

Multidimensional analysis of competitiveness in SME pharmacies, Ciudad del Carmen, Campeche

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Abstract. Business competitiveness represents a fundamental factor for the permanence and sustainability of small and medium-sized enterprises (SMEs) in dynamic and highly competitive environments. In the pharmaceutical sector, SME pharmacies face challenges related to technological innovation, digital transformation, operational efficiency, and access to financing. The objective of this research was to analyze the competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, through the dimensions of innovation, production management, economic-financial management, commercial management, and organization management. The research was conducted under a quantitative approach, with a non-experimental, cross-sectional design and descriptive scope. The sample consisted of 93 SME pharmacies selected through non-probabilistic convenience sampling. Data were collected during October 2025 using a structured questionnaire of 56 items measured on a five-point Likert scale. The reliability of the instrument was assessed using McDonald's Omega coefficient, yielding values between 0.829 and 0.906. The data were analyzed using descriptive statistics with IBM SPSS Statistics software. The results showed that commercial management presented the highest level of competitiveness ($M = 4.21$; $SD = 0.53$), followed by organizational management ($M = 4.06$; $SD = 0.58$) and production management ($M = 3.90$; $SD = 0.57$). In contrast, innovation ($M = 3.81$; $SD = 0.64$) and economic-financial management ($M = 3.76$; $SD = 0.69$) showed moderate levels. It is concluded that SME pharmacies possess operational and commercial strengths; however, they need to strengthen innovation, digitalization, and financial planning to increase their sustainable competitiveness.

Keywords: Competitiveness, pharmacies, SMEs, innovation, business management, digital transformation.

1 Introduction

In an environment marked by the transformation of healthcare systems and intensifying market competition, the pharmaceutical sector has gained a strategic relevance that transcends the economic sphere and reaches a clearly social dimension. Pharmacies, especially those operating as small and medium-sized enterprises

(SMEs), constitute a fundamental link in the healthcare supply chain: they are the closest point of contact between the population and the healthcare system, and their role in the provision of medicines and primary care is difficult to replace. In Mexico, this reality takes on a particular complexity, as the sector coexists with a dual structure in which large commercial chains and independent pharmacies coexist, generating heterogeneous and, often, asymmetrical competitive dynamics.

Added to this structural complexity are profound transformations driven by digitalization, service innovation, and changes in consumption patterns. The incorporation of digital channels, the use of technologies for inventory management, and the expansion of integrated care models, such as the pharmacy-clinic scheme, have redefined competitive strategies in the sector [1]. However, despite these advances, the market remains dominated by physical establishments where trust, proximity, and professional advice continue to be significant differentiating factors [2].

In the case of Mexico, the sector faces deep structural challenges such as indiscriminate trade liberalization that generates a growing dependence on imports and the loss of domestic productive linkages, deepening the technological gap and limiting the country's competitive capacity in the global environment [3]. Added to this is the persistently low level of investment in research and development and the widespread dependence on imported content in production processes, which severely restricts operational efficiency and the generation of innovation [4]. These challenges intensify in local contexts such as Ciudad del Carmen, Campeche, where pharmacies not only fulfill a commercial function but also a social one by ensuring timely access to medicines and basic health services. The presence of community pharmacies and establishments with complementary services, medical offices, laboratories, and optical shops reflects the sector's capacity to adapt to the specific needs of its environment [2].

From this perspective, SME pharmacies are key actors for community well-being: they ensure the availability of medicines, contribute to job creation, and strengthen local economic dynamics ([5] & [6]). Nevertheless, they face significant competitive challenges associated with limitations in innovation, financial constraints, low technological adoption, and growing pressure from large pharmaceutical chains, conditions that compromise their sustainability in the medium and long term.

Against this backdrop lies the problem that gives rise to this research: the still insufficient understanding of the factors that determine the competitiveness of pharmacies in specific local environments, particularly in Ciudad del Carmen. It is observed that many of these establishments operate with traditional structures, present weaknesses in production management, and encounter difficulties in incorporating innovation and digitalization processes, which directly affects their ability to compete, their profitability, and their contribution to the local healthcare system ([5] & [7]).

The implications of this problem go beyond the individual performance of each pharmacy. Lack of competitiveness in the sector can lead to shortages, price increases, or limitations in access to medicines, directly affecting the population. In Mexico, persistent problems in the national drug supply chain have been documented [8], evidencing the fragility of the system and the urgency of strengthening each of its components, including pharmacies.

