

Retail Marketing Dynamics in Healthcare Diagnostics: A Comparative Study of Chain and Standalone Clinical Laboratories

Ashish Kumar Sahdev*

Syed Hameedur Rehman Zaini**

ABSTRACT

The rapid growth of the diagnostic industry has transformed healthcare services into a patient-centric retail model. This study explores the marketing approaches adopted by chain and standalone diagnostic laboratories, highlighting their competitive strategies within the framework of the 7Ps marketing mix. This study used a descriptive, analytical, and cross-sectional design. A total of 270 decision makers from the sales and marketing departments were invited to respond to 38 questionnaires encompassing seven constructs. Responses were received from 150 chain diagnostic laboratories and 50 standalone diagnostic laboratory managers. The Mann–Whitney U test was employed as a statistical method to examine and compare marketing mix elements between these two types of laboratories. There was a significant difference in the marketing practices of chain and standalone diagnostic laboratories. A highly significant difference was found in the promotion and place elements, followed by physical evidence, processes, and products. From the perspective of price and people, both labs offer a competitive advantage. There was a significant difference between the marketing practices of chain and standalone diagnostic laboratories. Place and promotion are the elements with the greatest difference, and standalone labs use better pricing strategies to achieve a competitive advantage.

Keywords: Marketing mix, Retail marketing, Brand management, Clinical laboratories, Healthcare marketing.

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* PhD Scholar, GD Goenka University, Sohna, Haryana, India

** Assistant Professor, GD Goenka University, Sohna, Haryana, India, Email-iammanic@gmail.com, Mobile. No. 91-8447755306

1. Introduction

In recent years, the healthcare market has become more patient-centric than just disease-specific care. This has led to changes in marketing strategies and healthcare organizations that directly target consumers (Sunder & Thirumalai, 2023; Zhu et al., 2022). Healthcare marketing generally consists of two types of activities: business to business-targeting clinicians and business to consumer-targeting consumers directly (Yoon & Kim, 2022). Consumers actively choose healthcare service providers on the basis of insurance coverage, distance travelled, and depth and width of professional services provided (Rao et al., 2024; Zhu et al., 2022). Direct consumer marketing significantly impacts consumer decision-making and fosters market competition. Patient choice in selecting healthcare service providers is increasingly recognized as an important aspect of patient-centered care and empowerment (Anshari, 2019). A similar trend is visible in the diagnostic industry, which embraces change to become a value-based patient-centric healthcare producer.

The Indian diagnostic industry is growing at a 14% CAGR and will be worth \$28 B by 2028. Although it accounts for 5% of total healthcare expenditures, it influences the remaining 95% of expenditures in hospitals (NATHEALTH, 2016). There is a pluralistic nature of healthcare in India, and both private and public healthcare providers compete for patients (Rao et al., 2024). Government hospitals provide free or relatively economical treatment for patients. In contrast, in the private setup, payment is performed out-of-pocket or through insurance. There are over 1,00,000 laboratories in India, and they are categorized primarily as chain, standalone, or hospital-based medical laboratories (Tandon & Praxis Global Alliance, 2024). Large numbers of players and buyers, low entry barriers, and free and fair market competition exist. Hospital laboratories have captive customers and provide services to inpatient and outpatient departments (Agarwal & Singh, 2016). Chain and standalone labs operate the brick-and-mortar model that patients visit to obtain samples. Online laboratories such as Healthians provide home collection services (Moorman et al., 2024). Clinical laboratories offer medical tests to screen for vitamin levels, food allergies, and colon cancer. Specialized

laboratories and MedTech startups provide genetic tests to individuals. Consumers can access the services of these labs either inside the conventional healthcare system, wherein the tests are prescribed by the clinician, or through their own decision to undergo a health checkup. Like other retail sectors, clinical laboratories are divided into organized national or regional chain labs and unorganized standalone labs. In this segregation chain, labs account for 17%, and standalone labs account for 48% of the total diagnostic market in India (Tandon & Praxis Global Alliance, 2024). Chain labs have economies of scale, deeper penetration, and more technological advantages. In contrast, standalone labs enjoy customer loyalty in the local market and provide personalized care. The competition between chain diagnostic labs and standalone labs is similar to the dynamics observed in retail sectors. Both labs compete with each other in the healthcare market with their own set of advantages and challenges. The competition between the two types of labs is multifaceted, with chain players having advantages in terms of economies of scale and brand recognition. On the other hand, local players leverage their understanding of local market conditions and consumer preferences. Product quality, pricing strategies and local market conditions can define the success of both types of players (Gabrielsen et al., 2023).

