

**Health Professionals' Attitudes and Skills on Interprofessional Collaboration
and Their Perceptions on Pharmacists' Roles and Traits: A Pilot Study**

A thesis

presented to the faculty of

Pharmacy Department

Manila Adventist College

In partial fulfillment

of the requirements for the degree

Bachelor of Science in Pharmacy

Janica Mariz G. Coliamar

Kyla F. Dela Cruz

Doen David Philip G. Eleosida

Sunshine Mel M. Sagnoy

June 2022

Abstract

Health Professionals' Attitudes and Skills on Interprofessional Collaboration and Their Perceptions on Pharmacists' Roles and Traits: A Pilot Study

Janica Mariz G. Coliamar

Kyla F. Dela Cruz

Doen David Philip G. Eleosida

Sunshine Mel M. Sagnoy

Adviser: Vina A. Dahilig-Talan, RPh, MS

Background: To provide exceptional patient care, cooperative, and coordinated collaboration among highly specialized professionals is essential in a healthcare team (Morley and Cashell, 2017). Since healthcare professionals form part of the multidisciplinary team in healthcare settings, their perceptions on interprofessional collaboration and pharmacists' participation are essential to prepare student pharmacists to be "collaborative-practice ready" (WHO, 2010).

Purpose: The study described the collaborative attitudes, cognitive skills, expectations, and beliefs among healthcare professionals to determine their perceptions on interprofessional collaboration and pharmacists' participation in healthcare settings.

Methods: This study utilized a descriptive design in determining the perceptions of interprofessional collaboration and pharmacists' participation through survey. The survey respondents were from practicing healthcare professionals such as medical laboratory scientists, midwives, nurses, nutritionist-dietitians, physical therapists, and radiologic technologists. Descriptive statistics were used to determine the perceptions of healthcare professionals about interprofessional collaboration in terms of attitudes and

skills, their perceptions on pharmacists' participation in terms of beliefs and expectations, and their expected roles and traits of pharmacists in the healthcare setting. Nonparametric tests for hypothesis such as Kruskal-Wallis's test was used to determine significant differences on perceptions when grouped by age and Mann-Whitney U was used to determine significant differences on perceptions when grouped by sex and level of education. The statistical significance level was set at $p < 0.05$. Raw data was stored in an Excel file with a password-protected data storage device to ensure confidentiality. Data was cleaned and coded to ensure confidentiality.


Results: Majority of the healthcare professionals indicated positive values on perceptions about interprofessional collaboration. They also have positive perceptions about pharmacists' participation based on their beliefs and expectations. Most of the respondents reported that they perceived that the key role of a pharmacist was to dispense medication with prescriptions. Lastly, the most expected trait that a pharmacist should possess, as perceived by the respondents, was to be professional while being personable was the least expected trait.

Conclusion: This study highlighted the significance of interprofessional collaboration between pharmacists and other healthcare professionals. Based on the results of study, there is a need to inform healthcare professionals about the other roles and responsibilities of pharmacists in the healthcare team. The perceptions of healthcare professionals on interprofessional collaboration and on pharmacists' participation are important as they may be used as a basis in preparing future pharmacists to develop their attitudes and cognitive skills towards being "collaborative-practice ready".

Keywords: *perception on interprofessional collaboration, perception on pharmacists' participation, healthcare professionals*

Declaration

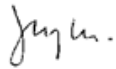
We declare that this whole manuscript entitled “Health Professionals’ Attitudes and Skills on Interprofessional Collaboration and their Perceptions on Pharmacists’ Roles and Traits: A Pilot Study” is our work and not falsified or plagiarized. All the sources we have used or quoted have been indicated and acknowledged employing complete references. This work has also never been submitted for any other degree at any other school and that we have strictly complied with MAC Research guidelines and the MAC Institutional Research Board.



Janica Mariz G. Coliamar



Doen David Philip G. Eleosida



Kyla F. Dela Cruz



Sunshine Mel M. Sagnoy

Noted by:



Vina Rose A. Dahilig-Talan

Acknowledgment

We would like to acknowledge and give our warmest thanks to our research adviser, Vina A. Dahilig-Talan, who made this work possible. Her guidance and advice carried us through all the stages of authoring this thesis. This thesis would not have been possible without the support of many people.

Thank you to the respondents, who generously took time out of their schedule to participate in our research and make this project possible. Thank you to Milee Julien Coliamar and to the friends who helped us find respondents to answer our survey, making this thesis possible. Also, to our loving parents, we are so thankful that they are always back to support us at all costs.

Table of Contents

	Page
List of Tables	11
List of Figures	12
Chapter 1. The Problem and Its Background	13
Research Questions	14
Hypotheses	15
Significance of the Study	16
Students	16
Healthcare Professionals	16
Hospital Administrators	17
Academic Institutions	17
Future Researchers	17
General Objective	17
Theoretical Framework	18
Conceptual Framework	20
Definition of Terms	20
Interprofessional Collaboration	20
Perceptions on Interprofessional Collaboration	20
Perception of Pharmacist's Participation	21
Interactional Characteristics	21
Chapter 2. Review of Related Literature	23
Interprofessional Collaboration	23

Definition of Interprofessional Collaboration	23
Significance of Interprofessional Collaboration	26
Collaboration Between Pharmacists and Other Health Professionals.....	29
Importance of Collaboration in the Healthcare Team	29
Impact of Individual’s Attitude to Collaboration.....	30
Perceptions of Healthcare Professionals Toward the Role of Pharmacists in the	
Interprofessional Team.....	30
Understanding of Healthcare Professionals to Pharmaceutical Care	31
Expectations of Healthcare Professionals Towards Pharmacists.....	32
Perceptions and Their Association with Socio-Demographic Characteristics of	
Healthcare Professionals	34
Age	34
Sex	34
Profession.....	35
Level of Education	35
Chapter 3. Methodology	36
Research Design	36
Population and Sampling	36
Demographics.....	37
Data Gathering Procedure	38
Instrumentation.....	38
Perceptions on Interprofessional Collaboration Study Instruments.....	39
Perceptions on Pharmacists’ Participation Study Instruments.....	40

Reliability and Validity of the Modified ATHCT Instrument	40
Reliability and Validity of the Modified Team Skills Scale Instrument.....	41
Reliability and Validity of the Researcher-Constructed Instrument on Interactional Characteristics and Perception of Pharmacists Roles and Traits	41
Statistical Treatment of Data.....	42
Scoring and Interpretation.....	42
Ethical Considerations.....	43
Chapter 4. Results and Discussion	45
Perceptions of the Healthcare Professionals on Interprofessional Collaboration in Terms of Attitudes and Cognitive Skills	45
Perceptions of the Healthcare Professionals About Pharmacists' Participation in the Healthcare Setting, in Terms of Beliefs and Expectations	49
Roles and Traits of Pharmacists in the Healthcare Setting as Perceived by Healthcare Professionals	52
Differences in the Respondents' Perception When Grouped According to Age, Sex, and Level of Education	56
Limitations of the Study.....	60
Chapter 5. Summary of Findings, Conclusion and Recommendations	61
Summary of Findings	61
Conclusion.....	62
Recommendations	63
References	64
Appendices.....	76

Appendix A Instrument76

Appendix B Informed Consent86

Curriculum Vitae91

List of Tables

	Page
Table 1. Demographics of the Respondents: Sex	37
Table 2. Demographics of the Respondents: Level of Education.....	37
Table 3. Demographics of the Respondents: Profession	38
Table 4. ATCHT Subscales	42
Table 5. Descriptive Statistics of Subscales of Attitudes Toward Health Care Teams Scale	45
Table 6. Descriptive Statistics of Team Skills Scale Score	47
Table 7. Descriptive Statistics of Particular Items in the Team Skills Scale.....	48
Table 8. Frequency and Percentage of Interactional Characteristics Experience with Pharmacists	50
Table 9. Frequency and Percentage of Perception on Pharmacists' Participation in Healthcare Setting.....	52
Table 10. Differences on ATHCT When Grouped According to Age: Kruskal Wallis Equality of Populations Rank Test	57
Table 11. Differences on TSS When Grouped According to Age: Kruskal Wallis Equality of Populations Rank Test	57
Table 12. Differences on ATHCT When Grouped According to Sex: Mann-Whitney U-Test	58
Table 13. Differences on TSS When Grouped According to Sex: Mann-Whitney U-Test	58
Table 14. Differences on ATHCT When Grouped According to Level of Education:	

Mann-Whitney U-Test	59
---------------------------	----

Table 14. Differences on TSS When Grouped According to Level of Education:

Mann-Whitney U-Test	59
---------------------------	----

List of Figures

	Page
Figure 1. Theoretical Framework	18
Figure 2. Conceptual Framework	20
Figure 3. Frequency of Traits Expected From a Pharmacist	55

Chapter 1

The Problem and Its Background

In 2010, the World Health Organization (WHO) developed the Framework for Action on Interprofessional Education and Collaborative Practice to mitigate the global health workforce crisis (WHO, 2010). The WHO framework aimed at developing innovative strategies to develop interprofessional education that will prepare a “collaborative practice-ready” health workforce that is responsive to the needs of their community (WHO, 2010).

Collaborative professional practice in health care teams is important as it enables health workers with different professional skills and areas of expertise to work together with “patients, families, carers and communities to deliver the highest quality of care.” (WHO, 2010, Morley and Cashell, 2017)

To bring optimal patient care, collaboration, communication and teamwork are needed between pharmacists and other health professionals (Jayasuriya and Criddle, 2011). Increased collaboration between pharmacists and physicians leads to improved effective drug therapy resulting from fewer medication errors and drug interactions, enhanced patient self-care skills, and the use of cost-effective drugs (Jayasuriya and Criddle, 2011). An essential key to the success of pharmacists’ involvement in collaborative practice agreements is the acceptance of their roles in the team by other health care providers (Wolfe et al., 2018).

Although literature showed that most healthcare professionals believe that pharmacists are vital as they provide services that foster better patient outcomes (Kabba et al., 2020), there are still healthcare professionals that perceive pharmacists as

incompetent in providing clinical pharmacy services. Healthcare professionals were of the view that healthcare professionals' collaborations can be improved by developing trust relationships through dialogue (Kabba et al., 2020) and development of interprofessional education (Choudhury et al., 2020).

Establishment of interprofessional education (IPE) programs is essential to help establish professional roles, define clear responsibilities and set positive role expectations in a healthcare team. Interprofessional education helps prepare "health professions students to provide patient care in a collaborative team environment." (Buring et al., 2009). IPE believes that when health care professionals work cooperatively, patient care will improve (Buring et al., 2009).

It is the aim of this study to determine the perceptions on interprofessional collaboration and pharmacists' participation in healthcare settings among healthcare professionals to provide baseline data that may be used in the development of interprofessional education programs.

Research Questions

The study was conducted to determine the health professionals' attitudes and skills on interprofessional collaboration and their perceptions on pharmacists' roles and traits. Specifically, this study aims to answer the following questions:

1. What are the perceptions of the healthcare professionals about interprofessional collaboration in terms of
 - a. attitudes
 - b. cognitive skills?

2. What are the perceptions of the healthcare professionals about pharmacists' participation in the healthcare setting, in terms of
 - a. beliefs
 - b. expectations?
3. What are the roles and traits of pharmacists in the healthcare setting as perceived by healthcare professionals?
4. Is there a significant difference in the respondents' perception on interprofessional collaboration when grouped according to:
 - a. age
 - b. sex
 - c. level of education?

Hypotheses

Ha: There is a significant difference between the perceptions of healthcare professionals on interprofessional collaboration when grouped according to:

- a. age
- b. sex
- c. level of education

Ho: There is no significant difference between the perceptions of healthcare professionals on interprofessional collaboration when grouped according to:

- a. age
- b. sex
- c. level of education

Significance of the Study

Pharmacists have integral roles in providing holistic care to patients. However, their roles as partners in healthcare management is not well-known, especially in countries where pharmaceutical care is not emphasized. Only a few studies investigated the collaboration between pharmacists and other healthcare professionals in the Philippines and even in other countries.

Thus, this study was undertaken considering this research gap. This study also provided the baseline data that may be used for improving interprofessional collaborative practice. In addition, this research may also serve as a reference in developing interprofessional education programs to orient healthcare students towards collaboration before entering the healthcare workforce.

This study may benefit the following:

Students

The results of this study may help all healthcare students to expand their perspectives towards the importance, contributions, and involvement of pharmacists in the healthcare team. In addition, this study can also help students broaden their understanding of interprofessional collaboration.