On the other hand, competitiveness has been widely studied from approaches such as competitive advantage ([9] & [10]), the resource-based view [11] and systemic competitiveness [12]. However, recent studies have pointed out the need to analyze this phenomenon in specific sectors such as the pharmaceutical industry, where economic, health, and social variables of a very particular nature converge. In this regard, contemporary research has identified that innovation, operational management, human capital, and access to financing are determining factors of the competitive performance of SMEs, although their impact varies depending on the sectoral and territorial context in which they operate ([5] & [7]).

Despite these advances, a significant gap persists in the literature regarding the empirical measurement of competitiveness in pharmacies at the local level, especially through instruments that integrate multiple dimensions of the phenomenon ([13] & [5]). In response to this gap, the present research is justified on two levels. On the theoretical level, it contributes to the understanding of competitiveness in a strategic sector that has been scarcely explored from regional contexts. On the practical level, it generates useful information for business decision-making and the design of strategies aimed at strengthening the competitiveness of pharmacies in local environments such as that of Ciudad del Carmen.

Competitiveness in the pharmaceutical sector cannot be analyzed using the same parameters applied to other sectors, as its nature is essentially dual: pharmacies converge economic and social objectives that condition both their strategies and their performance. Competition is not waged solely in terms of prices or operational efficiency but also in service quality, the trust the establishment builds with its customers, and the real accessibility of medicines. In this sense, pharmaceutical competitiveness can be understood as the capacity of pharmacies to ensure product availability, offer value-added services, and adapt nimbly to the changing demands of the healthcare environment.

Within this framework, pharmaceutical SMEs occupy a strategic position. Their flexible structure allows them to respond more quickly to changes in demand and ensure access to medicines in local communities where large chains do not always reach or do not prioritize their presence [2]. However, this very small or medium-sized enterprise condition limits their competitiveness: access to supplies, compliance with health regulations, pressure from large pharmaceutical chains, and innovation capacity are factors that largely determine their survival and development in the market.

Along these lines, competitiveness in the pharmaceutical sector can be understood from three complementary theoretical approaches. From the perspective of competitive advantage theory ([9] & [10]) pharmacies would embody concrete decisions such as competitive pricing, strategic location, personalized service, or the incorporation of additional services that distinguish the establishment from its competitors. Meanwhile, the resource-based view holds that competitiveness also depends on the organization's ability to efficiently manage its tangible and intangible assets [11], therefore, in the pharmaceutical sector, the technical knowledge of the staff, the trust accumulated, and the available technological infrastructure constitute strategic resources that are difficult to replicate [14].

Business competitiveness in SMEs constitutes a multidimensional phenomenon influenced by internal and external factors related to organizational capabilities, innovation, operational efficiency, and adaptation to the competitive environment. In the case of the pharmaceutical sector, competitiveness depends on the ability of companies to respond efficiently to market needs, incorporate technologies, optimize resources, and strengthen their administrative and commercial processes.

In this context, this research addresses the competitiveness of SME pharmacies through five strategic dimensions: innovation, production management, economic-financial management, commercial management, and organizational management. The innovation dimension relates to the incorporation of technologies, process modernization, and development of new services; production management encompasses aspects associated with operational control, sourcing, and inventory management; economic-financial management analyzes the capacity to manage financial resources and access to financing; commercial management evaluates customer service strategies, positioning, and business relationships, while organizational management focuses on internal coordination, administrative structure, and human capital capabilities.

According to Saavedra García [15], the competitiveness of small and medium-sized enterprises depends on the comprehensive interaction among organizational capabilities, strategic resources, and adaptation processes to the environment. Likewise, Ibarra Cisneros et al. [16], point out that competitive SMEs are those capable of integrating innovation, operational efficiency, and organizational strategies that allow them to sustain competitive advantages in dynamic markets.

In this context, the objective of this study is to analyze the competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, from a multidimensional approach that integrates the dimensions of innovation, production management, economic-financial management, commercial management, and organizational management in order to identify strengths and areas of opportunity that guide strategies for their sustainable competitive development.

In order to operationalize these dimensions in the specific context of the pharmaceutical sector, the theoretical framework was translated into five measurable

empirical dimensions: innovation, production management, economic-financial management, commercial management, and organizational management. This disaggregation responds to the dual nature of SME pharmacies, whose competitiveness is not exhausted by productive capacity and financing but distinctively incorporates commercial management, market orientation, pricing, and expansion strategies and organizational management, human capital, organizational culture, and internal structure, dimensions that recent literature has identified as key factors in the competitiveness of service SMEs in Latin American contexts ([7] & [5]).