The increasing private investment and entry of more organized players may adversely affect the prospects of the informal segment of a standalone lab. There is a need to evaluate the market practices of chain and standalone diagnostic laboratories and suggest pertinent changes required to be competitive in the market to standalone labs.

2.1. Objective of the study:

1. To detect differences in marketing strategies, if any, in chain and standalone diagnostic labs.
2. To suggest optimum marketing strategies for standalone labs to withstand competition
3. Relative importance of marketing mix elements in both types of labs

3. Literature review

3.1. Marketing mix in clinical laboratories

In any other service industry, customer satisfaction remains a critical factor for profitability and competitive advantage (Liu & Atuahene-Gima, 2018). It is well-established that marketing mix strategies positively impact customer satisfaction (Bora, 2024). The concept of the marketing mix in healthcare can be traced back to the 1960s when E. Jerome McCarthy first introduced the 4Ps (product, price, place, and promotion) in his book “Basic Marketing: A Managerial Approach” (Prasad & Purohit, 2023). Since then, the marketing mix has been widely applied and adapted to the healthcare industry. Many studies exist on the impact of the marketing mix on patients in hospital segments, but similar data are scarce in the diagnostic industry (Ahmad et al., 2013a). In addition, an attempt has yet to be made to identify differences in the marketing strategies of chain and standalone diagnostic laboratories in India. As shown in Figure 1, marketing mix strategies for clinical laboratories can be specifically tailored to reflect unique aspects of diagnostic services. The product element includes the variety and quality of the diagnostic tests. Price optimization has become crucial because diagnostic laboratories are often viewed as “cash cows” within healthcare organizations (Sahdev & Sen Gupta, 2023). The place element relates to the accessibility of laboratory services, whereas promotion involves educating both healthcare providers and patients about the available tests and their relevance. The people element highlights the importance of laboratory staff and technicians in delivering these services, while the process covers the entire patient journey from sample collection to reporting of results. Finally, physical evidence pertains to the laboratory environment and equipment used to deliver the service (Fadhilah & Katmini, 2023; Oktavia et al., 2016; Sahdev & Sen Gupta, 2023).

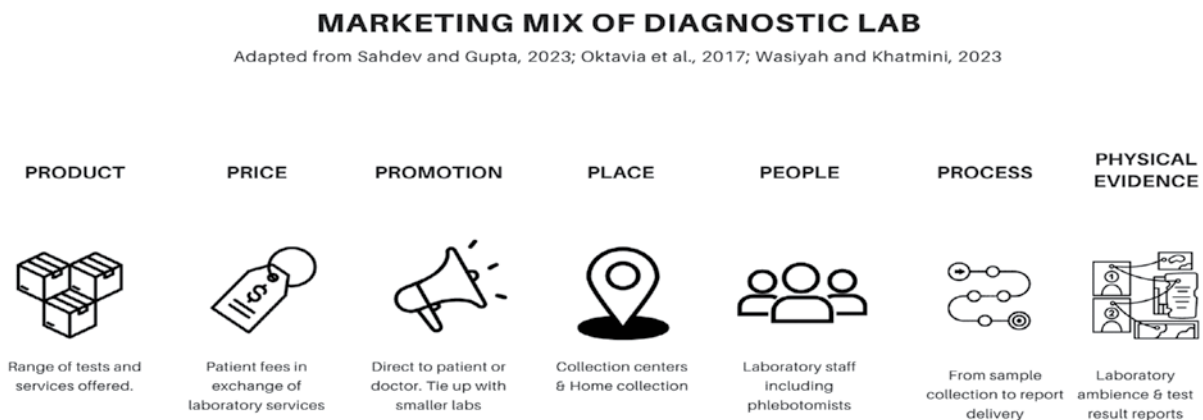


Figure 1

Marketing mix of diagnostic labs

3.2. Literature Review on Organized Players vs Standalone Retail Shops

Informal providers represent a significant portion of healthcare delivery systems in low- and middle-income countries (LMCs). Standalone retail players have advantages in personalizing products or services according to customer demand. These players can reduce the price of services by efficiently using space and lowering other operating costs. Chain-organized players provide comprehensive menus and have structured new product initiatives. For healthcare retailers, product- and brand management-related instruments tend to have the strongest effects on outcomes such as store satisfaction and patronage intention. Price, communication, service and incentive management also impact select outcomes, whereas distribution management is of

secondary importance (Blut et al., 2018). In recent years, web-based purchases of medical services have increased significantly, leading to an increase in digital marketing expenditures by healthcare providers and healthcare producers (Moorman et al., 2024; Ren & Ma, 2022). Chain diagnostic labs are using technology effectively, and few labs in countries offer only online services, including the purchase and delivery of pathology services (Sahdev & Sen Gupta, 2023). A substantial body of literature compares the marketing strategies of organized and standalone retail outlets across various industries. However, a notable gap remains in academic research focused specifically on similar comparative analyses within the clinical diagnostic industry.

