



Perceptions of formal pharmacy leadership on the social role of the profession and its historical evolution: A qualitative study

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ABSTRACT

Background: In recent years, pharmaceutical professionalism has been questioned due to the social role of pharmacy, which is ambiguous in the literature. This raises questions about the purpose of the profession among pharmacists, despite the efforts of their professional organizations and formal leaders to consolidate the occupational status of the profession.

Objective: To understand the social role of pharmacy in Brazil through its historical evolution based on the perceptions of formal leaders of the profession.

Methods: A qualitative study was conducted between July 2020 and February 2021 with pharmacists who held leadership positions in formal and professional pharmacy organizations in Brazil. The data obtained from the interviews were submitted to content analysis.

Results: A total of 17 pharmacists participated in this study. The data analyzed presented perceptions about the social role of the pharmaceutical profession in Brazil, which promotes access to health through different means. These include the manager pharmacist, who facilitates access to public health policies; the caring pharmacist, who promotes health education and the rational use of medicines; and the technologist pharmacist, who researches, develops, and promotes access to safe and cost-effective medicines. The interviewees also discussed the evolution of this social role based on influential factors such as legislation, clinical movement, pharmaceutical education, labor market, behaviors, and attitudes of pharmacists.

Conclusion: In this study, pharmaceutical professionalism was conceptualized based on its social role, which should be centered on the patient. Understanding such issues is part of the evolutionary purpose of the profession in Brazil and should be encouraged in the behaviors and attitudes of pharmacists despite the challenges faced by the profession.

1. Introduction

Professions are organizations that produce services based on social demands using specific and non-transferable knowledge acquired from training schools accredited for this purpose.¹ In this context, professionalism – how professionals seek to ascend and consolidate their interests, products, and services before social needs – emerges as the basis

for uniting the objectives of professions with the demands of society.² Specifically, a moral contract exists between professionals and the users of their services.^{1,3} The literature points out that the understanding of professionalism is mainly due to the profession's social role, which may be the service that the profession produces through a social demand, how much this service is essential for collective well-being, and the moral framework and ideology of the profession that is translated

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through the behaviors and attitudes of its practitioners.^{4,5}

In recent decades, discussions on the social role of pharmacists, based on the evolution of pharmacy worldwide, have deepened, mainly mediated by increased interest in studies on professionalism.^{6,7} Despite being the third-largest group of health professionals in the world and having a historical influence supported by entities that define and influence global healthcare strategies, pharmacists have been facing challenges in establishing their services for patients and other health professionals.^{5,8,9}

The connection between the social role of Pharmacy and the expectations of pharmacists considering the fundamental challenges of the profession can be found in the perceptions of formal leaders of professional organizations.^{4,5,10,11} Despite their efforts, professional organizations struggle with significant influencing factors. These include the notion that pharmacists are merely salespeople of medicines or the apprehension that these professionals can take on new clinical responsibilities.^{11–14}

Professionalism is not a static concept, and questions about the meaning of pharmaceutical practice are constantly raised making the formal leaders of the profession mediate them. They are the ones responsible for safeguarding the fundamental principles and establishing the social role of the profession.^{2,15} Although these discussions have been widely held in other countries, the experience of Brazil can generate hypotheses that help the profession continue improving models of practice for dialogue with the patient.^{12,16}

Therefore, it is necessary to understand the perceptions of the profession's formal leadership, which is responsible for formulating strategies.¹⁷ Thus, the present study aimed to understand the social role of the Pharmacy in Brazil through its historical evolution based on the perceptions of formal leaders of the profession.