The results of this study may also help pharmacy students to recognize role expectations from other healthcare professionals and their roles in multidisciplinary healthcare teams.

Healthcare Professionals

In this study, providing the importance of interprofessional collaboration in the hospital setting may help and encourage the healthcare professionals to work together

more effectively in the healthcare team. This may result in preventing medication errors, improving patient experiences, and delivering better patient outcomes.

Hospital Administrators

Understanding the healthcare professionals' perceptions can help hospital administrators identify training needs for their healthcare workers and orient them towards positive interprofessional collaboration attitudes and skills. Thus, the hospital's overall quality of service may be improved, and may lead to patient satisfaction with the medical institution.

Academic Institutions

The results of the study may help academic institutions design interprofessional education programs to ensure that their graduates will become “collaborative -practice ready”.

Future Researchers

This study can help future studies related to healthcare professionals, pharmacists' roles, and interprofessional collaboration.

General Objective

The objective of this study is to determine the perceptions of the healthcare professionals towards interprofessional collaboration and pharmacists' participation in healthcare settings.

Specifically, it aims to:

1. Determine the perceptions of the healthcare professionals about interprofessional collaboration in general practice, terms of attitudes and cognitive skills.

2. Describe the perceptions of the healthcare professionals about pharmacists' participation in the healthcare setting, in terms of beliefs and expectations.
3. Describe the roles and traits of pharmacists in the healthcare setting as perceived by healthcare professionals.
4. Determine whether there may be significant differences in the respondents' perception on interprofessional collaboration when grouped according to:
 - a. Age
 - b. Sex
 - c. Level of Education

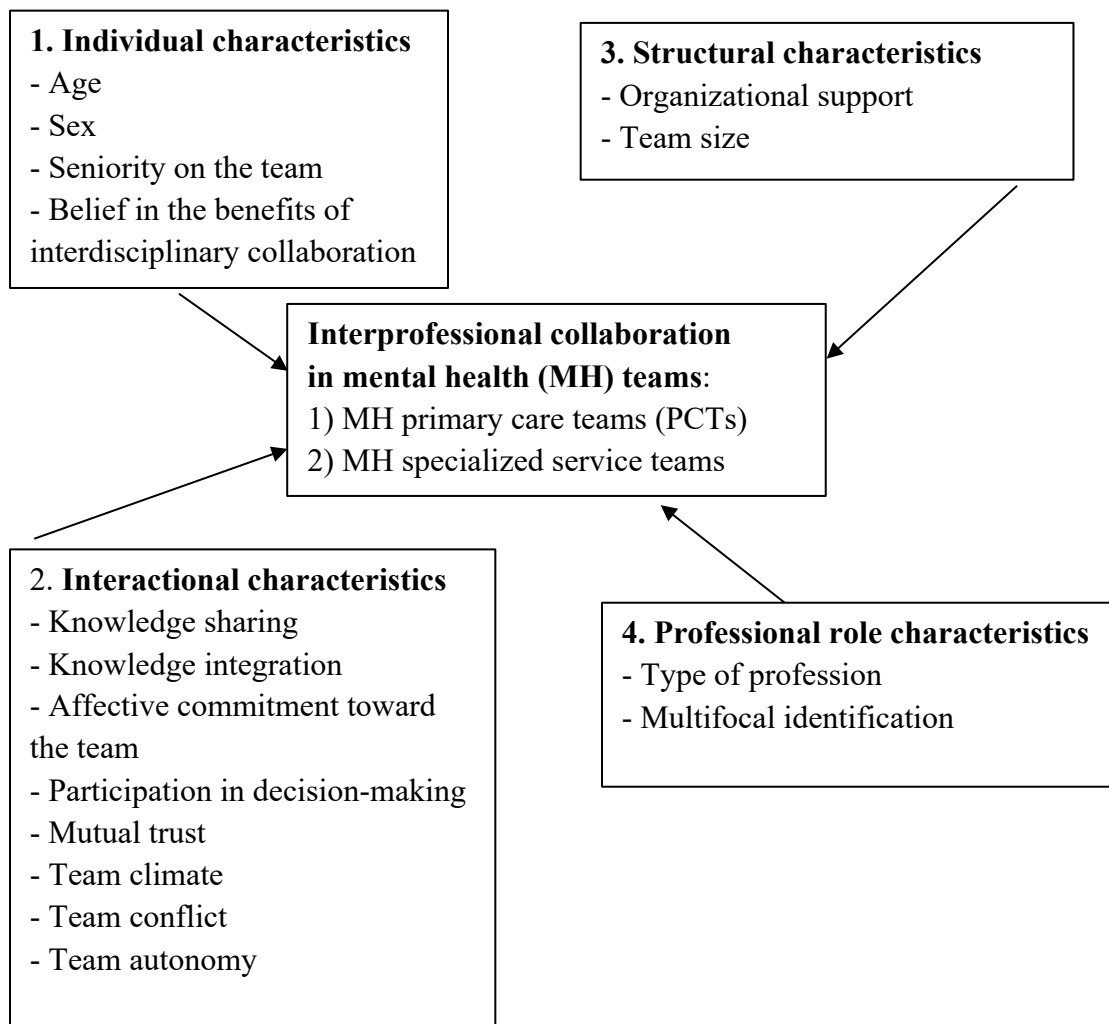
Theoretical Framework

This model is utilized as a theoretical framework to define healthcare professionals' perceptions of interprofessional collaboration and to determine the factors that may affect their perspectives on interprofessional collaboration and pharmacists' perceptions in the healthcare team. The model was proposed by Ndibu Muntu Keba Kebe et al. (2020) in response to the variables associated with interprofessional collaboration among mental health professionals in primary care teams and specialized service teams in Quebec. The study aims to identify the associated variables with interprofessional collaboration and compare these variables in direct care teams' mental health professionals versus those in specialized service teams. The model consists of four conceptual blocks: individual, interactional, structural, and professional role characteristics. Individual characteristics include the demographic variables and personal attributes such as age, sex, seniority on the team, and beliefs in the benefits of interprofessional collaboration. On the other hand, interactional characteristics comprise

things within the team, such as knowledge sharing. Structural characteristics include factors that are beyond the individual team member's control. Lastly, the professional role characteristics describe the individual's profession, such as profession and multifocal identification.

Figure 1

Theoretical Framework

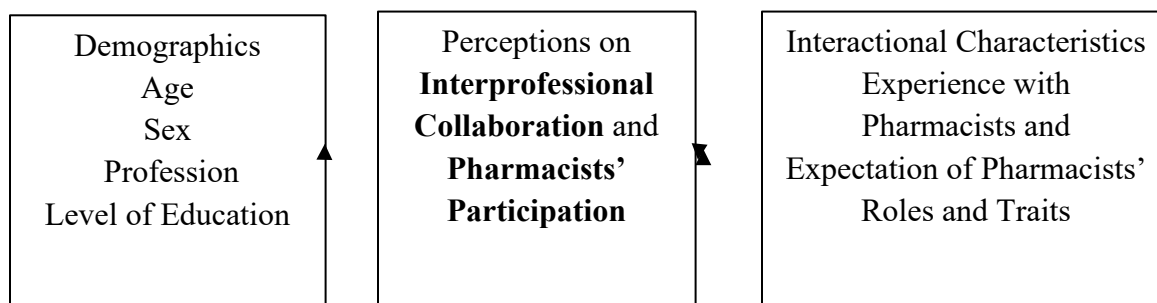


Conceptual Framework

Based on the theoretical model of Ndibu Muntu Keba Kebe et al. (2020), the subsequent conceptual framework is developed for this study given the context of the study setting.

Figure 2

Conceptual Framework



Definition of Terms

Interprofessional Collaboration

The interprofessional practice is a collaborative model of healthcare that optimizes the use of multiple professional skill sets to provide well-coordinated, high-quality, patient-centered care (Darlow et al., 2015).

Perceptions on Interprofessional Collaboration

This is defined as categorical social judgments of the respondents toward interprofessional and are like stereotyping (Turner, 1999). Interprofessional perception is an essential variable in interprofessional collaboration. It can impact attitudes, ability to engage in interprofessional, and willingness to engage successfully. This study defines the perception of interprofessional collaboration by healthcare professionals' attitudes and skills using the Attitudes Toward Health Care Teams Scale (ATHCT) and Teams Skills Scale (TSS).

- a. Attitudes - It is defined as how people think, feel, and behave. They comprise affective evaluations, cognitive beliefs, behavioral routines, and intentions to perform a behavior (Lumma-Sellenthin, 2013). In this study, the Attitudes Toward Health Care Teams Scale is used to measure the respondents' attitudes towards interprofessional collaboration and pharmacists' participation in the health care settings. This was measured by question numbers 1 to 20 of the instrument.
- b. Cognitive skills - It is defined as the abilities that enable people to conduct specific behaviors (World Health Organization., n.d.). In the context of this study, it is defined as the ability to use a healthcare professional's knowledge effectively and readily in execution or performance. In this study, the Team Skills Scale was used to measure the respondents' skills in interprofessional collaboration. This was measured by question numbers 21 to 37 of the questionnaire.

Perception of Pharmacists' Participation

It refers to the understanding of the respondents on the traits and roles of pharmacists in the healthcare setting. In this study, perception of pharmacists' participation is defined by healthcare professionals' expectations and beliefs using a researcher-modified questionnaire.

Interactional Characteristics

It refers to the interaction among interprofessional team members used in the context of this study. This refers to the respondents' experience with the pharmacist. This was measured by question numbers 38 to 43 of the instrument (Ndibu Muntu Keba Kebe et al., 2020). Beliefs are defined in this study as the initial knowledge and perspectives of the respondents on the importance, contribution, attitude, traits, and involvement of the

pharmacists in the healthcare setting. These were to be measured by question numbers 44 to 56 of the questionnaire.

Chapter 2

Review of Related Literature

This chapter presents the review of related literature and studies that are relevant to the study. The researchers gather information from references – either books or the internet and other variables that support the study.

Interprofessional Collaboration

In all healthcare settings, interprofessional collaboration is an integral element that must be present so that the management of health care delivery is effective, efficient and responsive to patients' needs. The World Health Organization (WHO) underscores the significance of interprofessional collaboration in the light of the global healthcare workforce.

Definition of Interprofessional Collaboration

Interprofessional collaboration, multidisciplinary collaboration and collaborative practices are some of the terms used in literature that have the same definitions. This study reviewed all published articles that used these three terms.

In 2010, the WHO acknowledged the shortage of health workers and the need to implement strategies that can boost the global healthcare workforce (WHO, 2010). WHO defined interprofessional collaboration or collaborative practice as a phenomenon that “happens when multiple health workers from different professional backgrounds collaborate with patients, families, carers and communities to deliver the highest quality of care.” (WHO, 2010) Interprofessional collaboration engages individuals with a specific set of health-related skills and competence to achieve health goals both in the community and in the national level.

According to Morley and Cashell (2017), interdisciplinary cooperation is a term that is commonly used in everyday conversation. There is an alarming lack of understanding about cooperation and how to support and improve collaborative efforts successfully. The meanings are frequently modified to a specific setting. According to several definitions in the literature, collaboration entails numerous individuals working together to achieve a shared objective. It includes social and task inputs (Patel et al., 2012).

However, De Dreu and Weingart (2003) define it as an active and ongoing partnership between professionals and institutions with diverse backgrounds and mandates to provide services. Rousseau et al. (2012) indicate that it is a process that entails collaboration, communication, negotiation, trust, respect, and understanding to form a synergistic alliance that optimizes each participant's contributions. Pike et al. (1993) involve constructing a collective action to address complex patient needs and an interprofessional team relationship involving respect and trust. D'Amour et al. (2005) add that it is a process of working together, negotiating an agreement, managing conflict, and valuing and understanding one another.

As a result, Reeves et al. (2011) state that it entails teamwork, shared planning throughout time, working together as equals with respect, and the goal of finding answers together. Creating a power-sharing partnership for intentional attention to needs and challenges (practice), according to Taylor-Seehafer (1998), is a dynamic, changing process of developing a power-sharing partnership to produce beneficial results. According to these definitions, collaboration combines actions and knowledge that necessitate a partnership of shared authority and responsibility. Morley and Cashell

(2017) share four critical elements that provide a valuable breakdown of behaviors and attitudes that, together, constitute collaborative practice in health care. These elements are a) coordination (working to achieve shared goals), b) cooperation (contributing to the team, understanding and valuing the contributions of other team members), c) shared decision-making (relying on negotiation, communication, openness, trust, and a respectful power balance), and d) partnerships (open, respectful relationships cultivated overtime in which all members work equitably together).