4. Materials and Methods

This study employed a descriptive, analytical, cross-sectional research design, which is appropriate for assessing the differences in marketing strategies between two distinct types of laboratories and examining the relationship between the marketing mix and patient satisfaction. The study population included sales, marketing, and centre managers of chain and standalone diagnostic laboratories. These people are decision-makers and decide on the appropriate marketing mix for sustainable growth in the organization. We used purposive sampling to select responders. The research instrument was developed based on previous research on similar topics (Abdillah, 2017; Abedi et al., 2019; Abedi & Abedini, 2017; Ahmad et al., 2013b; Akroush, 2011; Bahadori et al., 2016; Mayiya & Haabazoka, 2023). Owing to the limited literature on the marketing mix of laboratories, the questionnaires were adapted from studies on the marketing mix of hospitals and other related service industries. Feedback on the validity of the questionnaire was obtained from academics and industry experts. Feedback was incorporated, and a pilot study was conducted to confirm the validity of the research instrument.

The survey instruments, which were delivered online to the respondents via the Zoho survey form, included demographic inquiries and 38 questions using a five-point Likert scale. The participants could select responses ranging from complete disagreement to complete agreement for each

Likert scale item. For quantitative data analysis, SPSS version 20, a statistical software package, was used. Basic descriptive statistics, including percentages, means, and standard deviations (SDs), were calculated to address the study's objectives. In this study, we selected the top six chain diagnostic labs on the basis of their market capitalization on the national stock exchange. We selected 15 standalone diagnostic labs from Delhi and Mumbai, which have been in operation for the last 25 years. In this research, only the opinions of decision-makers in the marketing field were important; therefore, the sample size was limited. However, as the senior managers involved in this research participated in determining the marketing strategy and marketing activities of the companies, most of their answers had to be obtained as top-secret information and only used in the academic environment. The validity of the questionnaire was established via Cronbach's alpha test, and the value achieved was .95. Statistical analysis was performed via the Mann–Whitney U test because the sample sizes of the two groups were small and unequal. The Mann–Whitney U test is a nonparametric alternative to the t test for independent samples (Malara & Ziaean, 2019; Milenovic, 2011). This method is frequently used to compare data from two groups in healthcare and marketing studies (Jannah et al., 2022; Kowalska, 2020). The study also used cumulative voting (CV), also known as the hundred-point method, to prioritize the marketing mix elements used by chain and standalone diagnostic labs ((Malara & Ziaean, 2019).

5. Results

5.1. Descriptive analysis

This section describes the sample characteristics. There were 150 respondents from chain diagnostic laboratories and 50 from stand-alone laboratories. In standalone labs, there are a limited number of dedicated marketing managers or product managers, and the center managers are in charge of marketing activities. All the respondents had more than 10 years of experience in the diagnostic industry, and most of them were postgraduates in the field of science or management (Table 1).

		Chain	Standalone
Sample size		150	50
Work Experience			
	10-15 Years	50	15
	15-20 Years	60	18
	>20 Years	40	17
Qualification			
	Bachelor's degree	23	16
	Master or PhD	127	34
Position			
	Marketing managers/Product managers	47	8
	Sales managers	59	17
	Centre managers	44	25

Table 1*Demographic profile of the respondents*

The Mann–Whitney U test shows that there is a significant difference between the marketing mix strategies of chain and standalone diagnostic labs. The greatest difference was found in the ‘place’ and ‘promotion’ elements of the marketing mix (Table 2).