2. Method

2.1. Study design

This qualitative exploratory study was conducted between July 2020 and February 2021. Data were obtained from interviews with individuals considered formal leaders of professional pharmaceutical organizations. These individuals shared their perceptions about the social role of pharmacies in Brazil.^{3,12,18} The participants shared their perceptions about the theme, drawing from their professional experiences and the experiences in formal leadership positions within the pharmaceutical profession, including their beliefs and personal values. The study was conducted following the recommendations of the Consolidated Criteria for Reporting Qualitative Research.¹⁹

2.2. Study participants

Pharmacists with professional experience and formal leadership positions in professional councils and representative associations of the pharmaceutical profession in Brazil were invited to participate in this study. Professional councils are responsible for regulating and supervising professional practice in addition to overseeing professional practice by providing formal continuing education and a reserve market.^{12,20,21} Whereas, associations and unions, promote the profession in society and improve professionals' knowledge through continuing education, including moral and salary valuation policies for professionals.^{14,20,22,23,24}

The selection of participants was intentional. This technique widely used in the literature, intentional sampling, advocates the judgment of researchers in choosing participants based on, above all, the relevance of the individual and their opinions for understanding the research phenomenon.^{12,25–30} Thus, pharmacists who occupy formal leadership in the executive board of the professional council, unions, and organizations bring together the occupational areas with the highest participation of pharmacists in the country. This includes pharmacists who hold

the same functions and perform the same attributions in clinical pharmacy and pharmaceutical education entities. Pharmacists from pharmaceutical education entities were also chosen due to the relevance of their opinion on the questions addressed. Initially, the participants were invited by email and presented with the objectives of the study and the ethical aspects of the research through a consent form. Subsequently, the interviews were scheduled and conducted individually.

2.3. Script development

To obtain an understanding of the research phenomenon from the perceptions of the study participants, researchers developed a semi-structured script during brainstorming sessions. The study questions were formulated and refined by invited researchers (ARM, female, PhD) and (DMMP, female, PhD) with previous experience in designing qualitative studies. Finally, the questionnaires were reviewed by a senior researcher (DPLJ, male, PhD). The wording of the questions was proposed to facilitate approximation between the interviewer (FCAN, male, MSc) and the interviewees.^{31–33} Accordingly, the following questions were formulated:

What is the social role played by pharmacists?

- Does a pharmacist meet the society's needs? If so, in which way? If not, why?
- How have you seen the evolution of the profession in recent decades?

2.4. Interviews

The interviews were conducted via the Skype™ platform by a researcher (FCAN, male, pharmacist, MSc) with previous experience in qualitative studies, and the content was recorded in audio and video. The interviews were conducted in this format because of the health restrictions imposed by the coronavirus disease 2019 (COVID-19) pandemic. Also, the researchers examined the literature on the subject, including recommendations for conducting interviews using this modality to avoid possible losses regarding the quality of data collection.^{34–36}

The relevant themes for this study that emerged during the interviews were explored by an interviewer (FCAN). In all interviews, a logbook was used to record impressions of the participants' reports, relevant themes to be explored in subsequent interviews, and elements of nonverbal communication issued by the interviewees, which helped in the next stage of the interview content analysis.³⁷

2.5. Data saturation

Theoretical data saturation was the analytical phenomenon adopted to suspend interviews.^{12,30,37,38} In each interview, the data obtained in audio, video, logbook, and transcripts were analyzed by the researchers to observe redundancies, repetitions in addressed topics, or speeches that distanced themselves from the questions in the script.^{12,19,26,38} The number of interviews conducted was another indicator used to confirm saturation. Currently, the literature suggests that between nine and 24 interviews are required to observe the phenomenon.^{12,37,38} It is important to emphasize that saturation was observed by the study researchers and confirmed by a senior researcher (DPLJ, male, PhD). Data saturation considers the research themes and answers to the questions. All organizations of interest in the study topic were consulted, and if necessary, other leaders from the same organization were recruited and interviewed until saturation was reached.

2.6. Ethical aspects

The Research Ethics Committee of the Federal University of Sergipe approved this study [Approval no.: 4102149].