In the study of San Martin-Rodriguez et al. (2005), multidisciplinary collaboration is defined as “an efficient, effective, and satisfying way to offer health care services through a process by which interdependent professionals are structuring a collective action toward patient’s care needs.” On the other hand, Meredith, and Mantel (2009) defined multidisciplinary collaboration as “the members of a multifunctional team bring together a range of functional expertise to the task at hand, whether for a one-time project or ongoing operational work.” This functional expertise may be subtler when members have different perspectives. However, similar skills and experiences are more distinct when the team incorporates diverse knowledge, skills, and training (Morley and Cashell, 2017). There are other meanings of multidisciplinary collaboration in healthcare teams that are described by different studies. Boon et al. (2004) add that interdisciplinary care, as team care, is coordinated by a leader who takes responsibility for overall patient care. Members, “having different professional backgrounds but who make complementary contributions to patient care (Atwal and Cadwell, 2006),”.

Similarly, a multidisciplinary team comprises specialists from two or more disciplines that collaborate on the same project, either separately or concurrently (Saint-

Pierre et al., 2017). The interdisciplinary collaboration consists of providers with a range of occupational backgrounds collectively discussing a patient leading to collective decision-making and action (Molleman et al., 2008). Teams work jointly to provide health care, where each team member contributes within the context of their profession (Mills et al., 2010).

Interprofessional team-based practice, on the other hand, is viewed by Baker et al. (2011) and Reeves et al. (2011) as a coordinated model involving various healthcare professionals working in a collaborative partnership with their expertise, integrating their services with other professionals, and sharing responsibility for the patients to provide comprehensive and qualified healthcare according to the patient's individual needs. The interprofessional practice is a collaborative model of healthcare that optimizes the use of multiple professional skill sets to provide well-coordinated, high-quality, patient-centered care (Darlow et al., 2015). Healthcare professionals working together have been shown to deliver more comprehensive and enhanced care to patients, increase patient safety, generate better therapeutic outcomes, and minimize healthcare workers' burden (Wang et al., 2018).

Significance of Interprofessional Collaboration

Multidisciplinary collaboration is important in providing quality care benefits. In Kucukarslan et al. (2011) study, an interdisciplinary collaboration among health care providers is a fundamental component of the primary care medical home model. Further, collaborative practice models effectively improve patient care by helping patients achieve therapeutic goals. According to published research and case studies, collaboration

enhances intermediary predictors of quality such as knowledge transfer, information exchange, and increased decision-making (Morley and Cashell, 2017).

Qualitatively, collaborative teams have been shown to improve sharing of evidence-based practices between professions (Reeves et al., 2011), improved decision-making (Propp et al., 2010), and increased innovation (Pike et al., 1993). Quantitatively, collaborative teamwork may lead to reduced length of hospital stay, improved compliance with standards of drug prescription, improved quality audit results (Reeves et al., 2011), and improved symptom and psychosocial management (Elsayem et al., 2004). Morley and Cashell (2017) emphasize that multidisciplinary collaboration is also significant for patient safety. The impact of the partnership on patient safety has been studied in various contexts. Several authors have identified a reduction in medical error rates when interprofessional collaboration is vital. To eliminate gaps in quality assurance methods, teams are educated to operate safely, collaboratively, and in a coordinated manner (Kerfoot et al., 2006) (McKeon et al., 2006) (Varpio et al., 2008).

According to the O.H. Association, Patient safety and quality of care in Ontario depend on work environment elements such as cooperation, culture, and learning. They are the responsibility of all health organizations, including patients and their families, according to a study published in 2010. Overall, a collaborative, interprofessional team supports high-quality and safe care for patients (Morley and Cashell, 2017). Interprofessional collaboration in patient care among US health care professionals began in World War II when medical, surgical, and nursing teams worked together to treat injured soldiers, according to Van Winkle et al. (2011). Collaboration and cooperation

are increasingly considered crucial components of professionalism by health care workers, resulting in improved patient safety and results.

According to Carvalhana and Flak (2009), a multidisciplinary psychiatry team is required to manage high-risk patients successfully. Regular communication between pharmacists and psychiatrists is also needed to deliver specialized pharmacy services such as dispensing of medications in steady supply, witnessed medication consumption, and adherence monitoring, which resulted in decreased use of emergency services, reduced overdose incidents, and increased adherence monitoring. Improved patient self-care abilities, fewer drug interactions, prescription mistakes, and more cost-efficient drug use are benefits of physician-pharmacist collaboration, contributing to more effective drug therapy and better patient outcomes (Van Winkle et al., 2011).

Interprofessional practice is also essential in an aging population with increasing long-term, complex, and co-morbid conditions. A team of health professionals coordinated, and collaborative involvement is integral to meeting these multifaceted needs. No single disciplinary skill set can deliver all needed care (Darlow et al., 2015). Collaboration between team members to provide integrated patient-centered care is considered crucial. It has improved outcomes in patients with diabetes, anxiety, depression, and other conditions (Darlow et al., 2015) (Saint-Pierre et al., 2017). Collaborative interprofessional practice is also an essential means of providing adequate care to people with complex health problems (Darlow et al., 2015). Further, the interprofessional practice also has benefits for health professionals. These include increased collegial respect and trust, improved job satisfaction and role clarity,

addressing negative stereotypes and professional silos, and enhanced well-being (Darlow et al., 2015).

Collaboration Between Pharmacists and Other Health Professionals

The practice of pharmacy globally has changed over the years, enabling pharmacists to participate more in direct patient care. This stresses the need for pharmacists to be trained in a multidisciplinary collaborative practice with other health professionals and in pharmaceutical patient care.

Importance of Collaboration in the Healthcare Team

Makowsky et al. (2009) notice that after the physician and a nurse practitioner collaborated with a pharmacist, they both agreed that having a pharmacist in the team helps them to have better decisions making, improve patient safety, and more efficient provision of care because the pharmacist provided them drug information, hence, improved the overall performance as a team. In Australia and other international studies, it has been shown that pharmacists can contribute to more direct patient care and improved medication management (Jayasuriya and Criddle, 2011). Further, having pharmacists in the team contributed their skills and knowledge that led to the quality use of medicines, fewer medication misadventures, and guidance to patients on managing their medicines (Jayasuriya and Criddle, 2011). Likewise, when pharmacists were added to the healthcare group, it was reported that there were fewer medication errors (Van Winkle et al., 2011). Abu- Gharbieh et al. (2010) used four clinical markers to assess interventions' effect, including blood pressure, glycosylated hemoglobin, cholesterol, and the Framingham Risk Score. The interventions made by the pharmacists led to significant improvements observed in all clinical markers compared to the control groups. Loffler et

al. (2017) support that pharmacists' counseling sessions are effective in helping patients, especially with chronic diseases, decrease their systolic blood pressure, correct Hb1AC and blood glucose levels, and manage asthma.

Impact of Individual's Attitude to Collaboration

According to Van Winkle et al. (2011), persons in higher positions are less likely to exhibit enthusiasm for collaborative connections than those in the power hierarchy. This principle is confirmed in several studies, like in a multi-national study. Physicians from countries: Israel, Italy, Mexico, and the United States, scored lower than nurses on a scale of attitudes toward physician-nurse collaboration. Positive attitudes build trustworthiness to collaboration (Van Winkle et al., 2011).

In the United States, improving interprofessional collaboration between community pharmacists and physicians has been the goal. However, it is often only by compensation barriers and lack of initiative (Loffler et al., 2017). Studies from the USA, New Zealand, Germany, Slovakia, and Iraq stated that one of the critical factors for successful interprofessional collaboration includes positive attitudes of all involved healthcare team members (Albassam et al. 2020). In addition, the agreement in perceptions of usefulness and role specification is also important for effective interprofessional collaboration.

Perceptions of Healthcare Professionals Toward the Role of Pharmacists in the Interprofessional Team

In order for pharmacists to be better participants in interprofessional teams, the perceptions of the other healthcare workers are important to consider so as to manage

expectations in terms of roles and traits and to design training programs aligned with the perceptions from other disciplines.

Understanding of Healthcare Professionals to Pharmaceutical Care

Khan et al. (2020) declare that most doctors agree that pharmacist's role with education includes patient education, designing and monitoring pharmacotherapeutic regimes, preventing prescription errors by near-patient pre-screening of prescription, detecting and rectifying prescription errors, recommending prescription medicines to clinicians, monitoring patients taking a high risk or narrow therapeutic index medicines, conduct patient medical/drug histories on admission, and liaise with primary healthcare providers about the care of patients. Most doctors disagreed with the pharmacist's role, including supplying non-prescription medications independent of other clinicians, reviewing and monitoring prescriptions and therapy initiated by other clinicians, treating minor illnesses such as pharmacists prescribing for common ailments autonomous of other clinicians, independently treating patients with specific conditions within an outpatient clinic setting, and review and stop unnecessary antimicrobial agents. Wilbur et al. (2012) share that sixty-two physicians (77.5%) responded to the survey. When the respondents were asked to evaluate how comfortable they are with specific pharmacist roles in patient care, physicians rated more highly activities closely linked to drug products (e.g., 67.8% and 75.5% were completely comfortable with pharmacists providing patients medication-related education or detecting and preventing prescription errors, respectively) than responsibilities associated with therapy optimization and monitoring of patient outcomes (e.g., 29% were uncomfortable with pharmacists recommending changes in therapy to them when patient outcomes were not achieved)

Expectations of Healthcare Professionals Towards Pharmacists

Most participants in Khan et al.'s (2020)'s study, "Doctors' Perceptions, Expectations, and Experience Regarding the Role of Pharmacist in Hospital Settings of Pakistan," reported at least one daily interaction with pharmacists, which was primarily related to drug availability inquiries. Doctors expected pharmacists to ensure the safe and appropriate use of medicines. Doctors expected pharmacists to keep track of their patients' medication treatment reactions. Others expected pharmacists to review patients' medications and discuss amendments to treatment. Besides, most doctors disagreed with pharmacists prescribing medicine for patients. Most participants did not want pharmacists to prescribe independently.

Consequently, Aburuz et al. (2012) confirm physicians' current expectations concerning pharmacists providing a range of services. Some of these are related to more established pharmacy roles, such as detecting and resolving drug-related problems. In contrast, others are related to extended functions such as prescribing for chronic disease and independently diagnosing and treating minor ailments. Bilal et al. (2016), on the other hand, feel that many health care practitioners agree that clinical pharmacy services may make a significant difference in patient care. Many of them had a cheerful outlook, although there appeared to be some differences across professions. According to around half of the professionals, patient care should be left to health care practitioners. At the same time, pharmacists should focus on medication goods. In addition, the same percentage of respondents felt that their hospital's design was acceptable for providing clinical pharmacy services. Multivariable analysis indicated that the attitude of the health care providers was significantly associated with years of experience.

According to Lo et al. (2014), 33.33 percent of physicians and 77.8% of pharmacists claim to collaborate at least once a week. Prescription order inquiries were the driving force behind the partnership. Pharmacists' primary tasks, according to both professions, are "medication dispensing" and "detection and prevention of prescription mistakes." Physicians predicted that pharmacists would stay focused on "medication dispensing" but that they would exert tremendous effort. On the other hand, pharmacists would like to develop their role in direct patient care, such as "patient counseling."

Further, Sabry and Farid (2014) claim that when physicians were asked about their expectations of the pharmacist's role, more than half of them believed that pharmacists could be a reliable source of general drug information, while only about a third thought that pharmacists could be a reliable source of clinical data, discover clinical-related problems, or advise physicians on medication cost-effectiveness. Further, Alipour et al. (2018) confirm that more than two-thirds of physicians agreed that pharmacists were a reliable source of general drug information. Most physicians expected pharmacists to advise their patients about the dose and administration of their medications. Almost half of the physicians agreed that pharmacists usually informed them regarding potential problems in their prescriptions. Both senior and junior residents believed that pharmacists would inform them if any potential medication issues were discovered.

Perceptions and their Association with Socio-Demographic Characteristics of Healthcare Professionals

Literature has identified several socio-demographic characteristics that affect the perceptions of healthcare professionals. These variables are discussed in this review.

Age

Studies vary in the effect of the healthcare professional's age in perceptions toward interprofessional collaboration. Hailu et al. (2016) declare that age was a statistically significant predictor for respect and satisfaction between the healthcare team. Increasing age had a negative relation with care and satisfaction among the participants. In Japan, negative perceptions of interprofessional collaboration were reported with older age healthcare professionals (Minamizono et al., 2013). On the other hand, Odegard and Strype (2009) state that age has no significant difference in perception of interprofessional collaboration within the group of professionals responsible for child mental healthcare in Norway, which composed of individuals that are both healthcare professionals and non-healthcare professionals such as educators and social service providers. A study in Iran by Aghamolaei et al. (2012) supported this idea and reported no significant difference of perception on interprofessional collaboration between age groups of the nurses and physicians who participated in their study.