2 Research Method

This study was conducted under a quantitative approach, with a non-experimental, cross-sectional design and descriptive scope, which allowed for the analysis of business competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, without manipulation of variables and at a single point in time. This type of design is appropriate for identifying behaviors, trends, and levels of competitiveness in specific business contexts.

The population under study consisted of pharmacies classified as micro, small, and medium-sized enterprises (MSMEs) located in Ciudad del Carmen, Campeche, identified through consultation of the National Statistical Directory of Economic Units of the National Institute of Statistics and Geography [17]. To determine the sample size, the formula for finite populations was used, considering a 95% confidence level, a 5% margin of error, and an expected variability proportion of 50% ($p = 0.5$; $q = 0.5$), parameters widely used in social and business research. According to Hernández-Sampieri and Mendoza [18], this statistical procedure allows obtaining representative samples when the study universe is known. As a result of the statistical calculation, a sample of 93 MSME pharmacies was determined, selected through non-probabilistic convenience sampling, considering the accessibility and willingness of the economic units to participate during data collection.

$$n = \frac{122(1.96)^2(0.5)(0.5)}{(0.5)^2(122-1) + (1.96)^2(0.5)(0.5)} \quad (1)$$

Data were collected during October 2025 through the application of a structured questionnaire based on multidimensional approaches to business competitiveness ([5] & [7]). The instrument consisted of 56 items distributed across five dimensions: innovation, production management, economic-financial management, commercial management, and organizational management. Each item was measured using a five-point Likert scale, where 1 represented the lowest level of agreement and 5 the highest level.

The content validity of the instrument was supported by the adaptation of previously validated questionnaires for the multidimensional measurement of competitiveness in

SMEs ([15] & [16]), ensuring the relevance and representativeness of the items with respect to the theoretical dimensions analyzed.

Regarding the reliability of the instrument, it was assessed using McDonald's Omega coefficient, yielding values between 0.829 and 0.906 across the different dimensions, evidencing adequate internal consistency. Hair et al. [19] point out that coefficients above 0.70 reflect acceptable levels of reliability in social and organizational research instruments (Table 1).

Table 1. McDonald's Omega coefficient by dimension.

Dimension	No. of items	Omega
Innovation	13	0.866
Production management	9	0.876
Economic-financial management	12	0.829
Commercial management	10	0.899
Organizational management	12	0.906

Note. Own elaboration.

The data collected through the application of the questionnaire were processed and analyzed using IBM SPSS Statistics software, a tool widely used in social, administrative, and business research for the quantitative analysis of information. According to Hair et al. [19]. The use of specialized statistical software ensures greater precision in the processing, organization, and interpretation of quantitative data in organizational and social science studies.

For the statistical treatment of the data, descriptive statistics techniques were used, which allowed identifying the behavior of the analyzed variables and describing the level of competitiveness of SME pharmacies in Ciudad del Carmen, Campeche. In this sense, frequencies and percentages were calculated to analyze the distribution of the responses obtained for each of the items of the instrument, facilitating the identification of trends and patterns of business behavior in the evaluated dimensions. Hernández-Sampieri and Mendoza [18] point out that descriptive statistics allow organizing, summarizing, and presenting data in a comprehensible manner to facilitate the analysis and interpretation of the phenomena under investigation.

Likewise, arithmetic means (M) and standard deviations (SD) were calculated for each of the competitiveness dimensions: innovation, production management, economic-financial management, commercial management, and organizational management. The arithmetic mean allowed determining the average perception level of the participating companies regarding each evaluated dimension, while the standard deviation allowed identifying the degree of dispersion or variability of the responses with respect to the obtained mean. According to Field [20], these

descriptive statistics constitute fundamental tools for interpreting central tendencies and levels of variability in quantitative research applied to the organizational field.

Regarding the interpretation of results, mean values close to 5 indicated high levels of competitiveness, while values close to 1 represented low levels of competitive performance. Likewise, low standard deviations reflected greater homogeneity in the responses of the surveyed companies, while higher values indicated greater variability in the perceptions and organizational practices of the participating pharmacies.