2.7. Data analysis

The audio and video contents were transcribed by two researchers (FCAN and TMAT). The transcripts underwent inductive analysis, categorization, and coding following the content analysis technique proposed by Bardin.^{39,40} The material evaluation stages consisted of a pre-analysis, that is, fluctuating readings carried out by the researchers to familiarize themselves with the reports. Furthermore, logbooks, audio, and videos were revised to capture possible phenomena not highlighted in the transcripts. These readings also allow researchers to explore and debate ideas through individual interpretations of analytical material.^{12,19,40}

Subsequently, three researchers (FCAN, ASD, and FLF) independently coded the material. Coding was performed inductively. Specifically, the codes created emerged exclusively from the analysis of crude interview data. After individual coding, the researchers collectively reviewed them.^{19,41}

Finally, the codes were grouped into categories generated by the researchers in an inductive process. This step was conducted respecting the criteria of objectivity, pertinence regarding the study objective, and interview questions. Initially, this process took place individually and later through brainstorming among the researchers. When necessary, a consensus was reached by a senior researcher (DPLJ). During the process, data saturation as an analytical phenomenon was requested to confirm that there was no need to create new codes or categories.^{12,37,40,42}

2.8. Reflexivity

During the analysis of the transcripts, audio, videos, and logbooks, elements of the individuality, history, influences, and cultures of the researchers were exhaustively discussed so that these aspects would not be predominant or influence the inductive coding process and categorization of the data obtained in the interviews.^{43–45}

Reflexivity in qualitative research recognizes the constructivist power of a researcher's previous experiences through the development of an analytical procedure.^{45,46} However, it is understood that this cannot be a predominant factor, including avoiding biases between the researchers' opinions, the perceptions of the interviewees, and consequently, the theoretical foundation that feeds the discussion of the obtained results.^{43–45}

3. Results

3.1. Demographic data of participants

A total of 17 pharmacists participated in this study. The respondents were evenly distributed among the geographic regions of Brazil. They had been in practice for an average of 25 years, with the most experienced professionals starting in 1973 and the youngest in 2010. Regarding institutional affiliation, participants held formal leadership positions in the following occupational areas: hospital pharmacy, community pharmacy, clinical pharmacy, pharmacy education, and the profession's regulatory body. Each interview lasted for an average of 43 min, and 783 min of audio and video content were generated. No participants refused to participate in the study. [Table 1](#) presents the data of the study participants. (See [Figs. 1 and 2](#).)

3.2. Data analysis

Two categories emerged from the data analysis. These are the social roles of pharmaceutical practices and their evolution in Brazil in recent decades.

Table 1

Characterization of study participants (n = 17).

Characteristics		N (%)
Sex	Male	7 (41.8%)
	Female	10 (58.8%)
Age		X = 54
Maximum degree	Doctorate degree	8 (47.05%)
	Master's degree	4 (23.5%)
	Bachelor's degree	5 (29.0%)
Region that resides	Midwest	3 (17.65%)
	Northeast	4 (23.53%)
	North	2 (11.76%)
	Southeast	4 (23.53%)
	South	4 (23.53%)

3.3. Social role of the profession

I1: "Pharmacists are health professionals; therefore, they have an important role in patient safety, in the promotion and protection of health, in the prevention, diagnosis, and treatment of diseases and no harm to individuals' health."

The interviewees' perceptions regarding the social role of pharmacists in Brazil were diverse and included the provision of services to patients, family, community, and health system through medication. Pharmacists must guarantee safe, effective, and cost-effective pharmacotherapy grounded in access to medicines and ultimately benefit users from clinical, economic, and humanistic perspectives. Centralizing the mission of Pharmacy concerning medicine and their users will restrict the performance of pharmacists in clinical activities, and the technological component of the profession will be discontinued. Access to medicines begins with research and development of these products as part of the social role of pharmacists. Respondents said that pharmacists must ensure the safety and effectiveness of medicines. Furthermore, they ensure that the financial cost of medicines is not a barrier to its acquisition by patients.

Respondents also mentioned that pharmacists were responsible for promoting patients' access to health services through health education activities and the rational use of medicines. The participation of the profession in the public health system must be effective and carried out through the promotion and development of policies that guarantee the universal and integral access of users to these services. Among the interviewees, there was fear of Pharmacy's possible invisibility or social irrelevance in the next few years, especially if the profession does not fulfill its role of "protection and advocacy for medicine users (I2)," as said by one of the interviewees. This means that pharmacists must increasingly defend the interests of patients, create trusting relationships with them, and abolish unethical meander services such as the indiscriminate sale of medicines.