Sex

Sex can be a variable that may affect the perception of interprofessional collaboration and pharmacist participation in healthcare settings. Abdalla et al. (2015) emphasize those female healthcare professionals have more positive attitudes toward the perception of interprofessional collaboration than male healthcare professionals. In

addition, Alipour et al. (2018) confirm that female healthcare professionals scored significantly higher than male healthcare professionals. Yune et al. (2020) assert that male healthcare professionals have more positive attitudes towards interprofessional collaboration than female healthcare.

Profession

The study of Romjin et al. (2017) found that healthcare professionals assigned in an obstetrical unit have multiple discrepancies in mutual perceptions of interprofessional collaboration. However, overall, all healthcare professionals that participated in the study showed positive perceptions toward collaborating. Similarly, most healthcare professionals in Indonesia also have positive perceptions of interprofessional collaboration in primary healthcare settings (Findyartini et al., 2019). In addition, a study conducted in Kuwait also showed positive perceptions of interprofessional collaboration between primary care physicians and pharmacists (Albassam et al., 2020).

Level of Education

The level of education can also be a variable that can affect the perception of interprofessional collaboration. Chong et al. (2013) showed that having a different level of education is one of the keys to interprofessional collaboration because every healthcare team member can share and discuss their thoughts when working in an interprofessional partnership. Upon hearing every thought and opinion, they appreciated more the value of interprofessional collaboration in working in a healthcare setting. Eltorki et al. (2019) agree that even if professionals have a different level of education, they can have a unique role when working with interprofessional collaboration in a healthcare setting.

Chapter 3

Methodology

The methodologies and processes used throughout the investigation are discussed in this chapter. It contains the research design, the description of the population, and the setting of the study. It also discusses the nature of the sample, data sources, and how the research instrument was administered. Statistical treatments used to analyze the data are also included.

Research Design

This study utilized a descriptive design in determining the perceptions on interprofessional collaboration and pharmacists' participation in the healthcare team among healthcare professionals working in the Philippines. This research design is most appropriate for the study because quantitative research design tests "objective theories by examining the relationship among variables." The variables are measured using instruments and the numerical data is analyzed using statistical procedures (Creswell & Creswell, 2018)

Population and Sampling

The attitudes and skills on interprofessional collaboration and perceptions of pharmacists' roles and traits in health care teams were evaluated from the following registered healthcare professionals: medical technologists, midwives, physical therapists, nurses, nutritionist-dietitians, and radiologic technologists in the Philippines. Regular employees and contractual workers aged 22-65 years old were included in the study, if they have more than 6 months employment experience in the Philippines. Due to their unique employment arrangements in hospital settings, physicians were not included as

respondents in the study. Only health professionals in tertiary institutions in Luzon were considered for inclusion in the study.

The Raosoft online sample size calculator was used to compute the sample size. This study's acceptable margin of error was set at 5% with a confidence interval of 90% and probable response distribution of 50%. Since this is a pilot study, only 51 respondents from tertiary hospitals were selected.

Demographics

Fifty-one (51) healthcare professionals were able to complete the survey. The mean age of the respondents is 29.88 ± 7.87 . The demographics of the respondents are tabulated below:

Table 1

Demographics of the Respondents (N=51): Sex

	f (%)
Sex	
Male	17 (33.33)
Female	34 (66.67)
Total	51 (100)

Table 2

Demographics of the Respondents (N=51): Level of Education

	f (%)
Level of Education	
With a Bachelor's Degree	50 (98.04)
With a Master's Degree	1 (1.96)
Total	51 (100)

Table 3*Demographics of the Respondents (N=51): Profession*

	f (%)
Profession	
Nurse	27 (52.94)
Physical Therapist	6 (11.76)
Medical Technologists	8 (15.69)
Nutritionist - Dietician	3 (5.88)
Radiologic Technologist	5 (9.80)
Midwives	2 (3.92)
Total	51 (100)

Data Gathering and Procedure

The healthcare professionals from the different healthcare fields were invited to participate in the study. The researchers secured a clearance to conduct a 5-minute orientation on the study and briefly explain the purpose of the study. Instructions on filling out the questionnaires were provided. Respondents willing to participate in the study were given a questionnaire URL link accessible through the Google Sheets (spreadsheet) application.

Instrumentation

This study utilized both standardized and researcher-modified survey instruments to collect the data. To determine the perceptions on interprofessional collaboration, the Attitude towards Healthcare Teams and Team Skills Scale instruments were used. To determine the healthcare professionals' perceptions on pharmacists' roles and traits, the researchers utilized a researcher-modified questionnaire.

Perceptions on Interprofessional Collaboration Study Instruments

The study used standardized questionnaires and a researcher-modified questionnaire to determine the healthcare professionals' interprofessional collaboration. In the framework of this study, perceptions of interprofessional collaboration were defined as attitudes and team skills. The Attitudes towards Healthcare Teams (ATHCT) questionnaire was developed by Heinemann et al. (1999). It is a 20-item tool with subscales on a 4-point Likert scale. The physician centrality subscale assesses how team members feel about physicians' power in sections and control over patient data. (Heinemann et al., 1999).

Other literature discussed three subscales for ATHCT. These subscales are (1) Attitude towards team value, (2) attitude towards team efficiency, and (3) attitude towards physician centrality.

The ATHCT is used with another scale, the Team Skills Scale (TSS). The Team Skills Scale was developed to measure three factors of perceived interprofessional team skills: people skills, discipline-specific skills, and geriatric care skills. It is a 17-item tool with a 5-point Likert scale to assess interprofessional team skills. This tool has one subscale: team skills (Miller and Ishler, 2002). This study's structured questionnaire was prepared based on relevant literature to determine healthcare professionals' previous experiences and beliefs on interprofessional collaboration and pharmacists' participation. These can be found in this study questionnaire items number 38 to 43. The URL can be accessed through this link: <https://forms.gle/MdyRR9ArZbvXYEE4A> .

Perceptions on Pharmacists' Participation Study Instruments

Expectations on pharmacists' roles and traits are adopted from various questionnaires and used specifically for the context of the study. Pharmacists' roles and traits are measured through items 44 to 56 in this study questionnaire. Items 42 and 44 on the questionnaire are taken from the literature of Gebremariam et al. (2020), while Wolfe et al. (2018) for question numbers 48, 49, 50, 52, 53, 54, 55, and 56. On the other hand, items no. 41 and 51 are from Wang et al. (2018).

Because this is a researcher-modified questionnaire, the instrument was evaluated for content validity through expert validation. These experts are educators coming from different healthcare professions. Reliability was assessed through pilot-testing on twenty healthcare professionals. Feedback from the expert validation and results of the reliability testing was utilized to modify and simplify the resulting questionnaire.

Reliability and Validity of the Modified ATHCT Instrument

The reliability of the modified ATHCT scale through the computation of the Cronbach α coefficient was assessed. The Cronbach α results of the survey of 0.8407 showed good reliability.

Content Validity Index (CVI) was also used to analyze the validity of the scale. The Kaiser-Meyer-Olkin (KMO) Test measures sampling adequacy for each variable and the complete model. This statistic measures the proportion of variation among variables that are likely to be common. The lower the proportion, the more suited the data is. The computed KMO value of the adopted 20-item ATHCTS was 0.8141, indicating adequate sampling and suitability of the data for factor analysis. Factor loadings of the three ATHCTS subscales are above 0.5, showing good construct validity.

Reliability and Validity of the Modified Team Skills Scale Instrument

The reliability of the modified Team Skills Scale through the computation of the Cronbach α coefficient was evaluated. The Cronbach α results of the survey of 0.8763 showed good reliability of the scale.

Content validity index (CVI) was also used to analyze the structural validity of the scale. The Kaiser-Meyer-Olkin (KMO) test measures sampling adequacy for each variable and the complete model. The statistic measures the proportion of variance among variables that might be common. The lower the proportion, the more suited your data is to the CVI. The computed KMO value of the adopted TSS was 0.8475, indicating adequate sampling and suitability of the data for factor analysis. Factor loadings of the three ATHCTS subscales are above 0.5, showing good construct validity.

Reliability and Validity of the Researcher-Constructed Instrument on Interactional Characteristics and Perception of Pharmacists Roles and Traits

The reliability of the researcher-constructed Instrument on Interactional Characteristics and Perception of Pharmacists Roles and Traits was assessed through the computation of the Cronbach α coefficient. The Cronbach α results of the survey on interactional characteristics of 0.6 showed acceptable scale reliability. The Cronbach α results of the study on perception on pharmacist roles and traits of 0.9160 showed good reliability.

The researcher-constructed questionnaires showed construct validity as evidenced by expert validation.

Statistical Treatment of Data

Data was stored and coded using Microsoft Excel Office 365 and was exported to Stata v.11 for analysis. Counting data were described through frequency (as percentage %), measurement data through mean \pm standard deviation ($\bar{x} \pm S.D$). The Cronbach's α coefficient was used to analyze the scale's reliability. The construct validity of the measures was assessed using content validity index (CVI). A p value <0.05 was considered as statistically significant.

Descriptive statistics were calculated, including frequency distributions, percentages, and measures of central tendency. Kruskal-Wallis's test was used to determine differences on perceptions on interprofessional collaboration when grouped by age. Mann-Whitney U test was used to determine significant differences on perceptions on interprofessional collaboration when grouped by sex and level of education.

Scoring and Interpretation

The ATHCT can be interpreted in terms of its three subscales. They are as follows:

Table 4

ATCHT Subscales

Subscales	Questionnaire items
Attitude towards Team Values	2, 3, 5, 7, 9, 11, 14, 17, 19, and 20
Attitude Towards Team Efficiency	1,8, 10, 12, and 15
Attitudes towards Physician's Centrality	4,6,13, and 18

The Attitude towards Team Values scale is represented by items 2, 3, 5, 7, 9, 11, 14, 17, 19, and 20. The Attitude Towards Team Efficiency is measured through items 1,8, 10, 12, and 15. Attitudes towards Physician's Centrality are represented by items 4,6,13, and 18.

There are no specific instructions in the ATHCT and Team Skills Scale scoring interpretation. However, according to Wong et al. (n.d.), ATHCT scores of 3 - 5 were classified as "Positive", and 1 or 2 were classified as "Negative". For TSS, scores of 3 or greater were classified as "Positive" and 2 or lower were classified as "Negative."

In addition, higher scores represent a higher self-reported skill level in TSS, "Poor" is scored as the lowest representing "1," and "Excellent" is scored as "5". Moreover, in the ATHCT scale, higher scores represent more positive attitudes toward health care teams, where "5" means "Strongly Agree" and "1" for "Strongly Disagree" (Darlow et al., 2015).

Ethical Considerations

Ethical clearance was given by the Ethics Review Board of Manila Adventist College for protocol number 2021-094.

To ensure the protection of the subjects, the respondents were informed of their voluntary participation before the start of the survey and MAC Data Privacy Policy will be applies. They were also told that they might opt out of the study at any moment. Upon the respondent's expression of their willingness to participate, they were asked to check in the online questionnaire, indicating their consent. If preferred, each participant was provided with a copy of the consent form and their replies through email. The participants were notified if they may choose not to indicate their names and wished to

maintain anonymity. Respondents were provided with the researchers' contact numbers to call or send messages if they had any further questions.

To make the subjects feel at ease and non-threatened, the questionnaire was made accessible based on the respondents' preferred time and date. Raw data were stored in an Excel file with a password-protected data storage device to ensure further confidentiality. The data will be accessed only by the thesis adviser and thesis leader, as well as the Center for Assessment and Research Office as a collaborator for monitoring purposes. Data was coded and cleaned. Following the acceptance of the completed paper, raw data, transcripts, consent forms, and copies of the instrument were shredded and destroyed three years after the thesis publication to protect the participants' identifications as recommended by the protocol of Data Retention by the US Department of Health and Human Services. This data dissemination is planned for presentation to a research conference.

Chapter 4

Results and Discussion

This chapter presents the results of the study and their corresponding discussion. Results were presented according to the sequence of the formulated research problem. The findings were presented in tabular form for facilitative reading and understanding. Reflected below each tabular form were the presentation, analysis, and interpretation of the data about the study.