Finally, the statistical results were organized using tables and descriptive analyses in order to facilitate the interpretation of the findings and understand the multidimensional behavior of competitiveness in the analyzed SME pharmacies.

3 Results

The results obtained allowed identifying the level of competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, based on the multidimensional analysis of the variables of innovation, production management, economic-financial management, commercial management, and organizational management. The descriptive analysis revealed significant differences among the evaluated dimensions, allowing the recognition of operational strengths and areas of opportunity related to innovation and access to financial resources.

3.1 Participant characteristics

The results (Table 2) showed a balanced gender distribution, as well as a predominance of participants aged 30 to 39 years. Likewise, a higher level of education was observed at the upper secondary level and a predominance of non-family businesses. Regarding organizational characteristics, recent tenure in the position stood out, with companies being primarily small in terms of number of employees and an operating history that reflects a medium level of consolidation.

Table 2. Characteristics of participants and companies.

Variable	Category / Range	Frequency (n)	Percentage (%)
Gender	Female	46	49.5
	Male	47	50.5
Age (years)	19–29	32	34.4
	30–39	36	38.7
	40–49	19	20.4
	50–62	6	6.5
	Mean (SD)	34.29 (8.81)	—

Education level	Middle school	10	10.8
	High school	53	57
	Technical degree	3	3.2
	Bachelor's degree / University	24	25.8
	Postgraduate studies	2	2.2
Ownership structure	Family-owned	14	15.1
	Non-family-owned	79	84.9
Tenure in position (years)	1–2	51	54.8
	3–4	28	30.1
	5–6	10	10.8
	7–9	4	4.3
	Mean (SD)	2.63 (1.71)	—
Number of employees	2–5	21	22.6
	6–9	45	48.4
	10–13	18	19.4
	14–18	9	9.7
	Mean (SD)	8.20 (3.93)	—
Years of company operation	1–5	22	23.7
	6–10	34	36.6
	11–15	26	28
	16–23	11	11.8
	Mean (SD)	9.46 (5.06)	—

Note. Own elaboration.

Overall, the dimension with the highest level of competitiveness was commercial management, ($M=4.21$; $SD=0.53$), followed by organizational management, ($SD=0.58$), indicating that pharmacies have strengths related to customer service, local positioning, internal coordination, and operational experience. Likewise, production management showed a favorable performance ($M=3.90$; $SD=0.57$), evidencing functional capabilities in inventory control, sourcing, and operational efficiency. On the other hand, the dimensions of innovation ($M=3.81$; $SD=0.64$) and economic-financial management ($M=3.76$; $SD=0.69$) presented moderate levels of competitiveness, reflecting limitations related to technological investment, access to financing, and process modernization.

In this context, the abbreviation "M" refers to the arithmetic mean or average obtained in each dimension evaluated using the five-point Likert scale, while "SD" represents the standard deviation, a statistical indicator that allows identifying the level of

dispersion or variability of responses with respect to the mean. Low standard deviation values indicate greater homogeneity in the participants' responses, while higher values reflect greater variability in the perceptions of the

In general terms, the results reflect that SME pharmacies maintain a functional and competitive operational structure within the local context; however, they face significant challenges in strengthening their sustainable competitiveness in an environment characterized by the growing presence of pharmaceutical chains, digital transformation, and changes in consumption dynamics in the healthcare sector.

3.2 Innovation

The results corresponding to the innovation dimension showed moderate levels of competitiveness in SME pharmacies in Ciudad del Carmen. It was observed that the participating companies have begun to incorporate some practices related to the modernization of their operations; however, significant limitations still exist in terms of digitalization, technological investment, and development of new services. Among the main findings, the partial adoption of technological tools for inventory control, sales recording, and medication management stood out, which has contributed to improving operational efficiency and reducing administrative errors.

In this sense, the innovation dimension presented a moderate level of competitiveness ($M=3.81$; $SD=0.64$). The results show that 61.3% of the participating pharmacies implement basic technological tools for inventory and sales control, while only 34.4% have integrated digital systems for operations management.

Likewise, 48.3% of the companies reported having incorporated complementary services such as home delivery, social media customer service, or attached medical offices as a strategy to strengthen their competitive positioning. However, only 27.9% stated that they make periodic investments in innovation processes or technological modernization. Nevertheless, the results also reflected significant weaknesses related to limited investment in research, development, and innovation ($R+D+I$), as well as financial constraints for 58.1% of the pharmacies to implement more advanced technologies.