Among the interviewees' reflections, the profession was respected when it developed irreplaceable and indispensable services. In this case, pharmacists play a more traditional social role than other health professionals, and no one can replace their workforce to guarantee the effectiveness and safety of medicines. At this moment, it was highlighted that today, technological activities share space with clinical activities, integrating them into the same work process.

I2: "For me, professionalism acts within the precepts of the profession, with ethics and thinking about collaborating with society."

For the interviewees, the pharmacist was a frontline healthcare professional with whom society was effectively linked, making them a part of their lives. It was reinforced that such new standard was something recent in Brazil and that it started to be theorized only at the beginning of the 21st century.

I3: "Apparently, we were unprepared to care for individuals."

It was also said that many pharmacists "reverse" the order, placing the drug in the spotlight to the detriment of the user. In general,

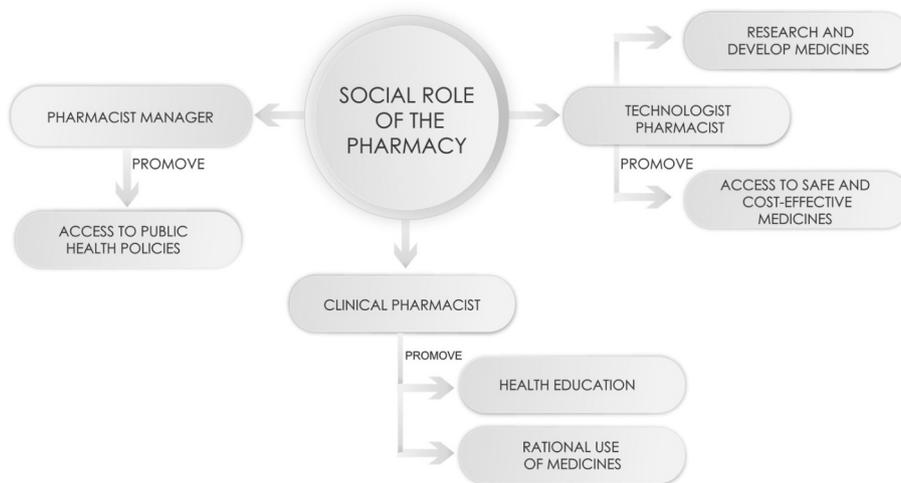


Fig. 1. Figure describes the categories of this topic.



Fig. 2. Figure describes the categories of this topic:

interviewees pointed out that society is increasingly demanding professionals who deliver services to the detriment of products. According to their perception, such situation collides with what has historically been a work process that has given greater visibility to pharmacists – the delivery of medicines.

In the meantime, the interviewees got in a consensus about pharmaceutical education being an ambiguous scenario wherein it still focuses on the product and does not highlight the services that can be developed. Similarly, the profession’s technological bias, which aims to research and develop products, is considered a strategic component of the social role of Pharmacy and should not be forgotten. However, it is not the only model of practice exercised by pharmacists. According to some interviewees, the global transition from pharmacy to clinic comes against the lack of identification of students and pharmacists with the clinical practice. According to one of the interviewees (I4), this absence of identification undermined what is named the social role of the “integrator of the care process” as, in primary care, there is a link between patients, other health professionals, and more complex services.

Vocational aspects about choosing Pharmacy as a profession were

examined based on those questions. In Brazil, the access system to higher education courses takes place through an entrance exam that encompasses general knowledge; thus, there are no admission interviews, for example, which, for respondents, impact individual motivations and aspirations to be a pharmacist. Other respondents saw providing medical information as an excellent opportunity for pharmacists of the current generation. Although the interviewees recognized this demand, contradictions to the model presented were also raised in some reports due to the existing commercialism in pharmacy chains. In contrast, the interviewees emphasized the technical function of ensuring the safety and effectiveness of medicines, which is facilitated by pharmacists in the pharmaceutical industry. Commitment to the patient’s well-being through an integral notion of health should be a characteristic that applies meaning to the services provided by the pharmacist, even if they work in an area far from the clinic.

