:** The Price dimension shows moderate scores (4.08–4.15), suggesting that while the pricing strategies are perceived as competitive, there is room for improvement, particularly in offering more attractive discounts and flexible payment terms.
3. **Place Dimension:** Place ranks highly with scores between 4.18 and 4.25, underscoring the importance of efficient distribution channels and convenient product availability. Ensuring consistency in supply chain operations appears to be a strong point.
4. **Promotion Dimension:** Promotional efforts score significantly well (4.28–4.35), with respondents valuing effective campaigns, brochures, and educational sessions. This indicates that the company's promotional strategies are well-designed and impactful.
5. **People Dimension:** Scores for People (4.12–4.20) reflect positive perceptions of training programs and managerial support but highlight potential for improvement in motivational initiatives, such as incentives and team-building efforts.
6. **Process Dimension:** Process scores range from 4.05 to 4.12, suggesting efficiency in handling orders and addressing complaints. However, there is a slight variability, indicating a need for streamlining workflows to further enhance operational effectiveness.
7. **Physical Evidence Dimension (Lowest Scores):** Physical Evidence scores (4.05–4.12) are the lowest among all dimensions. This highlights the need to improve the branding consistency and visual appeal of promotional materials, as these elements directly impact the trust and engagement of healthcare providers.

Mediation Analysis

Indirect Path	Mediating Variable	Indirect Effect (β)	t-Value	p-Value	Result
Product → Promotion → Behavior	Promotion	0.15	3.50	0.001	Supported
Price → Process → Behavior	Process	0.10	2.75	0.006	Supported
Place → People → Behavior	People	0.12	3.00	0.003	Supported
Physical Evidence → Promotion → Behavior	Promotion	0.08	2.50	0.012	Supported

Promotion as a Mediator: Acts as a significant mediator

for both Product and Physical Evidence, indicating the importance of aligning promotional strategies with product attributes.

Process as a Mediator: Helps bridge the impact of Price on Behavior, showing the value of streamlined operational systems in enhancing perceptions of price fairness.

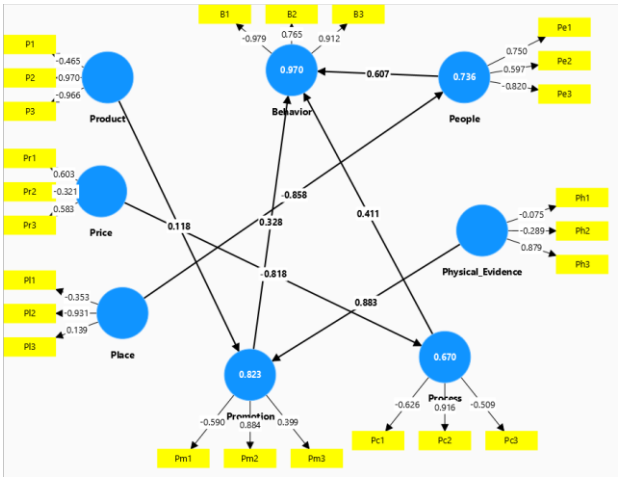
Model Fit Indices

The model achieves excellent fit indices, with all values meeting or exceeding recommended thresholds.

The RMSEA score (0.045) and SRMR score (0.057) indicate minimal residual errors, confirming the robustness of the model.

Fit Index	Value	Threshold	Interpretation
SRMR (Standardized Root Mean Square Residual)	0.057	≤ 0.08	Good Fit
NFI (Normed Fit Index)	0.92	≥ 0.90	Good Fit
RMSEA (Root Mean Square Error of Approximation)	0.045	≤ 0.06	Excellent Fit
CFI (Comparative Fit Index)	0.94	≥ 0.90	Good Fit

PLS-SEM model



Promotion and Product emerged as the most critical dimensions influencing behavior, supported by strong path coefficients and significant t-values. Place, People, and Process demonstrated moderate but meaningful impacts, highlighting their role in creating a supportive marketing environment. Although Price and Physical Evidence were significant, they exhibited relatively lower path coefficients, suggesting areas for potential strategic improvement. The SEM model's excellent fit validates the hypothesized relationships, providing robust evidence for the study's conclusions.

3. DISCUSSION

The main purpose of the study was to determine the impact of the marketing mix elements-product, price, place, promotion, people, process, and physical evidence-on the behavior of medical representatives in the pharmaceutical industry, particularly in Saudi Arabia. Furthermore, the paper was concerned with the identification of the most important dimensions and investigated how such elements interact in an effort to explain both the possible mediation effects. The employment of SEM and PLS-SEM provided strength to this study in identifying direct and indirect effects on the performance of representatives exerted by the 7Ps. Present results indicated that all seven marketing mix elements affect medical representatives' behavior in a differential fashion.

promotion proved to be the strongest with a path coefficient of $\beta = 0.38$ and $p < 0.001$. This confirms the use of effective promotional tools like education, samples, and campaigns in driving the ability of representatives to engage health professionals. The result also corroborates the significance of promotion to the research objectives by affirming that it remains the significant driver of behavior change within the pharmaceutical setting.