Similarly, it was identified that a considerable portion of the pharmacies maintain traditional operating models with little automation and low presence on digital channels, with up 43.0%. These results show that, although there is a willingness to modernize, SME pharmacies still face significant challenges in consolidating permanent innovation and digital transformation processes.

3.3 Production management

Regarding production management, the results showed favorable performance among the participating pharmacies, particularly in aspects related to medication sourcing, inventory control, and efficiency in operational processes. The companies demonstrated the ability to maintain adequate levels of product availability and respond relatively efficiently to consumer demand. Therefore, production management obtained favorable performance ($M=3.90$; $SD=0.54$), reflecting

functional operational capabilities in most of the pharmacies analyzed. A total of 72.0% of the companies reported maintaining frequent controls over inventory and medication sourcing, which has reduced stockout and improved product availability.

Likewise, it was observed that 67.7% of the pharmacies have developed basic mechanisms of logistical organization and internal control that contribute to optimizing service times and reducing problems associated with stockout. The implementation of inventory supervision practices and product rotation allowed for improved medication management and minimized losses derived from expirations or shortages, while 63.4% indicated that they carry out periodic supervision of their operational processes and customer service times.

However, only 39.8% of the companies stated that they use automated systems for logistics and administrative management, evidencing a continued heavy reliance on manual processes in a large part of the sector. The results reflect that pharmacies possess consolidated operational experience; however, they need to strengthen the automation and digitalization of their production processes to increase their efficiency and competitiveness.

3.4 Economic-financial management

The economic-financial management dimension presented one of the most moderate levels within the multidimensional analysis of competitiveness. The results showed that many of the participating pharmacies face limitations related to access to financing, investment capacity, and strategic financial planning.

The economic-financial dimension presented one of the most moderate levels of competitiveness. ($M=3.76$; $SD=0.69$). The results indicate that 64.5% of the pharmacies operate primarily with their own resources, while only 21.5% have recently had access to external financing for investment or modernization.

Furthermore, 57.0% of the participants reported facing difficulties related to the increase in operating cost, especially in medicines, services, and distribution logistics. Meanwhile, 46.2% expressed limitations in making investments in technological infrastructure and commercial expansion.

Regarding financial planning, only 38.7% of the companies reported having formal budgets and medium-term financial strategies, while the majority maintain basic financial controls focused primarily on daily operations.

These findings show that financial constraints represent one of the main factors limiting the sustainable competitiveness of SME pharmacies in Ciudad del Carmen.

3.5 Commercial management

The results of the commercial management dimension reflected the highest level of performance among the analyzed variables. The participating pharmacies showed significant strengths related to customer service, local positioning, service strategies, and knowledge of market needs, achieving the highest level of competitiveness ($M=4.2$; $SD=0.53$). The results show that 81.7% of the pharmacies consider personalized service to be their main competitive advantage over large pharmaceutical chains.

Likewise, 76.3% of the participants indicated that they maintain constant and trusting relationships with their customers, fostering loyalty and permanence in the local market. A total of 69.9% reported implementing promotions, discounts, or preferential service programs as a strategy to strengthen their commercial positioning.

Similarly, 73.1% of the companies stated that they maintain stable relationships with suppliers, allowing for a more efficient response to the demand for medicines and health products.

However, only 35.5% indicated using formal digital marketing strategies or e-commerce, reflecting areas of opportunity related to commercial expansion and the use of digital platforms.

The results show that SME pharmacies possess important commercial strengths based on closeness to the customer and knowledge of the local market.

3.6 Organizational management

In the organizational management dimension, the results showed favorable performance associated with internal coordination, operational structure, and organizational adaptability of the participating pharmacies, presenting favorable performance ($M=4.06$; $SD=0.58$). The results reflect that 74.2% of the pharmacies have a clear distribution of functions and responsibilities within the organization, favoring internal coordination and operational functioning.

Likewise, 68.8% of the companies stated that they carry out supervision and monitoring processes for work activities, while 59.1% indicated that they promote training related to customer service and medication handling.

Regarding human capital, 71.0% of respondents considered that the experience and technical knowledge of the staff represent one of the most important resources for the competitiveness of the company. However, only 33.3% reported having formal processes for strategic planning and organizational improvement.

These results show that SME pharmacies possess functional organizational structures and consolidated operational experience; nevertheless, they need to strengthen

strategic administrative processes and permanent training programs to improve their sustainable competitiveness.