Finally, the interviewees declared that understanding all the aspects mentioned in this category of Pharmacy social role influenced their commitment to ethical and respectful behaviors toward the patient. In a classification developed by the researchers based on the perceptions of the interviewees, the social role of Pharmacy was described in three nuclei based on the promotion of access to health. The nuclei comprise three roles: the pharmacist manager, who facilitates access to public health policies; the clinical pharmacist, who promotes health education and rational medication use; and the technologist pharmacist, who is engaged in researching and developing medicines to ensure access to safe and cost-effective treatments.

3.4. Evolution of the social role of pharmaceutical practice

I4: “The worldwide clinical movement has increased. This is an evolution for the pharmacist to find himself as a clinical professional, more focused on the patient than on the medication.”

Respondents also presented their perceptions of the evolutionary process of Pharmacy in Brazil in recent decades. In this study, the social role of Pharmacy was analyzed by considering historical events in society that influenced the occupational nature of the profession. Thus, leaders could express ideas beyond a process that is sometimes static in the analytical context of the value and role of professions such as Pharmacy.

Respondents reported changes in regulatory policies and progress in the legislative context, with the normative affirmation of the technical authority and autonomy of the pharmacist in their work environment. Moreover, the entity that regulates the pharmaceutical profession in Brazil has put efforts into defining clinical attributes for the pharmacist and reinforcing the role of the pharmacist in guaranteeing safety in the

use of medicines.

Interviewees said that, in parallel with the regulatory frameworks that led the pharmacist back to the social role of a medicine specialists, there was an expansion of the technological scope attributed to patient-centered practices, which was considered the birth of the clinical movement of Pharmacy in Brazil. Still according to the interviewees, consequently, the movement has bridged the gap between pharmaceutical practice and clinical settings, aligning with other health professions. It has also helped to distance the profession technician stigma that persists in some developing countries in contrast to the greater recognition and tradition already established in developed countries.

Some interviewees mentioned that there was a growth in the job market, and it was associated with the conquest of new occupational areas that are not necessarily linked to medication, which can strengthen the visibility of the profession. Consequently, an increase in employability has been observed in areas such as management, care, industry, hospitals, and pharmacies. Furthermore, the expansion of the number of occupational areas is a maneuver that mischaracterizes other fronts of Pharmacy.

I5: "If pharmacists continue to isolate themselves behind the scenes, we will not be seen, and those who are not seen are not remembered."

The visibility of the profession has grown along with the behaviors and attitudes of pharmacists who have decided to stand themselves as health professionals. The "social irrelevance (I2)" was cited as the "great fear (I2)" of Pharmacy, as well as political contexts that disadvantage the profession, for example, the possibility of selling medicines in supermarkets. Although Brazilian pharmacists can develop their practices in several disciplines, the interviewees warned that advocating for the medicine consumer is what makes the profession in demand by society. Thus, making the profession relevant depends on all categories of this topic, but nothing is possible without the pharmacists' attitude to prove its usefulness.

I6: "We need to work, show up, show that we are useful, that our work avoids suffering, reduces pain and death... I believe that is what we must do."

For the interviewees, the COVID-19 pandemic favored the evolution of Pharmacy status to a clinical level, which is not a consensus but represents the desires of a large part of the category. In contrast, physicians and nurses were cited as being more prestigious than pharmacists. That is, despite providing relevant services in Brazil, the Pharmacy is still not fully recognized by society, other health professionals, and the pharmacists themselves:

I7: "Society and other professionals still do not perceive us as health professionals."