Perceptions of the Healthcare Professionals on Interprofessional Collaboration in Terms of Attitudes and Cognitive Skills

The respondents' attitudes on the three ATHCT subscales: team value, team efficiency, and physician's centrality on the team showed positive values. These values are listed in the table below.

Table 5

Descriptive Statistics of Subscales of Attitudes Toward Health Care Teams Scale (N=98)

Subscales of ATHCT	Mean	SD	I
Team Value	5.13	0.81	Positive
Physician's centrality or shared role on the team	4.49	0.74	Positive
Team Efficiency	3.27	1.05	Positive

Note: SD = Standard Deviation; I = Interpretation; 1.00- 2.00= Negative; 3.00-5.00 = Positive

The findings indicate that the respondents have positive attitudes on interprofessional collaboration based on the 3 ATHCT subscales. This is like the result of Ansa et al. (2020). Their respondents also "agreed to strongly agreed" that interprofessional collaboration allows them to think positively towards the health care

team. Similarly, an interventional study about interprofessional collaboration done by Bashatah et al. (2020) and Findyartini et al. (2019) also exhibited positive attitudes.

According to Heinemann et al. (1999), a health care team is described as three or more experts who work together interdependently to assess and manage a specific patient population, each reflecting diverse professional knowledge bases, abilities, and viewpoints. The nurse, physician, and social worker make up the core team, which is supplemented by a variety of extended team members (e.g., audiologist, chaplain, dietitian, occupational, physical, recreation, and speech therapists; optometrist; pharmacist; podiatrist; psychologist), whose professions are determined by the needs of the patients under the team's care. The team addresses both task-oriented and process-oriented goals. Patients' medical and health requirements and issues are identified, tailored treatment plans are developed and implemented, patients' outcomes are monitored, and care plans are adjusted to maximize these outcomes. Process goals are concerned with team members' interpersonal interactions and tactics for enhancing the team's performance over time. When attitudes on team value and team efficiency are positive, this indicates positive perceptions on interprofessional practice as well.

Physician attitudes are likely to play a significant role in influencing the effectiveness of a team. Physicians frequently serve as team gatekeepers and managers, deciding on patient admission and release and exerting substantial control over the team's structure. Some doctors see teams improve treatment efficacy or get a complete picture of their patients. Others believe that physicians should serve as administrators, coordinating information collection, decision-making, and care delivery. Others see teams as barriers that separate them from their patients and team meetings as a waste of time. Some

physicians embrace shared leadership in teams, while others see teams as a challenge to physicians' conventional role and ultimate authority in the healthcare system. Physicians' willingness to participate in team care is likely to differ depending on their attitudes (Heinemann et al.,1999).

Because attitudes are frequently drivers of behavior, attitudes regarding healthcare teams might significantly impact professionals' engagement in teams, the quality of team functioning, and the quality of patient care. When it comes to cooperation, health professionals have a wide range of opinions. Many people see teams improve their efficiency in providing health care. Teams might be viewed as vehicles for earning prestige and influence in the healthcare system, as well as receiving help with work-related stress. On the other hand, team members may have their professional territory invaded, overburdened by many demands, or forced other team members to take on duties and obligations outside of their professional positions. These disparities in experiences impact attitudes about teamwork and team procedures and functioning (Heinemann et al.,1999).

Table 6

Descriptive Statistics of Team Skills Scale Score (N=51)

Subscales of TSS	Mean	SD	I
Team Skills	4.88	0.63	Positive

Note: SD = Standard Deviation; I = Interpretation; 1.00- 2.00= Negative; 3.00-5.00 = Positive

Development of teamwork skills is an essential foundation for effective collaborative practice. The respondents have a positive score (4.88±0.63) on the team skills scale, indicating they have adequate training and skills needed to perform in teams. This is like Wong et al. (n.d.) study where the respondents perceived that they have the

skills that can contribute to the healthcare team. On the other hand, the interventional study of Grymonpre et al. (2010) showed significant improvements or positive results in the TSS scores of both interventional and control groups of respondents.

Further analysis of the specific items in the Team Skills Scale showed that the respondents might need further enhancement in training to increase scores in the following areas:

Table 7

Descriptive Statistics of Particular Items in the Team Skills Scale (N=51)

Items	Mean	SD	I
I treat team members as colleagues.	5.05	0.73	Positive
I apply my knowledge of health care principles for the care of patients in a team care setting.	5.37	0.77	Positive
I ensure that patient/family preferences/goals are considered when developing the team's care plan.	5.37	0.85	Positive
I strengthen cooperation among disciplines.	5.07	0.80	Positive
I adjust my care to support the team goals.	5.04	0.77	Positive

Note: SD = Standard Deviation; I = Interpretation; 1.00- 2.00= Negative; 3.00-5.00 = Positive

The table above illustrates the top five items in the team skills scale. Item 22 showed the highest mean of 5.05 on the team skills scale. This is followed by item 24 with a mean of 5.37 and item 25 with a mean of 5.37. Other perceived skills of the respondents are items 27 and 32 in which the respondents reported they “strengthen cooperation among disciplines.” and “adjust my care to support the team goals.”, respectively. This is like the study of Dela Vega et al. (2018) in which it showed increased mean scores from pretest to posttest of both white and black race as well as

Pothoff et al. (2019) whereas they used a modified TSS and found significant change in pre to post education intervention.

Perceptions of the Healthcare Professionals About Pharmacists' Participation in The Healthcare Setting, in Terms of Beliefs and Expectations

The respondents have positive perceptions on pharmacists' participation in healthcare regarding their beliefs and expectations.)

According to the results, it was shown that most of the respondents “Rarely” go to the pharmacy whenever they have questions indicating 35.29 % of the responses. Similarly, the study of Fahmy et al. (2013) illustrated that most respondents have not consulted with a clinical pharmacist in their emergency department. This result was opposed to the study of Eltorki et al. (2019) that showed almost 90% of physicians frequently consult pharmacists whenever they have questions regarding pharmacotherapy.

However, 19.61% “always” and 21.57% “often” interact with the pharmacist whenever they go to a pharmacy contrary to the study of Alipour et al. (2018) that 76.3% of their respondents have not or rarely interacted with pharmacists. Similarly, Aburuz et al. (2012) showed that most physicians rarely have or do not usually interact with pharmacists. These results were like the study of Azhar et al. (2012) where most of the nurses' respondents interacted with pharmacists at least once daily.

Majority of the respondents (31.37%) said that they “rarely” feel embarrassed to ask whenever they have questions on their medication. This result is like Alipour et al.'s (2018) study. About half of the physicians (54 %) claimed to be comfortable consulting with pharmacists about appropriate pharmacotherapy.

Table 8*Frequency and Percentage of Interactional Characteristics Experience with Pharmacists**(N=51)*

	A	O	SO	SR	R	N
	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>
I interact with a pharmacist whenever I go to a pharmacy.	10 (19.61%)	11 (21.57%)	11 (21.57%)	9 (17.65%)	9 (17.65%)	1 (1.96%)
I think that pharmacists' attitudes must improve towards patients.	16 (31.37%)	3 (5.88%)	20 (39.22%)	6 (11.76%)	3 (5.88%)	3 (5.88%)
I think the pharmacists give me enough information about the medication.	17 (33.33%)	17 (33.33%)	10 (19.61%)	3 (5.88%)	4 (7.84%)	0 (0%)
I am satisfied with my interaction whenever I consult a pharmacist.	17 (33.33%)	8 (15.69%)	7 (13.73%)	8 (15.69%)	6 (11.76%)	5 (9.8%)
I go to the pharmacy whenever I have questions about medications.	1 (1.96%)	3 (5.88%)	8 (15.69%)	8 (15.69%)	13 (25.49%)	18 (35.29%)
I feel embarrassed to ask pharmacists a question related to my health.	1 (1.96%)	2 (3.92%)	4 (7.84%)	13 (25.49%)	15 (29.41%)	16 (31.37%)

Note: A= Always; O = Often; SO= Slightly Often; SR= Slightly Rare; R= Rarely; N= Never

On the other hand, a large number of respondents (31.37%) showed that they “Always” thought that the pharmacists’ attitude must improve towards patients. This result is supported by the study of Gebremariam et al. (2020). Most of the respondents reported that the clinical pharmacy services' performance in their hospitals was poor. Similarly, the study of Azhar et al. (2012) showed that most of the respondents have highlighted that pharmacists should counsel their patients. It is worth investigating how pharmacists must further improve attitudes and this shows that pharmacy education must be oriented towards training pharmacy students how to interact well with patients. This is an incredibly significant finding since the respondents also ranked pharmacists’ traits as being personable the least. This is thought to be the result of pharmacists being always behind a counter in community pharmacy and sometimes even in hospital pharmacy settings.

Majority of the respondents showed (33.33%) that they “always” and “often” thought the pharmacists gave them enough information about their medication. The same is valid with Aburuz et al.'s (2012) study. Most physicians responded that pharmacists are reliable sources of general drug information. Alipour et al. (2018) showed that most of the respondents reported that they could attain great sources of available data from pharmacists.

Lastly, most of the respondents answered that they are “always” (33.33%) satisfied with their interaction whenever they consult a pharmacist. Alarmingly the satisfaction with the pharmacists is not that high. This means that some of the areas in pharmacy practice particularly those that deal with patients and other health professionals may be further improved. According to the study of Gebremariam et al. (2020), most of

their respondents were poorly satisfied with clinical pharmacy services in their hospitals. Correspondingly, in the study of Bilal et al. (2016), they have reported low scores on their respondents' satisfaction towards clinical pharmacy services.

Roles and Traits of Pharmacists in the Healthcare Setting as Perceived by Healthcare Professionals

Based on the survey results, it was shown that many of the respondents felt that the pharmacists' primary duty is to dispense medications with prescription (54.9%). Similarly, in the study of Khan et al. (2020) majority of the doctors expect that pharmacists can do pharmacy-related roles such as dispensing. Although in the study of Albassam et al. (2020), they reported that most of the respondents disagreed on the importance of administering prescriptions and giving advice to physicians about drug therapy and in the study of Lo et al. (2013), both physicians and pharmacists supported that dispensing was one of the top priorities for pharmacists.

Table 9

Frequency and Percentage of Perception on Pharmacists' Participation in Healthcare Setting (N=51)

	SA	MA	SWA	SWD	MD	SD
	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>
Pharmacists are committed to dispensing medications with prescriptions.	28 (54.90%)	6 (11.76%)	12 (23.53%)	1 (1.96%)	3 (5.88%)	1 (1.96%)

Table 9 Continues

Table 9 Continued

	SA	MA	SWA	SWD	MD	SD
	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>	<i>f (%)</i>
Pharmacists are essential in the healthcare team regarding chronic disease management.	18 (35.29%)	9 (17.65%)	17 (33.33%)	4 (7.84%)	3 (5.88%)	0 (0.0%)
Pharmacists should perform their specific roles in collaborative work with the interdisciplinary healthcare team.	14 (27.45%)	5 (9.80%)	17 (33.33%)	6 (11.76 %)	5 (9.80%)	4 (7.84 %)
Pharmacists conduct health-related research.	34 (66.67%)	5 (9.80%)	8 (15.69%)	0 (0%)	1 (1.96 %)	3 (5.88%)
Pharmacists recommend drug therapy in collaboration with physicians.	22 (43.14%)	8 (15.69%)	16 (31.37%)	2 (3.92%)	1 (1.96 %)	2 (3.92%)
Pharmacists are responsible for identifying drug-related problems and providing interventions to physicians.	13 (25.49%)	12 (23.53%)	15 (29.41%)	6 (11.76%)	1 (1.96 %)	4 (7.84 %)
Pharmacists can help in health screening, dietary and lifestyle modifications of patients.	13 (25.49%)	16 (31.37%)	16 (31.37%)	3 (5.88%)	1 (1.96 %)	2 (3.92%)

Table 9 Continues

Table 9 Continued

	SA <i>f (%)</i>	MA <i>f (%)</i>	SWA <i>f (%)</i>	SWD <i>f (%)</i>	MD <i>f (%)</i>	SD <i>f (%)</i>
Pharmacists recommend over the counter (OTC) medications for common ailments and medical problems.	21 (41.18%)	14 (27.45%)	13 (25.49%)	2 (3.92%)	0 (0%)	1 (1.96%)
Pharmacists administer immunizations with proper training.	19 (37.25%)	12 (23.53%)	15 (29.41%)	2 (3.92%)	0 (0%)	3 (5.88%)
Pharmacists monitor adverse effects and drug interactions.	14 (27.45%)	14 (19.61%)	10 (19.61%)	9 (17.65%)	0 (0%)	4 (7.84%)
Pharmacists need more training and experience in pharmacy services.	12 (23.53%)	10 (13.6%)	16 (31.37%)	6 (11.76%)	0 (0%)	7 (13.73%)
Pharmacists are responsible for making drug dosage adjustments and monitoring pharmacotherapy outcomes.	20 (39.22%)	15 (29.41%)	13 (25.49%)	1 (1.96%)	0 (0%)	2 (3.92%)