4 Discussion

The results obtained show that the competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, depends on multiple organizational, commercial, productive, and financial factors that interact simultaneously. In general terms, the findings show that the companies possess important strengths in commercial management, organizational management, and production management; however, they continue to face limitations related to innovation, digitalization, and access to financing, a situation similar to that reported in various recent studies on business competitiveness in Latin American SMEs.

Regarding the innovation dimension, the results showed moderate levels of competitiveness ($M=3.81$; $SD=0.64$), evidencing that pharmacies have begun to incorporate basic technological tools for inventory control, sales, and operational management. However, significant limitations persist related to automation, digitalization, and the development of new services. These findings align with Barra et al. [21], who argue that digital transformation currently constitutes one of the main strategic factors for the competitiveness of Mexican SMEs, especially in dynamic and highly competitive markets.

Likewise, the fact that only 34.4% of pharmacies have integrated digital systems reflects a significant technological gap. In this regard, the Organization for Economic Cooperation and Development [22] points out that a large part of Latin American small businesses face structural difficulties in adopting advanced technologies due to financial constraints, limited training, and inadequate digital infrastructure. Similarly, Garza Guevara [23] found that many Mexican SMEs maintain low levels of digital maturity, which directly limits their productivity, innovation capacity, and sustainable competitiveness.

Furthermore, the limited investment in research, development, and innovation observed in the participating pharmacies aligns with the findings of Medina Santillanes et al. [24], who argue that Mexican MSMEs still exhibit resistance to technological change and difficulties in consolidating permanent digital transformation processes, particularly following the structural changes resulting from the pandemic and the technological acceleration of markets.

Regarding production management, the results showed favorable performance ($M = 3.90$; $SD = 0.57$), particularly in aspects related to sourcing, inventory control, and operational efficiency. These findings reflect that pharmacies possess consolidated functional capabilities to respond to the needs of the local market and maintain medication availability. In this sense, Pazmiño-Bone et al. [25], affirm that operational efficiency and the digitalization of logistics processes represent determining factors for improving the competitiveness of small and medium-sized enterprises in highly changing contexts.

Likewise, the fact that 72.0% of the pharmacies maintain frequent controls over inventory and sourcing reflects an important concern for ensuring operational continuity and reducing stockout problems. However, only 39.8% of the companies reported using automated systems for logistics and administrative management, a situation that aligns with Medina Santillanes et al. [24], who argue that many Mexican MSMEs still rely on traditional manual processes due to economic and technological limitations.

Regarding the economic-financial dimension, the results showed one of the most moderate levels of competitiveness ($M=3.76$; $SD=0.69$), evidencing that financial constraints continue to be one of the main factors limiting the growth and modernization of SME pharmacies. The predominance of financing through one's own resources and the low access to formal credit align with what has been noted by the OECD [22], which identifies financing as one of the main structural barriers to competitiveness and innovation for small businesses in Latin America.

Similarly, the difficulties related to increased operating costs and limited financial planning reflect that a large part of the pharmacies continue to focus on day-to-day operations rather than on long-term growth strategies. On this aspect, [1] highlights that companies that strengthen their organizational and financial capabilities have greater possibilities of adaptation in the face of digital transformation scenarios and intensive competition.

In contrast, commercial management presented the highest level of competitiveness, ($M=4.21$; $SD=0.53$), evidencing that personalization, closeness to customers, and knowledge of the local market constitute the main competitive strengths of SME pharmacies against large pharmaceutical chains. These results coincide with Pazmiño-Bone et al. [25], who point out that small businesses manage to differentiate themselves mainly through trusting relationships, commercial flexibility, and personalized service.

Likewise, the fact that 81.7% of the pharmacies consider personalized service as their main competitive advantage demonstrates the relevance of relational capital in sectors linked to health services and community care. However, only 35.5% use formal digital marketing strategies or e-commerce, which reveals significant areas of opportunity to strengthen competitive positioning through digital tools. In this regard, Barra et al. [21], argue that digital strategies currently represent a fundamental element for increasing competitiveness and business permanence in highly dynamic markets.

Finally, the organizational management dimension presented favorable performance ($M=4.06$; $SD=0.58$), reflecting strengths related to internal coordination, operational experience, and functional distribution of responsibilities. These results are consistent with the arguments put forward by Garza Guevara [23], who states that human capital, organizational culture, and administrative capabilities represent strategic factors for business competitiveness in contexts of technological transformation.