4. Discussion

4.1. The social role of the profession

According to interviewees, the social role of Pharmacy, in Brazil, lies at the interface between the development of medicines and their utilization by patients. Pharmacy includes several occupational areas that do not use medicine as a work tool. In Brazil, it is a consequence of the decades of the gap between pharmacists, patients, and other health professionals. Despite the global efforts of organizations and associations that regulate the profession, Pharmacy faces a peculiar challenge concerning its social role and how to make it seen and, above all, remembered.

If the literature related to the social role of Pharmacy in the last 25 years were analyzed in the light of the social and administrative pharmacies and the sociology of professions, it would undoubtedly present results that attest to the ambiguous scenario in which pharmacists live.^{5,6,47-49} The demand to re-professionalize Pharmacy based on the observation of pharmacotherapy-associated morbidity as a public health problem and interventions to mitigate its consequences as a social need has led to little progress in the socialization of pharmacists to acquire

this new role.^{47,50-55}

Although these conflicts have persisted for some time in countries such as the Brazil, responses from pharmacists are relatively recent.^{12,56} Such reaction may reflect the fear of "social irrelevance," as highlighted by the participants of this study. Positive attitudes toward changing the social role of pharmacists have also been highlighted in the literature.^{28,50} However, barriers to this new paradigm are presented and associated with encouragement and acceptance by other professionals and patients.^{8,25,57}

In this context, motivational factors are critical to the development of the profession.^{5,50,58,59} Distant from vocational beliefs but close to the reality and contradictions of the division of labor in health, the interviewees believe it would be possible that professional pharmacy organizations attempted to raise awareness among pharmacists for a "leap of faith." This "leap" invites Pharmacy to a passage to the other side of its existence, where, initially, many may question its credible guarantees, but then, it could modify the individual's experience with his/her profession.⁵⁴

The adoption of ideologies by professionals is part of the strategy of organizations that wish to monopolize a particular service.^{10,60,61} However, it is not sufficient if pharmacists do not understand that they are healthcare professionals or act accordingly, as reported by the participants in this study. Despite the efforts of Professional Associations to define this discourse, in practice, the literature routinely points out that the pharmacist is the barrier for the profession to present itself as a "medicine consultant" aligned with the discourse of patient-centered professionalism.^{1,3,62-65}

Studies conducted in the United States and countries in Asia and Europe have shown that the central element of professionalism in the health area is the patient.^{48,66-69} Patient-centered care is considered the primary response to society's lack of trust in professions or scenarios in which professions are subjugated to proletarianization and precariousness in their work relationships, which impact the professional performance and their attitudes and behaviors.^{12,70,71} Therefore, it is necessary to reflect on these discourses to ensure their alignment with social, political, and economic changes, to think about the work performance and its process without discrediting other professional specialties but rather integrating the healthcare process.

4.2. Evolution of the social role of pharmaceutical practice

According to the perceptions of the interviewees in this study, the professionalization of Pharmacy in Brazil can be classified as a peculiar case when compared to European countries and the United States.^{5,6,47,72-75} In these places, the affirmation of the technical authority of pharmacists regarding the guarantee of the effectiveness and safety of medicines is more traditional and supported by society and health systems. According to those interviewed, Pharmacy has been responsible for meeting the diverse demands of public health in Brazil. Strategies have been proposed to address barriers to the irrational use of medicines.^{6,76-78} From events such as the creation of a National Public Health System and National Policies for Access to Essential Medicines, Managing Drug Supply, and Pharmaceutical Care, Pharmacy experienced the opportunity to unite social roles and offer a unique work process that involved drug technology, logistical management of these products, and user care.^{20,77}

In the United States and European countries, the campaign for Pharmacy to assert itself as a health profession and to be responsible for the provision and management of safe and effective pharmacotherapy has been elucidated through teaching, practice models, and ideologies.^{47,51,54,79-82} Changes in the work division in health and its processes, expanding the biopsychosocial model, and changing the design and development of public health policies motivated the transition process and is interpreted as the "re-professionalization" of Pharmacy toward patients.^{72,73,75,83,84} In contrast, in countries such as Argentina, Chile, Saudi Arabia, Iran, and Pakistan, the profession is still

looking for ways to consolidate its social role; therefore, pharmacists face difficulties in becoming involved in clinical services.^{5,66–69,72,82,84,85}