Note: SA = Strongly Agree, MA = Moderately Agree, SWA = Somewhat Agree, SWD = Somewhat

Disagree, MD = Moderately Disagree, SD = Strongly Disagree

Other perceived roles for pharmacists that are deemed important are: in terms of conducting health-related research (66.67%), recommending drug therapy in collaboration with physicians (43.14%), recommend over the counter (OTC) medications for common ailments and medical problems (41.18%), making drug dosage adjustments

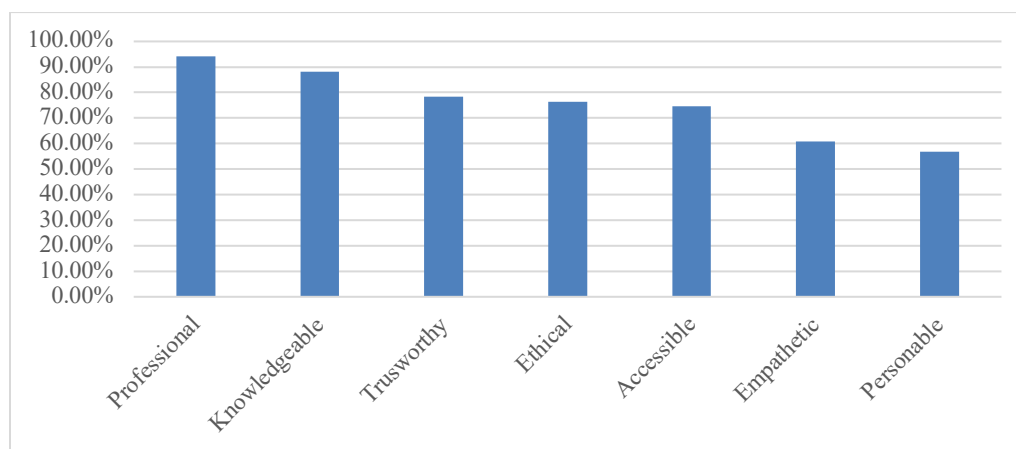
and monitoring pharmacotherapy outcomes (39.22%) and administer immunizations with proper training (37.25%). These findings are consistent with the study of Albassam et al. (2020) where most respondents agreed on the pharmacist's role in assisting in dosage adjustment and providing advice regarding drug interactions. Likewise, in Alipour et al.'s (2018) study, most of their respondents indicated that they expect pharmacists to inform their patients about drug dosage adjustments and any information about their patients' medications.

It is important to note that there were a number of respondents who felt that pharmacists need more training and experience in pharmacy services (“strongly agree” 23.53% and “somewhat agree” 31.37%). Similarly, in Khan et al.'s (2020) study, most respondents reasoned that pharmacist could not discuss clinical issues with physicians due to lack of training. Kabba et al.'s (2020) survey reported that almost half of the physicians' perceptions about pharmacists were either uncertain or incompetent in giving clinical pharmacy services.

The figure below shows the traits expected from a pharmacist.

Figure 3

Frequency of Traits Expected from a Pharmacist (N=51)



Results showed that the top three expected traits of pharmacists were professional 48 (94.11%), knowledgeable 45 (88.24%), and trustworthy 40 (78.43%). The results were parallel with Azhar et al.'s (2012) study where most nurses expected pharmacists as knowledgeable drug therapy experts. In Ghana, most respondents indicated that pharmacists have sufficient knowledge to advise general health conditions (Okai et al., 2019). Other expected traits were ethical 39 (76.47%), accessible 38 (74.5%), empathetic 31 (60.78%), and personable 29 (56.86%). Interestingly, the least anticipated feature from pharmacists was personable (59.2%). This may be attributed to the practice of pharmacy in the Philippines especially in community pharmacy settings where pharmacists are often behind the prescription medication counters while pharmacy technicians assist the patients as frontline personnel. Contrary to Wolfe et al.'s (2018) study, most medical students who constantly interact with pharmacists describe them as personable and empathetic. The same is true in the study of Okai et al. (2019) where they reported that the perceptions of most of the respondents (81.4%) were that pharmacists or pharmacy staff are more personable than the hospital staff.

Differences in the Respondents' Perception When Grouped According to Age, Sex, and Level of Education

The respondents have a positive perception of interprofessional collaboration, as evidenced by high ATHCT and TSS scores. Significant differences of the ATHCT and TSS scores were evaluated among the respondents when grouped according to age, sex, and level of education.

Table 10

Differences on ATHCT When Grouped According to Age: Kruskal- Wallis Equality of Populations Rank Test (N=51)

Age Group	Frequency	Rank Sum	p-value	Interpretation
1	33	875.50		
2	12	329.50		
3	6	121.00		
			0.5824	NS

Note: S- Significant, NS- Not Significant

Table 11

Differences on TSS When Grouped According to Age: Kruskal- Wallis Equality of Populations Rank Test (N=51)

Age Group	Frequency	Rank Sum	p-value	Interpretation
1	33	845.00		
2	12	344.00		
3	6	137.00		
			0.7112	NS

Note: S- Significant, NS- Not Significant

Kruskal-Wallis's test showed no significant differences between ATHCT scores ($p=0.5824$) and TSS scores ($p=0.7112$) when grouped by age. Review of relevant studies showed that the effect of the healthcare professional's age in perceptions toward interprofessional collaboration may vary. Hailu et al. (2016) suggests that age is a statistically significant predictor for respect and satisfaction between the healthcare team.

In Japan, negative perceptions of interprofessional collaboration were reported with older age healthcare professionals (Minamizono et al., 2013). The results of this study concur with the findings of Odegard and Strype (2009) and Aghamolaei et al. (2012) that age has no significant effect on perceptions on interprofessional collaboration.

Table 12

Differences on ATCHT When Grouped According to Sex: Mann-Whitney U test

Sex	Frequency	Rank Sum	<i>p</i> -value	Interpretation
Male	17	921		
Female	34	405		
			0.564	NS

Note: S- Significant, NS- Not Significant

Table 13

Differences on TSS When Grouped According to Sex: Mann-Whitney U test

Sex	Frequency	Rank Sum	<i>p</i> -value	Interpretation
Male	17	449		
Female	34	877		
			0.488	NS

Note: S- Significant, NS- Not Significant

On the other hand, Mann-Whitney U tests showed no significant differences between ATCHT scores ($p=0.564$) and TSS scores ($p=0.488$) when grouped by sex. Many studies suggest that sex may affect perceptions on interprofessional collaborations. Female healthcare professionals have more positive attitudes toward the perception of

interprofessional collaboration than male healthcare professionals (Abdalla et al., 2015, Alipour et al. (2018). In contrast with these findings Yune et al. (2020) assert that male healthcare professionals have more positive attitudes towards interprofessional collaboration than female healthcare. However, this study showed that there is no difference on perceptions on interprofessional collaboration when grouped by sex.

Table 14

Differences on ATHCT When Grouped According to Level of Education: Mann-Whitney U test

Sex	Frequency	Rank Sum	p-value	Interpretation
Bachelor's	50	1315		
Master's Degree	1	11	0.3077	NS

Note: S- Significant, NS- Not Significant

Table 15

Differences on TSS When Grouped According to Level of Education: Mann-Whitney U Test

Sex	Frequency	Rank Sum	p-value	Interpretation
Bachelor's	50	1297		
Master's Degree	1	29	0.8384	NS

Note: S- Significant, NS- Not Significant

There were also no significant differences between ATHCT scores ($p=0.3077$) and TSS scores ($p=0.8384$) when grouped by level of education. Although many studies showed that the level of education can also be a variable that can affect the perception of interprofessional collaboration, the result of this study shows otherwise. Chong et al. (2013) finds that having a different level of education may be a key to interprofessional collaboration because every healthcare team member can share and discuss their thoughts when working in an interprofessional partnership. Eltorki et al. (2019) also agree that even with various levels of education, healthcare workers can have a unique role when working with interprofessional collaboration in a healthcare setting. Differences in the results of this study with the findings in literature may also be due to a limited number of the respondents. In addition, in the Philippines, a master's degree is not a requirement for a successful professional clinical practice. A postgraduate degree is usually only a requirement for healthcare workers who consider a degree in education.

Limitations of the Study

This study has several limitations. Limited number of participants have participated in the research due to the difficulties in getting respondents during the COVID-19 pandemic. Also, the data collection that was used by the researchers was snowball sampling that creates slight bias since the researchers knew the people who are going to participate in our study. In addition, the interaction with the participants is limited because of the pandemic, and they answered the questionnaire through a google form. Since this is a pilot study, a larger number of respondents is recommended for future research.

Chapter 5

Summary, Conclusion, and Recommendations

This chapter presents a synthesis of the previous chapter. It contains the summary of the findings, conclusion based on the study of the findings as well as the recommendations that could help solve the problem addressed in the study.

Summary of Findings

This study showed that of the fifty-one healthcare professionals agreed to participate and completed the survey, more females (66.67%) participated in the study than male healthcare professionals (33.33%). The mean age of the respondents was 29.88 \pm 7.87, ranging from 21-55 years old, while the mean score for the length of service was 6.19 \pm 6.92 years. Most healthcare professionals reported a bachelor's degree, and 52.94% were nurses, followed by medical technologists (15.69%) and physical therapists (11.76%) as the top three professions who answered the survey.

Most of the healthcare professionals indicated positive values on the perceptions about interprofessional collaboration. Most of the respondents also have positive team skills scale scores showing that they can work in teams. In like manner, they also have positive perceptions about pharmacists' participation regarding beliefs and expectations. This may indicate that they accept pharmacists as members of a healthcare team. They have reported that they interact with pharmacists whenever they go to a pharmacy, while they reported that they do not usually go to the pharmacy to ask questions regarding their medications. However, they rarely felt embarrassed to ask for general health information. They indicated that pharmacists' attitudes must improve towards patients. It is worth investigating what attitudes of pharmacists should further improve. For assessing the

demographic variables with ATHCT, only the level of education was statistically significant with team value and physician centrality.

Many respondents, on the other hand, stated that the most key role of a pharmacist was to dispense medication with prescriptions; however, further clinical roles of the pharmacist, such as monitoring adverse effects and drug interactions, assisting with health screening, dietary and lifestyle modification of patients, and being responsible for drug dosage adjustments, received lower scores than dispensing. Lastly, they expect that the best trait that a pharmacist should possess is to be professional and personable as the least common trait.

There were no significant differences between attitudes and skills on interprofessional collaboration when the respondents were grouped according to age, sex, and level of education.

Conclusion

The researchers conclude that healthcare professionals have a positive perception on interprofessional collaboration. But regarding pharmacists' contribution in the healthcare setting, some respondents disagreed with some of the specified roles and responsibilities of the pharmacist. Further, the majority perceived that there is still room to improve on pharmacists' participation.

Overall, this study highlights the value of interprofessional collaboration between pharmacists and other medical professionals, the need to inform healthcare professionals about the roles and responsibilities of pharmacists in the healthcare team, and the need to train pharmacists and develop more of their skills and experience on pharmacy services,

thus resulting in better interprofessional collaboration with each other to improve healthcare service.

Recommendations

The researchers recommend pharmacy educators to enhance training future pharmacy professionals to be “collaborative-practice ready” and to be more equipped in dealing with patients. This study underscores that academic institutions must endeavor to implement interprofessional education programs that prepare students for future careers. Further, the study recommends students to broaden their perspectives on the importance, contributions, and engagement of pharmacists in the healthcare team, as well as recognize role expectations from other healthcare professionals and their responsibilities in multidisciplinary healthcare teams. In addition, the researchers recommend healthcare professionals to collaborate with their knowledge, integrate their services with other experts, and share responsibility for the patients to deliver complete and qualified healthcare based on the patient's particular needs. For efficient healthcare team collaboration, the researchers recommend hospital administrators to develop and maintain interdisciplinary care plans. Finally, the researchers recommend future researchers to incorporate more variables influencing healthcare professionals' interactional qualities and experience, as well as strategies to improve their interactional aspects and experience with pharmacists' participation.