Likewise, the fact that 71.0% of respondents consider that the experience and technical knowledge of the staff constitute one of the most important resources for business competitiveness coincides with González-Varona et al. [26], who highlight that organizational capabilities and institutional learning are fundamental elements for strengthening sustainability and competitive adaptation of SMEs.

However, the low percentage of companies with formal strategic planning processes shows that many pharmacies still operate under traditional administrative schemes with a limited long-term strategic vision. This situation limits their ability to adapt to the technological and competitive changes that currently characterize the pharmaceutical sector.

Overall, the results allow us to conclude that SME pharmacies in Ciudad del Carmen possess significant commercial, organizational, and operational capabilities that favor their permanence in the local market; however, they face structural challenges related to innovation, digitalization, and financing that limit the strengthening of their sustainable competitiveness in an increasingly dynamic and technologically demanding pharmaceutical environment.

5 Conclusions

This research made it possible to multidimensionally analyze the level of competitiveness of SME pharmacies in Ciudad del Carmen, Campeche, through the evaluation of the dimensions of innovation, production management, economic-financial management, commercial management, and organizational management. The results obtained showed that the participating pharmaceutical companies possess significant strengths in commercial, organizational, and operational aspects; however, they continue to face structural limitations related to technological innovation, digital transformation, and access to financing.

In general terms, the dimension with the highest level of competitiveness was commercial management ($M=4.21$; $SD=0.53$), which demonstrates that personalized service, closeness to customers, and knowledge of the local market represent relevant competitive advantages over large pharmaceutical chains. Likewise, organizational management ($M=4.06$; $SD=0.58$) showed that pharmacies have functional structures, operational experience, and trained human capital that favor internal coordination and operational continuity of the companies.

Similarly, production management presented favorable performance ($M=3.90$; $SD=0.57$), reflecting important capabilities related to inventory control, medication sourcing, and operational efficiency. These results allow us to infer that SME pharmacies have developed functional mechanisms to respond to the needs of the local market and maintain operational stability within an increasingly dynamic competitive environment.

However, the dimensions of innovation ($M=3.81$; $SD=0.64$) and economic-financial management ($M=3.76$; $SD=0.69$) showed moderate levels of competitiveness, revealing significant areas of opportunity related to automation, digitalization, technological investment, and strategic financial planning. Particularly, the limited adoption of integrated digital systems and low access to external financing represent factors that restrict the modernization capacity and competitive growth of the participating pharmacies.

In this context, the findings allow us to conclude that SME pharmacies in Ciudad del Carmen maintain functional competitiveness based mainly on operational experience, personalized service, and close relationships with their customers; however, they need to strengthen their innovation and digital transformation capabilities to respond more efficiently to the technological and commercial changes that currently characterize the pharmaceutical sector.

Likewise, it is concluded that the sustainable competitiveness of SME pharmacies depends not only on operational and commercial factors but also on the ability of organizations to develop comprehensive strategies oriented toward digitalization, administrative modernization, human capital training, and financial strengthening. Consequently, it is essential to promote institutional support mechanisms, access to financing, technological training programs, and digital transformation strategies that contribute to the competitive strengthening of small and medium-sized pharmaceutical enterprises in local contexts.

Finally, this research provides relevant empirical evidence on the competitive behavior of SME pharmacies in Ciudad del Carmen, Campeche, contributing to the academic and business analysis of competitiveness in the Mexican pharmaceutical sector. Furthermore, the results obtained can serve as a basis for future research oriented toward the study of innovation, digitalization, business sustainability, and competitive strategies in small and medium-sized enterprises in the health sector.

Based on the results obtained in this research, various lines of future research are identified aimed at deepening the analysis of competitiveness in SME pharmacies and their adaptation to the technological, economic, and organizational changes in the pharmaceutical sector.

First, it is recommended to develop research focused on the impact of digital transformation on the competitiveness of SME pharmacies, particularly in aspects related to process automation, e-commerce, artificial intelligence, data analysis, and digital customer service platforms. This would allow for a more precise understanding of how emerging technologies influence operational efficiency, customer loyalty, and business sustainability within the pharmaceutical sector.

Likewise, future research could analyze the relationship between technological innovation and financial performance in SME pharmacies, considering variables such as profitability, productivity, business growth, and access to financing. This type of

study would contribute to identifying strategic mechanisms that favor the modernization and sustainable competitiveness of small pharmaceutical enterprises.

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