Constructs	Type of Lab	N	Mean	Median	SD	P value
People	Chain Lab	150	21.21	22.00	3.89	0.000893
	Standalone	50	19.92	20.00	2.75	
Place	Chain Lab	150	23.29	24.50	2.94	< 0.000001
	Standalone	50	18.16	17.00	3.02	
Price	Chain Lab	150	20.55	21.00	3.93	0.124221
	Standalone	50	20.14	20.50	2.17	
Process	Chain Lab	150	25.91	27.00	4.11	0.000115
	Standalone	50	24.02	25.00	2.97	
Product	Chain Lab	150	22.71	24.00	3.33	0.000017
	Standalone	50	21.26	21.50	2.54	
Promotion	Chain Lab	150	30.38	31.00	4.79	< 0.000001
	Standalone	50	19.66	19.00	5.49	
Physical evidence	Chain Lab	150	21.91	23.00	3.59	0.000006
	Standalone	50	20.10	19.00	2.27	

Table 2*Mann–Whitney U test results for the 7Ps of the marketing mix*

In the product element, standalone labs do not have a strategy for new test development, and their menus are also limited. Although laboratory technology and the accuracy of test reports are concerns, the difference is not significant. For the price element, both types of labs face issues owing to their high prices, but standalone labs have more flexibility in offering discounts and keeping their prices lower than industry standards. A significant difference was found in the ‘promotion’ element, where the difference in the mean was greatest (Standalone-19.66, chain-30.38). A detailed itemwise comparison is shown in Table 3. For the 38 items, significant differences were observed for 28 variables; for the 10 variables, the difference was not

significant. Surprisingly, the mean values for item numbers P2, P4, P6, P10, P23, P24, P32, and P37 were higher in standalone labs. These observations are discussed in detail in this study.

Constructs	Items	Items	Type of Lab	N	Items	Mean	Median	SD	P value
Product	P1	Your lab has a well-established strategy for developing new tests.	Chain Lab	150	0.95	4.51	5	0.8	< 0.000001
			Standalone	50		3.56	4	1.2	
	P2	Your lab has the latest equipment.	Chain Lab	150	-0.13	4.39	5	0.9	0.6
			Standalone	50		4.52	5	0.7	
	P3	Your lab provides a comprehensive test menu.	Chain Lab	150	0.69	4.73	5	0.6	< 0.000001
			Standalone	50		4.04	4	1	
	P4	Your laboratory provides accurate test results always.	Chain Lab	150	-0.21	4.61	5	0.8	0.17
			Standalone	50		4.82	5	0.4	
	P5	Your laboratory understands the patient's needs thoroughly.	Chain Lab	150	0.15	4.47	5	0.9	0.14
			Standalone	50		4.32	4.5	1	
Price	P6	Price strategy is according to the competition.	Chain Lab	150	-0.54	3.88	4	1.2	0.01
			Standalone	50		4.42	4	0.6	
	P7	Pricing your services based on what customers are willing to pay.	Chain Lab	150	0.32	3.86	4	1.1	0.02
			Standalone	50		3.54	4	1	
	P8	You have different price levels according to the market segments.	Chain Lab	150	0.57	4.15	4	1	0
			Standalone	50		3.58	4	1	
	P9	Your lab provides the test package at discounted rates.	Chain Lab	150	0.12	4.34	5	1	0.03
			Standalone	50		4.22	4	0.6	
	P10	Your laboratory charges to conduct the required blood test are comparable with industry standard.	Chain Lab	150	-0.06	4.32	5	0.9	0.61
			Standalone	50		4.38	4	0.6	
Place	P11	Lab offers home collection services.	Chain Lab	150	0.57	4.83	5	0.6	< 0.000001
			Standalone	50		4.26	4	0.7	
	P12	You have electronic distribution channels such as the internet to deliver your services.	Chain Lab	150	0.62	4.52	5	0.9	0
			Standalone	50		3.9	4	1	
	P13	Your lab gives location benefits to its customers.	Chain Lab	150	0.71	4.49	5	0.8	0
			Standalone	50		3.78	4	1.3	
	P14	Your lab has multiple branches to service patients.	Chain Lab	150	1.57	4.67	5	0.8	< 0.000001
			Standalone	50		3.1	3	1.1	
	P15	Your lab has multiple distribution channels like B2B, B2C, hospital Lab management.	Chain Lab	150	1.65	4.77	5	0.7	< 0.000001
			Standalone	50		3.12	3.5	1.4	
Promotion	P16	Your lab is using Direct marketing methods such as telemarketing or direct mail or SMS or WhatsApp.	Chain Lab	150	1.02	4.26	5	1	< 0.000001
			Standalone	50		3.24	3.5	1.3	
	P17	Your lab is spending a sufficient amount of money on promotion.	Chain Lab	150	1.47	4.07	4	1.1	< 0.000001
			Standalone	50		2.6	3	1.1	
	P18	Your front desk staff is trained enough to promote tests.	Chain Lab	150	0.46	4.06	4	1.1	0
			Standalone	50		3.6	4	1	