References

- Abdalla, A. A., Mohamed, G., Adwi, E., Al-mahdi, A. F., & Society, C. P. (2015). Physicians' perception about the role of clinical pharmacists and potential barriers to clinical. *World Journal of Pharmacy and Pharmaceutical Sciences*, 4(05), 61–72. https://www.wjpps.com/Wjpps_controller/abstract_id/2991
- Abu-Gharbieh, E., Fahmy, S., Rasool, B. A., Abduelkarem, A. & Basheti, I. (2010). Attitudes and perceptions of healthcare providers and medical students towards clinical pharmacy services in United Arab Emirates. *Tropical Journal of Pharmaceutical Research* 9 (5), 421-430
- Aburuz, S. M., Al-Ghazawi, M. A., Bulatova, N., Jarab, A. S., Alawwa, I. A., & Al-Saleh, A. (2012). Expectations and physicians' experiences regarding pharmaceutical care and the expanding role of pharmacists in Jordan. *Jordan Journal of Pharmaceutical Sciences*, 5(1), 74–86. <https://journals.ju.edu.jo/JJPS/article/view/2768>
- Aghamolaei, T., Tavafian, S. S., Hasani, L., & Moeini, B. (2012). Nurses' perception of nurse-physician communication: A questionnaire-based study in Iran. *International Journal of Hospital Research*, 1(2), 77–84. http://ijhr.iums.ac.ir/article_3863.html
- Albassam, A., Almohammed, H., Alhujaili, M., Koshy, S., & Abdelmoneim, A. (2020). Perspectives of primary care physicians and pharmacists on interprofessional collaboration in Kuwait: A quantitative study. *PLoS ONE*, 1–17. <https://doi.org/10.1371/journal.pone.0236114>

- Alipour, F., Peiravian, F., & Mehralian, G. (2018). Perceptions, experiences, and expectations of physicians regarding the role of pharmacists in low-income and middle-income countries: The case of Tehran hospital settings. *BMJ Open*, 8(2). <https://doi.org/10.1136/bmjopen-2017-019237>
- Ansa, B., Zechariah, S., Gates, A., Johnson, S., Heboyan, V., & De Leo, G. (2020). Attitudes and behavior towards interprofessional collaboration among healthcare professionals in a large academic medical center. *Healthcare*, 8 (3), 323. <https://doi.org/10.3390/healthcare8030323>
- Atwal, A., & Caldwell, K. (2006). Nurses' perceptions of multidisciplinary teamwork in acute health care. *International Journal of Nursing Practice*, 12(6), 359–365. <https://doi.org/10.1111/j.1440-12X.2006.00595.x>
- Azhar, S., Hassali, M., Ibrahim, M., Saleem, F., & Yen, L. (2012). A survey evaluating nurses' perception and expectations towards the role of pharmacists in Pakistan's healthcare system. *Journal of Advanced Nursing* 68(1), 199-205. DOI: 10.1111/j.1365-2648.2011.05728.x
- Baker, L., Egan-Lee, E., Martimianakis, M. A., & Reeves, S. (2011). Relationships of power: implications for interprofessional education. *Journal of Interprofessional Care*. (25)2. 98-104. <https://doi.org/10.3109/13561820.2010.505350>
- Bashatah, A., Al-Ahmary, K., Al Arifi, M., Asiri, Y., AlRuthia, Y., Metwally, A., King, C., Williams, B. (2020). Interprofessional cooperation: An interventional study among Saudi healthcare teaching staff at King Saud University. *Journal of Multidisciplinary Healthcare* 2020 (13), 1537-1544. <https://doi.org/10.2147/JMDH.S279092>

- Bilal, A. I., Tilahun, Z., Beedemariam, G., Ayalneh, B., Hailemeskel, B., & Engidawork, E. (2016). Attitude and satisfaction of health care providers towards clinical pharmacy services in Ethiopia: A post-deployment survey. *Journal of Pharmaceutical Policy and Practice*, 9(1), 1–14. <https://doi.org/10.1186/s40545-016-0058-6>
- Boon, H., Verhoef, M., O'Hara, D., & Findlay, B. (2004). From parallel practice to integrative health care: A conceptual framework. *BMC Health Services Research*, 4, 1–5. <https://doi.org/10.1186/1472-6963-4-15>
- Buring, S. M., Bhushan, A., Broeseker, A., Conway, S., Duncan-Hewitt, W., Hansen, L., & Westberg, S. (2009). Interprofessional education: Definitions, student competencies, and guidelines for implementation. *American Journal of Pharmaceutical Education* 73(4), 59. DOI: 10.5688/aj730459
- Carvalhana, V., & Flak, E. (2009). Role of the pharmacist on a multidisciplinary psychiatry team: Impact on medication adherence in a community setting. *Journal of Pharmacy Technology*, 25(3), 155–158. <https://doi.org/10.1177/875512250902500302>
- Chong, W. W., Aslani, P., & Chen, T. F. (2013). Shared decision-making and interprofessional collaboration in mental healthcare: A qualitative study exploring perceptions of barriers and facilitators. *Journal of Interprofessional Care*, 27(5), 373–379. <https://doi.org/10.3109/13561820.2013.785503>
- Choudhury, R.I., Salam, M.A.U., & Mathur, J. (2020). How interprofessional education could benefit the future of healthcare – medical students' perspective. *BMC Med Educ* 20, 242. <https://doi.org/10.1186/s12909-020-02170-w>.

- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches (Fifth edition)*. Los Angeles: SAGE.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, 19(SUPPL. 1), 116–131. <https://doi.org/10.1080/13561820500082529>
- Darlow, B., Coleman, K., McKinlay, E., Donovan, S., Beckingsale, L., Gray, B., Nesar, H., Perry, M., Stanley, J., & Pullon, S. (2015). The positive impact of interprofessional education: A controlled trial to evaluate a program for health professional students Approaches to teaching and learning. *BMC Medical Education*, 15(1), 1–9. <https://doi.org/10.1186/s12909-015-0385-3>
- De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology*, 88(4), 741–749. <https://doi.org/10.1037/0021-9010.88.4.741>
- Dela Vega E., Neely-Barnes, S. L., Elswick, S. E., Taylor, L.C., Pettet, F. L., & Landry, M.A. (2018). Preparing social work students for interprofessional team practice in health-care settings. *Research on Social Work Practice*. DOI: 10.1177/1049731518804880
- Elsayem, A., Swint, K., & Fisch, M. J. (2004). Palliative care inpatient service in a comprehensive cancer center: clinical and financial outcomes. *J Clinical Oncology* 22(10), 2008-2014
- Eltorki, Y., Abdallah, O., Omar, N., & Zolezzi, M. (2019). Perceptions and expectations of health care providers towards clinical pharmacy services in a mental health

hospital in Qatar. *Asian Journal of Psychiatry*, 42(September 2018), 62–66.

<https://doi.org/10.1016/j.ajp.2019.03.018>

Fahmy, S.A., Rasool, B.K. & Abdu, S. (2013). Health-care professionals' perceptions and expectation of pharmacists' role in the emergency department, United Arab Emirates. *Eastern Mediterranean Health Journal* 19 (9) 794-799.
<http://www.emro.who.int/emhj-vol-19-2013/9/health-care-professionals-perceptions-and-expectations-of-pharmacists-role-in-the-emergency-department-united-arab-emirates.html>

Findyartini, A., Kambey, D. R., Yusra, R. Y., Timor, A. B., Khairani, C. D., Setyorini, D., & Soemantri, D. (2019). Interprofessional collaborative practice in primary healthcare settings in Indonesia: A mixed-methods study. *Journal of Interprofessional Education and Practice*, 17, 100279.

<https://doi.org/10.1016/j.xjep.2019.100279>

Gebremariam, E. T., Taye, G. M., & Alemayehu, D. (2020). Knowledge and attitude of health professionals towards clinical pharmacy services in selected hospitals in West Shoa Zone. *Ethiopia*. 5(1), 9–13. <https://doi.org/10.11648/j.bsi.20200501.12>

Grymonpre, R., Ineveld C., Nelson, M., Jensen, F., De Jaeger, A., Sullivan, T., Weinberg, L., Swinamer, J. & Booth, A. (2010). See it-do it-learn it: Learning interprofessional collaboration in the clinical context. *Journal of Research in Interprofessional Practice and Education* 1(2).

<http://dx.doi.org/10.22230/jripe.2010v1n2a13>

Hailu, F. B., Worku Kassahun, C., & Woldie Kerie, M. (2016). Perceived nurse - Physician communication in patient care and associated factors in public hospitals

- of Jimma zone, South West Ethiopia: Cross-sectional study. *PLoS ONE*, *11*(9), 1–21. <https://doi.org/10.1371/journal.pone.0162264>
- Heinemann, G. D., Schmitt, M. H., Farrell, M. P. & Brailer, S. A. (1999). Development of an attitudes toward health care teams scale. *Evaluation & the Health Professions* *1999*. *22*:123. DOI: 10.1177/01632789922034202
- Jayasuriya, P., & Criddle, D. (2011). Collaboration between doctors and pharmacists in the community. *Australian Prescriber*, *34*(2), 37. <https://doi.org/10.18773/austprescr.2011.023>
- Kabba, J. A., James, P. B., Hanson, C., Chang, J., Kitchen, C., Jiang, M., Yang, C., & Fang, Y. (2020). Sierra Leonean doctors' perceptions and expectations of the role of pharmacists in hospitals; a national cross-sectional survey. *International Journal of Clinical Pharmacy*. <https://doi.org/10.1007/s11096-020-01096-z>
- Kerfoot, K. M., Rapala, K., Ebright, P., & Rogers, S. M. (2006). The power of collaboration with patient safety programs: Building safe passage for patients, nurses, and clinical staff. *Journal of Nursing Administration* *36* (12), 582-588
- Khan, N., McGarry, K., Naqvi, A. A., & Holden, K. (2020). Doctors' perceptions, expectations, and experience regarding the role of pharmacists in hospital settings of Pakistan. *International Journal of Clinical Pharmacy*, *42*(2), 549–566. <https://doi.org/10.1007/s11096-020-00991-9>
- Khan, N., McGarry, K., Naqvi, A. A., Iqbal, M. S., & Haider, Z. (2020). Pharmacists' viewpoint towards their professional role in the healthcare system: A survey of hospital settings of Pakistan. *BMC Health Services Research*, *20*(1). <https://doi.org/10.1186/s12913-020-05459-0>

- Kucukarslan, S., Lai, S., Dong, Y., Al-Bassam, N., & Kim, K. (2011). Physician beliefs and attitudes toward collaboration with community pharmacists. *Research in Social and Administrative Pharmacy*, 7(3), 224–232.
<https://doi.org/10.1016/j.sapharm.2010.07.003>
- Lo, U., Hu, H., & Oi Lam Ung, C. (2014). Physicians' and pharmacists' experience and expectations of the roles of pharmacists: Insights into hospital setting in Macau. *Tropical Journal of Pharmaceutical Research*, December 2013; 12 (6): 1077-1085.
- Löffler, C., Koudmani, C., Böhmer, F., Paschka, S. D., Höck, J., Drewelow, E., Stremme, M., Stahlhacke, B., & Altiner, A. (2017). Perceptions of interprofessional collaboration of general practitioners and community pharmacists - a qualitative study. *BMC Health Services Research*, 17(1), 1–7.
<https://doi.org/10.1186/s12913-017-2157-8>
- Lumma-Sellenthin, A. (2013). *Learning professional skills and attitudes: Medical students' attitudes towards communication skills and group learning* 1–145. Diva Portal. <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A618854&dswid=-7467>
- Makowsky, M. J., Schindel, T. J., Rosenthal, M., Campbell, K., Tsuyuki, R. T., & Madill, H. M. (2009). Collaboration between pharmacists, physicians, and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting. *Journal of Interprofessional Care*, 23(2), 169–184.
<https://doi.org/10.1080/13561820802602552>