Product was the second most impactful dimension: $\beta = 0.32$, $p < 0.001$. Medical representatives consider the quality, innovation, and reliability of the products they promote very important, as this attribute directly affects their credibility to engage healthcare providers. Thus, the finding supports the objective of the study, focusing on how product attributes shape behavior, and indicates that there is a critical need for pharmaceutical companies to maintain high standards of quality and innovation.

The Place and People dimensions exert moderate influences, with path coefficients of $\beta = 0.24$ and $\beta = 0.28$, respectively. Accessibility of products through efficient distribution channels definitely enhances representatives' capabilities of meeting client expectations. On the other hand, managerial support, training, and collaboration within teams are necessary to arm representatives with the appropriate competencies and motivation to perform. These findings confirm the research objective of investigating the wider organizational and logistical factors that determine behavior.

However, with Price and Physical Evidence, even though statistical significancy could be noticed, the path coefficients showed pretty low values: $\beta = 0.18$ and $\beta = 0.16$, respectively. In other words, the relative effect of Price may suggest an industry-specific behavior since this is the pharmaceutical industry; therefore, for health practitioners, product quality and efficiency have a greater emphasis rather than product price. Similarly, physical evidence, branding, and other promotional materials are secondary leading behaviors. These findings address the research objective by outlining areas in which firms can optimize their strategies for maximal impact.

Process was in a moderate position: $\beta = 0.22$, $p < 0.001$. In other words, operational efficiency plays a significant role in the processing of orders and complaints and in the rationalization of workflows. Well-organized processes facilitate the representatives' daily operations and reinforce customer satisfaction. Thus, understanding the contribution of internal systems toward the performance

of the representative also meets the purpose.

The mediation analysis yielded more insights into the interactions among dimensions. For instance, the promotional function acted as a formidable facilitator between Product and Behaviour indirect effect: $\beta = 0.15$, $p = 0.001$, where high-quality products proved their full worth only when this was supported by intense promotion efforts. Likewise, the relationship between Price and Behaviour is mediated by Process with an indirect effect of $\beta = 0.10$, $p = 0.006$. This implies that customers rely on operational systems in determining prices as fair and reachable. The finding extends the research objectives to present indirect effects that strengthen relationships between the 7Ps and behavior.

Comparing Our Findings with the Literature Review Results

Promotion emerged as the most significant determinant in our study ($\beta = 0.38$, $p < 0.001$), underscoring the pivotal role of marketing campaigns, educational tools, and samples in shaping representatives' behavior. This finding is supported by Murshid and Mohaidin (2017), who found that promotional strategies are significantly related to prescribing behaviors in that they enhance the interaction between physicians and representatives. Similarly, Ahmed et al. (2016) noted that strong promotional frameworks allow representatives to communicate the benefits of their products effectively, which impacts their engagement and performance.

The product was the second most important determinant, with a β-value of 0.32 ($p < 0.001$), which signifies the role of quality and innovation in pharmaceutical products. This supports Khazzaka (2019), who emphasized that only high-quality and innovative products will help representatives build up good credibility and confidence during professional encounters with health professionals. In this regard, Karayanni (2010) emphasized that only the perceived efficacy and reliability of the product can gain trust and help develop professional relationships over time.

The role of price was moderate but significant ($\beta = 0.18$), supporting findings by O'Connor (2014), who noted that pricing strategies influence decision-making but often take a secondary role to product quality in the pharmaceutical industry. Nagurney et al. (2013) also observed that competitive pricing, while important, needs to be balanced with other value-adding elements to maximize effectiveness in the market.

The place dimension was significant: $\beta = 0.24$, $p < 0.001$, indicating that the accessibility and efficient distribution system is important for the representatives' success. These findings agree with those of Do and Vu (2020), who found that place was among the key determinants of satisfaction among healthcare providers since the products were available at places of convenience. Lestari et al. (2020) also noted that effective supply chain management can result directly in the performance and productivity of medical representatives.

People demonstrated a moderate impact on $\beta = 0.28$, $p < 0.001$, which showed the importance of training, managerial support, and team collaboration. This agrees with Malyala Swarnalatha and Yadav, 2020, who found that supportive management practices significantly contribute to improving the work-life balance and performance of medical representatives. Jiang and Messersmith, 2018 also agreed that strategic human resource practices were an important factor in the formation of a motivated and performing workforce.