	P19	Is your laboratory actively engaged on social media platforms such as Facebook or Instagram?	Chain Lab	150	1.75	4.49	5	0.8	< 0.000001
			Standalone	50		2.74	3	1.1	
	P20	Your lab sponsors scientific conferences & CMEs.	Chain Lab	150	2.11	4.43	5	0.9	< 0.000001
			Standalone	50		2.32	2	1.2	
	P21	Your laboratory maintains an active presence on the professional networking platform LinkedIn.	Chain Lab	150	2.2	4.58	5	0.7	< 0.000001
			Standalone	50		2.38	2	1.3	
	P22	Your lab maintains and updates its website to provide other useful information.	Chain Lab	150	1.71	4.49	5	0.8	< 0.000001
			Standalone	50		2.78	3	1.2	
People	P23	Doctor is always available to answer patient queries.	Chain Lab	150	-0.36	4.02	4	1	0.07
			Standalone	50		4.38	4	0.5	
	P24	Your lab has a doctor with excellent skills.	Chain Lab	150	-0.12	4.58	5	0.7	0.63
			Standalone	50		4.7	5	0.5	
	P25	Your lab monitors customer satisfaction regularly.	Chain Lab	150	0.62	4.4	5	0.8	0
			Standalone	50		3.78	4	1.3	
	P26	Your lab motivates its employees through incentives etc.	Chain Lab	150	0.59	3.87	4	1.2	0
			Standalone	50		3.28	3	1.1	
Process	P27	Your lab provides extensive training to its employees.	Chain Lab	150	0.57	4.35	5	1	0
			Standalone	50		3.78	4	0.9	
	P28	Opening hours of your lab are convenient for the patient.	Chain Lab	150	0.16	4.46	5	0.8	0.37
			Standalone	50		4.3	5	1	
	P29	Patient can track the status of their samples.	Chain Lab	150	0.83	4.15	4	1	0
			Standalone	50		3.32	3	1.3	
	P30	The length of waiting time for customers in your lab is reasonable.	Chain Lab	150	0.33	4.41	5	0.7	0
			Standalone	50		4.08	4	0.6	
Physical evidence	P31	Your lab has the proper blueprint of its service delivery in place.	Chain Lab	150	0.66	4.44	5	0.8	0
			Standalone	50		3.78	4	1	
	P32	Your lab provides faster TAT (turnaround time) compared to other labs.	Chain Lab	150	-0.23	3.85	4	1	0.09
			Standalone	50		4.08	4	1	
	P33	Your lab takes proper measures to maintain the confidentiality and privacy of the patient.	Chain Lab	150	0.14	4.6	5	0.7	0.01
			Standalone	50		4.46	4	0.5	
	P34	The accreditation certificates & awards are displayed in collection facilities.	Chain Lab	150	0.47	4.47	5	0.8	0
			Standalone	50		4	4	1.1	
	P35	The brochures & flyers of healthcare packages are available in the waiting area.	Chain Lab	150	0.71	4.51	5	0.8	< 0.000001
			Standalone	50		3.8	4	0.7	
	P36	Your front desk staff & Phlebotomist are well-dressed.	Chain Lab	150	0.54	4.42	5	0.8	0
			Standalone	50		3.88	4	0.9	

	P37	Your lab has modern infrastructure.	Chain Lab	150	-0.02	4.34	5	0.8	0.64
			Standalone	50		4.36	4	0.6	
	P38	Your lab provides the smart report.	Chain Lab	150	0.12	4.18	5	1.2	0.16
			Standalone	50		4.06	4	0.9	

Table 3**Mann—Whitney U test — nonparametric test for comparing marketing mix components**

On the basis of the answers to the questionnaires, it was possible to determine the prioritization of marketing mix elements by managers of both types of labs. It was observed that chain labs place more emphasis on promotion and place components of the marketing mix, and the least importance is given to people and price. On the other hand, standalone labs give more importance to the process and people's elements of the marketing mix. The following radar diagram of the mean score shows the difference in prioritization in the marketing mix strategies of chain and stand-alone diagnostic labs.