The interviewees also realized that the diversification of occupational areas implies the fragility of the profession in relation to its best-known social role, as highlighted in the results and corroborated in the literature.^{5,20,76} That is, the execution of activities that are not clinical in scope, such as dispensing medicines, for example. According to literature, this diversity implies the absence of directing the profession's efforts toward specialties that could offer more value to pharmacists. It may also alleviate the ambiguity that implies the lack of population and other professionals' knowledge about the purpose of pharmaceutical practice.^{86–88}

However, the interviewees highlighted advances in Brazilian and global pharmaceutical practices that corroborate the literature.^{4,76,89–92} In the past, in countries such as Brazil and those in the Middle East, pharmacists had little expression toward patients and services. Currently, the legislation applied to the profession helps in the visibility and value of pharmaceutical practices and employability.^{81,93} However, such speech was weakened or interpreted as utopic by the exhausting experience of professionals, scenarios of proletarianization, and the precariousness of labor relations.⁹⁴

The "leap of faith" can overcome the ambivalence that pharmaceutical practice experiences. This metaphor is the transition of pharmacists to a "re-professionalization" of their current work processes due to opportunities involving patient-centered practice models. In other words, the transition from a work process centered on the provision of medicines to the provision of services. However, the responsibility for such "leap" must be shared between pharmacists and their professional organizations. These organizations, in turn, must recognize the barriers that constitute real threats to a profession's survival and pharmacists need to trust that this model will work.^{66–69,82,84,85} According to the interviewees' opinion and in agreement with the literature, the profession cannot be irresponsible attributing all shortcomings to the corporate success of Pharmacy only into pharmacists' attitudes. Efforts must be made to protect them from external threats or invest in increasingly autonomous models of practice. Significantly, they should be free from lay interference.^{2,3,57,77}

Despite these barriers, interviewees considered changes in curricular guidelines, the behaviors and attitudes of pharmacists, and the evolution of the profession toward a clinical paradigm to be strategic for the profession's development. These factors are integrated with professionalism in the literature, involving its definition, understanding, teaching, and evaluation and offer opportunities for the continuous development of values alongside a strong knowledge foundation. This combination contributes to the stability and sustainability of pharmaceutical practice as long as there is a balance between the Pharmacy social role and its ideology.^{69,95–97} Specifically, pharmacists must understand who they are and where they are to plan what they want to become.

5. Conclusion

In the present study, pharmaceutical professionalism was characterized by a professional social role and the evolution of professional practice in recent years. Comparing the perspectives of formal leaders with experiences in other countries, it becomes evident that investment in training, governance, and ideology have the potential to solidify Pharmacy as a clinical profession within health services. While leaders acknowledged challenges in practice, the ongoing evolution of the profession's occupational status and the consideration of strategies discussed here, based on the hypotheses presented in this study, could contribute to enhance pharmacists' comprehension of the subject, and teach professionalism. The teaching method embodies a commitment to maintaining high service standards. Future studies should apply these hypotheses to practical experiments related to the declaration of

pharmaceutical professionalism in Brazil which can be achieved through the development of teaching strategies, assessment of professionalism, and training professionals to improve their clinical skills.

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Consent

We declare that we are aware of and agree with the publication of the data obtained, analyzed, and discussed in this study.

Consent for publication

Not applicable.

Ethical aspects

This study was approved by the Research Ethics Committee of the Federal University of Sergipe [no. 4102149]. We declare that all methods have been carried out in accordance with relevant guidelines and regulations. In the development of the study, **Inform**ed consent to participate in the research was obtained from all participating subjects, reiterating risks and/or benefits.

Dual publication

The results in this manuscript have not been published elsewhere, nor are they under consideration by another publisher.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Availability of data and materials

Datasets used and/or analyzed during the current study made available by the corresponding author upon request.

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