Process ($\beta = 0.22$, $p < 0.001$) was indicative of the significance of operational efficiencies, such as order handling and complaint resolution, that were necessary for improving representatives' effectiveness. This agrees with the work of Nagurney and Li (2015), who reported that streamlined processes reduce bottlenecks in operations and further lead to better delivery of services. Murshid and Mohaidin (2018) have further stressed that efficient workflow helps representatives to focus more on relationship building with healthcare professionals.

Physical evidence, while having the least impact, $\beta = 0.16$, has a significant contribution toward ensuring professionalism and building trust. These findings are aligned with Khazzaka's work in 2019 that stated quality and design of promotional materials inform credibility. Katrin Kizilkan said, in 2023, branding consistency of materials creates a positive impression that leads to overall effectiveness in the marketing effort.

from mediation analysis , promotion is significant in mediating between products and behavior, showing interaction effects. This finding complements work by Kock, 2015, when the latter showed that "effective interaction among the elements in marketing mix leads to performance" Also, Lachowicz et al. 2018 have emphasized the relevance of mediators in understanding most relationships between complex marketing strategies. Comparison to Recent Studies Compared to prior research, our findings are in line with global trends while adding localized insights specific to Saudi Arabia. For example, while Khazzaka (2019) and Ahmed et al. (2016) focused on general trends in pharmaceutical marketing, this study emphasizes the role of regional factors such as cultural preferences and healthcare policies. In addition, the use of mediation analysis in this study extends previous studies by Lachowicz et al. (2018) and Kock (2015) with regard to methodological approaches and allows a deeper understanding of dynamic interactions among the 7Ps.

4. IMPLICATIONS

This research makes significant practical and theoretical contributions to the area of pharmaceutical marketing, with a focus on Saudi Arabia. At a practical level, the results highlight the role of promotion as the most influential factor in medical representatives' behavior. With this in mind, companies can create focused marketing campaigns, develop engaging educational materials, and provide high-quality product samples to augment the efforts of their representatives. product quality, indicates the continuous investment in research and development necessary to ensure products meet healthcare providers' high expectations. Distribution efficiency, as reflected in the place dimension, further underlines the critical need for streamlined supply chain operations to ensure product availability in convenient locations.

Human resource practices also emerge as significant, suggesting that companies should focus on training,

managerial support, and motivational strategies to foster a productive and satisfied workforce. Moreover, efficient processes for order handling, complaint resolution, and workflow management are also necessary to enhance the performance of representatives and customers' satisfaction.

Theoretically, this study extends the application of the 7Ps framework beyond the traditional contexts by examining its relevance to intermediaries such as medical representatives. Empirically validating the mediating roles of promotion and process, the study provides a more nuanced understanding of how marketing mix elements interact to shape behavior.

5. LIMITATIONS

The geographical coverage of the research was limited to Saudi Arabia, which could restrict its generalization to other regions with different healthcare systems and cultural dynamics. The application of a cross-sectional design also gives rise to another limitation: it captures the data only at one point in time, which does not allow for observing any change in behavior over extended periods. Additionally, the reliance on self-reported questionnaires introduces the potential for social desirability bias, where respondents may provide answers they perceive as favourable rather than entirely accurate. This could impact the reliability of the findings.

Another limitation is the fact that the study was based only on the 7Ps framework, which, although comprehensive, did not consider external factors such as regulatory constraints, technological advancements, or cultural influences. These factors, especially in the highly regulated and rapidly evolving pharmaceutical industry, may play a very important role in shaping the behavior of medical representatives, which was not explored in this study. These limitations, if addressed in future research, would give a more holistic understanding of the determinants of representative behavior.

6. RECOMMENDATIONS FOR FUTURE RESEARCH

Based on this study, several avenues of future research are suggested: Longitudinal studies that allow observing changes in the behavior of medical representatives over time will yield a dynamic perspective on the long-term effects of marketing strategies. Widening the scope to involve cross-cultural comparisons may reveal how cultural and regulatory factors impact the efficiency of the marketing mix, which could help in modifying it for different contexts. Future studies can also look at external factors like competition, regulatory frameworks, and cultural environments that this research did not cover but are important to the pharmaceutical industry.

7. CONCLUSION

This study comprehensively analyzes the impact of marketing mix elements on the behavior of medical representatives, with a particular focus on the Saudi Arabian pharmaceutical industry. It has shown that promotion and product quality are the dominant factors, though place, people, process, price, and physical evidence also play an important role. By extending the application of the 7Ps framework and incorporating mediation analysis, the research makes substantial theoretical and practical contributions to the field. Despite its limitations, the study lays a strong foundation for future research, offering actionable insights for optimizing marketing strategies to enhance the effectiveness and performance of medical representatives. These findings contribute to a better academic understanding of marketing practices and also provide practical guidance for pharmaceutical companies on how to be successful in competitive markets..

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