**Figure 2**

Radar diagram of the mean score of the marketing mix components

6. Discussion

Clinical laboratories play crucial roles in healthcare and significantly contribute to the diagnosis of diseases, decision-making, and adequate treatment of patients worldwide. Winning the marketplace and outperforming rivals are two key aspects of the strategy used to create a sustainable competitive advantage (BChabo et al., 2021). In recent years, especially post-COVID-19, the demand for diagnostic services has increased. This is attributed to rising chronic illnesses such as cancer, the expanding middle class in the country, and growing health awareness among young working classes in society. However, the penetration of diagnostic services in India is lower than that in any other developed nation (Tandon & Praxis Global Alliance, 2024). Like other healthcare services, clinical laboratories must implement marketing mix strategies effectively. Chain diagnostic labs have the advantage of economies of scale, as they pool samples from different geographic locations and have standardized processes (Sahdev & Sen Gupta, 2023). They have more consistent marketing strategies across locations, strong brand recognition, and enhanced capabilities for price optimization and promotional efforts (Stavros et al., 2020). In contrast, standalone labs enjoy flexibility in customizing their marketing

mix as per the need for local market conditions and preferences. However, like other local players in different businesses, they face challenges, such as limited resources and market reach (Chowdhary, 2024). Moreover, as part of the consolidation of diagnostic markets, chain labs are acquiring smaller labs to increase their footprint. This study revealed that both chain and standalone labs prioritize the elements of the marketing mix differently. Chain labs focus more on promoting labs through various media and targeting both clinicians and consumers. Chain labs have better infrastructure to increase their reach. However, standalone labs enjoy certain advantages, such as the local reputation of doctors, faster turnaround times (TATs), the ability to offer customized discounts, modern infrastructure, and high-quality reports. In addition, the direct connection between standalone laboratories and clinicians or patients, along with the availability of doctors, is an added benefit for these laboratories. The turning-around time and responsiveness of laboratories are among the crucial service points considered by clinicians (Ramessur et al., 2015). Chain diagnostic laboratories find it difficult to compete with standalone laboratories for these items from people and process constructs. This could be overcome by building a stronger logistics system and creating a window of communication between clinicians and laboratory doctors. A prominent limitation of a standalone lab is the underutilization of the promotion element of the marketing mix. This is due to a lack of knowledge and capabilities or limited marketing budgets. In general, standalone labs are run by doctors and tend to avoid or overlook the importance of marketing their services. Research indicates that only approximately one-fifth of small local businesses have an active presence on platforms such as Facebook, and many of these pages remain dormant (Jang, 2015). This reflects a broader trend of insufficient engagement with social media among small businesses. Platforms such as Facebook, Instagram, and Google My Business provide local businesses with valuable tools to promote their brands, improve customer satisfaction, and reduce costs (Kalinová & Kovaříková, 2023). Standalone labs should spend on digital marketing, hyperlocal marketing through Google's business, and precise targeting through social media to give them brand

visibility and generate solid returns on investment. Digital engagement not only is limited to marketing but is also used for the transaction of services. The rise of digital transactions in healthcare has led to the development of websites and mobile applications that facilitate various services, such as registration, payment, result delivery, and even consultation (Christina & Hartini, 2020). Booking a test online and delivering a report are likely the two most important customer expectations of a clinical laboratory. Additionally, the availability of home sample collection services has increased the ease with which patients can access diagnostic services and drive their consumption. Chain diagnostic laboratories leverage digital adoption and build a robust digital framework for customer interactions. The results obtained from the study also indicate no significant difference in the quality of reports or the use of advanced technology and equipment between chain and standalone labs. Chain laboratories benefit from well-defined new product development processes and offer a wider range of tests, enabled by economies of scale and lower costs per test. If standalone labs enter strategic partnerships with chain labs to outsource certain tests, this challenge can be mitigated. Laboratory managers must tailor their products to fit customer requirements and provide value for money (Frimpong et al., 2023). In conclusion, for chain diagnostic laboratories, it is imperative to focus on improving the process, particularly by increasing turnaround times and ensuring the ability of doctors to address queries from customers and consumers swiftly.

7. Conclusion

This study aimed to investigate whether there are any significant differences in the marketing practices of chain and standalone diagnostic labs. In addition, we assessed whether standalone laboratories could withstand and compete with growing-chain diagnostic laboratories. Only chain and standalone labs were chosen for this study, and hospital labs were beyond the scope of this study. These findings reveal that both types of labs have competitive advantages. Stand-alone labs can perform better and compete with growing chain labs if they further strengthen their processes and people's advantages and prudently use a promotion mix. Price is a segment

in which there is little scope for action in both types of labs and healthcare facilities.

8. Declaration

- Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.
- Competing interests
The authors declare that they have no competing interests.

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