- McKeon, L.M., Oswaks, J. D., & Cunningham, P. D. (2006). Safeguarding patients: Complexity science, high reliability organizations, and implications for team training in healthcare. *Clinical Nurse Specialist* 20(6), 298-304.
- Meredith, J.R., & Mantel, S. J. (2009). *Project management: A managerial approach, (W/Cd)*. John Wiley & Sons.
- Miller, B. K., & Ishler, K. J. (2002). The rural elderly assessment project: A model for interdisciplinary team training. *Interprofessional Collaboration in Occupational Therapy*, 0577(November), 13–34. https://doi.org/10.1080/j003v15n03_02
- Mills, J. E., Birks, M., Francis, K. & Coyle, M. (2010) Registered nurses as members of interprofessional primary health care teams in remote or isolated areas of Queensland: Collaboration, communication and partnerships in practice. *Journal of Interprofessional Care*. DOI: 10.3109/13561821003624630
- Minamizono, S., Hasegawa, H., Hasunuma, N., Kaneko, Y., Motohashi, Yu., & Inoue, Y. (2013). Physician's perceptions of interprofessional collaboration in clinical training hospitals in Northeastern Japan. *Journal of Clinical Medicine Research*, 5(5), 350–355. <https://doi.org/10.4021/jocmr1474w>
- Molleman, E., Broekhuis, M., Stoffels, R., & Jaspers, F. (2008). How health care complexity leads to cooperation and affects the autonomy of health care professionals. *Health Care Analysis*, 16(4), 329–341. <https://doi.org/10.1007/s10728-007-0080-6>
- Morley, L., & Cashell, A. (2017). Collaboration in Health Care. *Journal of Medical Imaging and Radiation Sciences*, 48(2), 207–216. <https://doi.org/10.1016/j.jmir.2017.02.071>

- Ndibu Muntu Keba Kebe, N., Chiochio, F., Bamvita, J. M., & Fleury, M. J. (2020). Variables associated with interprofessional collaboration: A comparison between primary healthcare and specialized mental health teams. *BMC Family Practice*, *21*(1), 1–11. <https://doi.org/10.1186/s12875-019-1076-7>
- Ødegård, A., & Strype, J. (2009). Perceptions of interprofessional collaboration within child mental health care in Norway. *Journal of Interprofessional Care*, *23*(3), 286–296. <https://doi.org/10.1080/13561820902739981>
- Okai, G. A., Abekah-Nkrumah, G. & Asurning, P.O. (2019). Perception and trends in the use of community pharmacies in Ghana. *Journal of Pharmaceutical Policy and Practice* *12*(25). <https://doi.org/10.11861s40545-019-0186-x>
- Patel, H., Pettitt, M., & Wilson, J. R. (2012). Factors of collaborative working: A framework for a collaboration model. *Applied Ergonomics*, *43*(1), 1–26. <https://doi.org/10.1016/j.apergo.2011.04.009>
- Pike, A. W., McHug, M., Canney, K. C., Miller, N.E., Reiley, P., & Seibert C. (1993). A new architecture for quality assurance: nurse-physician collaboration. *J Nurse Care Qual* *7*(3), 1-8
- Propp, K. M., Apker, J., Zabava Ford, W. S., Wallace, N., Serbenski, M., & Hofmeister, N. (2010). Meeting the complex needs of the health care team: Identification of Nurse-team communication practices perceived to enhance patient outcomes. *Qualitative Health Research*, *20*(1), 15–28. <https://doi.org/10.1177/1049732309355289>
- Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2011). *Interprofessional teamwork for health and social care* 8, John Wiley & Sons

- Romjin, A., Teunissen, P. W., de Bruijne, M. C., Wagner, C. & de Groot, C. J. M. (2017). Interprofessional collaboration among care professionals in obstetrical care: are perceptions aligned? *BMJ Qual Saf* 2018 (27). 279-286.
DOI:10.1136/bmjqs-2016-006401.
- Rousseau, C., Laurin-Lamothe A., Nadeu L., Deshaies, S., & Measham, T. (2012). Measuring the quality of interprofessional collaboration in child mental health collaborative care. *Int J Integr Care* 12, e3
- Sabry, N. A., & Farid, S. F. (2014). The role of clinical pharmacists as perceived by Egyptian physicians. *International Journal of Pharmacy Practice*, 22(5), 354–359. <https://doi.org/10.1111/ijpp.12087>
- Saint-pierre, C., Herskovic, V., & Sepúlveda, M. (2018). *Multidisciplinary collaboration in primary care: a systematic review*. 35(2), 132–141.
<https://doi.org/10.1093/fampra/cmz085>
- San Martín-Rodríguez, L., Beaulieu, M. D., D'Amour, D., & Ferrada-Videla, M. (2005). The determinants of successful collaboration: A review of theoretical and empirical studies. *Journal of Interprofessional Care*, 19(SUPPL. 1), 132–147.
<https://doi.org/10.1080/13561820500082677>
- Taylor-Seehafer, M. (1998). Nurse-physician collaboration. *Journal of the American Academy of Nurse Practitioners*, 10(9), 387–391. <https://doi.org/10.1111/j.1745-7599.1998.tb00524.x>
- Turner, J. C. (1999). Some current issues in research on social identity and Self categorization theories. N. Ellemers, R. Spears & B. Doosje (Eds.), *Social Identity, Context, Commitment*,

Content (pp. 6-34). Oxford: Blackwell Publishers.

- Van Winkle, L. J., Fjortoft, N., & Hojat, M. (2011). Validation of an instrument to measure pharmacy and medical students' attitudes toward physician-pharmacist collaboration. *American Journal of Pharmaceutical Education*, 75(9), 178. <https://doi.org/10.5688/ajpe759178>
- Varpio, L., Hall, P., Lingard, L., & Schryer, C. F. (2008). Interprofessional communication and medical error: a reframing of research questions and approaches. *Academic Medicine: Journal of the Association of American Medical Colleges*, 83(10 Suppl), 76–81. <https://doi.org/10.1097/acm.0b013e318183e67b>
- Wang, S. P., Wang, J., Huang, Q. H., Zhang, Y. H., & Liu, J. (2018). Pharmacy and nursing students' attitudes toward nurse-pharmacist collaboration at a Chinese university. *BMC Medical Education*, 18(1), 8–15. <https://doi.org/10.1186/s12909-018-1285-0>
- Wilbur, K., Beniles, A. & Hammuda, A. (2012). Physician perceptions of pharmacist roles in primary care setting in Qatar. *Globalization and Health* 8, 12 (2012). <https://doi.org/10.1186/1744-8603-8-12>
- Wolfe, M. E., Moeller, K. E., & Woods, B. (2018). Medical students' perceptions on the role of pharmacists. *Journal of Pharmacy Practice*, 31(6), 623–628. <https://doi.org/10.1177/0897190017734764>
- Wong, B., Pharm, B. S., Loewen, P., Pharm, B. S., Pharm, D., Lau, M., & Pharm, B. S. (n.d.). *Interprofessional education and practice in pharmacy residency training: A study of pharmacy institutional practitioner and resident perspectives*. <https://efaidnbmnnnibpcajpcglclefindmkaj/https://static1.squarespace.com/static/5>

55cfb18e4b039100196660b/t/55c9e2d0e4b06b84355eec73/1439294160309/BWong-IPE+Project+Poster-fullsize.pdf

World Health Organization. (2010). A WHO report: Framework for action on interprofessional education and collaborative practice. *Journal of Allied Health*, 39(SUPPL. 1), 196–197.

World Health Organization. (n.d.). *Skills for Health*. WHO Information Series on School Health.

https://www.who.int/school_youth_health/media/en/sch_skills4health_03.pdf

Yune, S. J., Park, K. H., Min, Y. H., & Ji, E. (2020). Perceptions of the interprofessional education of the faculty and the level of interprofessional education competence of the students perceived by the faculty: a comparative study of medicine, nursing, and pharmacy. *Korean Journal of Medical Education*.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7066431/?fbclid=IwAR0ttYAdpZKKAeJyFXfdLGtUfn5V5vND6Bxp3sQVp79ZJRjzdUIS_BLdAyg

Appendix A

Instrument

Part I. Demographics

Kindly fill out the corresponding information by writing or checking the box of the following:

Age: _____

Sex: Male Female

Length of Service (Year/s): _____ Level of Education: _____

Profession:

Nurse Medical Laboratory Scientist Midwife

Radiologic Technologist Physical Therapist Nutrition-Dietician

Part II. Perception on Interprofessional Collaboration

A. Attitudes Toward Health Care Teams Scale (ATHCT)

We would like to know about your attitudes toward interdisciplinary health care teams and the team approach to care. Please tick the box that indicates your agreement to the statements found on the left of the table.

"IN MY OPINION":	Strongly Disagree 1	Moderatel y Disagree 2	Somewha t Disagree 3	Somewha t Agree 4	Moderatel y Agree 5	Strongl y Agree 6
1. Working in teams unnecessarily complicates things most of the time						
2. The team approach improves the						

quality of care to patients.						
3. Team meetings foster communication among team members from different disciplines						
4. Physicians have the right to alter patient care plans developed by the team.						
5. Patients receiving team care are more likely than other patients to be treated as whole persons						
6. A team's primary purpose is to assist physicians in achieving treatment goals for patients.						
7. Working on a team keeps most health professionals enthusiastic and interested in their jobs						
8. Patients are less satisfied with their care						

when a team provides it						
9. Developing a patient care plan with other team members avoids errors in delivering care						
10. When developing interdisciplinary patient care plans, much time is wasted translating jargon from other disciplines						
11. Health professionals working on teams are more responsive than others to the emotional and financial needs of patients						
12. Developing an interdisciplinary patient care plan is excessively time-consuming						
13. The physician should not always have the final word in decisions made						

by the health care team.						
14. The give and take among team members help them make better patient care decisions						
15. In most instances, the time required for team meetings could be better spent in other ways						
16. Hospital patients who receive team care are better prepared for discharge than other patients						
17. The team approach makes the delivery of care more efficient						
18. Physicians are natural team leaders.						
19. The team approach permits health professionals to meet the needs of family caregivers as well as patients						

20. Having to report observations to the team helps team members better understand the work of other health professionals						
---	--	--	--	--	--	--

B. Team Skills Scale (TSS)

Please rate your ability to carry out each of the following tasks by ticking the box:

	Poor	Fair	Good	Very Good	Excellent
21. Function effectively in an interdisciplinary team					
22. Treat team members as colleagues					
23. Identify contributions to patient care that different disciplines can offer					
24. Apply your knowledge of geriatric principles for the care of older persons in a team care setting					
25. Ensure that patient/family preferences/goals are considered when developing the team's care plan					
26. Handle disagreements effectively					

27. Strengthen cooperation among disciplines					
28. Carry out responsibilities specific to your discipline's role on a team					
29. Address clinical issues succinctly in interdisciplinary meetings					
30. Participate actively at team meetings					
31. Develop an interdisciplinary care plan					
32. Adjust your care to support the team goals					
33. Develop intervention strategies that help patients attain goals					
34. Raise appropriate issues at team meetings					
35. Recognize when the team is not functioning well					
36. Intervene effectively to improve team functioning					
37. Help draw out team members who are not participating actively in meetings					

¹ Heinemann, Schmitt, and Farrell (1994). Attitudes towards Interdisciplinary Teams, all rights reserved

² Hepburn, Tsukuda, and Fasser (1996), Team Skills Scale, all rights reserved

Part III. Perception of Pharmacists' Participation in Healthcare Setting

Please rate your level of agreement on the following statements.

	Always	Often	Sometimes	Rarely	Never
38. I go to the pharmacy whenever I have questions about medications					
39. I talk and interact with a pharmacist when I go to a pharmacy.					
40. I feel embarrassed to ask pharmacists a question related to my health.					
41. I think that pharmacists' attitudes must improve.					
42. I think the pharmacists give me enough information about the medication.					
43. I am satisfied with my interaction whenever I consult a pharmacist.					

	Strongly Agree	Agree	Disagree	Strongly Disagree
44. Pharmacists are essential in the healthcare team regarding chronic disease management.				

45. Pharmacists can help in health screening and patients' dietary and lifestyle modifications.				
46. Pharmacists need more training and experience in pharmacy services.				
47. Pharmacists are committed to dispensing medications with prescriptions.				
48. Pharmacists recommend drug therapy in collaboration with physicians.				
49. Pharmacists monitor adverse effects and drug interactions.				
50. Pharmacists recommend over-the-counter (OTC) medications for common ailments and medical problems.				
51. Pharmacists should perform their specific roles collaboratively with the interdisciplinary healthcare team.				
52. Pharmacists are responsible for identifying drug-related problems and providing				

interventions to physicians.				
53. Pharmacists are responsible for making drug dosage adjustments and monitoring pharmacotherapy outcomes.				
54. Pharmacists administer immunizations with proper training.				
55. Pharmacists conduct health-related research.				

³ Gebremariam, E, Taye, G., & Alemaheyu, D. (2020). Knowledge and Attitude of Health Professionals Towards Clinical Pharmacy Services in Selected Hospitals in West Shoa Zone, Ethiopia. All rights reserved

⁴ Wang, S., Wang, J., Huang Q., Zhang, Y., and Liu, J. (2018). Pharmacy and nursing students' attitudes toward nurse-pharmacist collaboration at a Chinese university. All rights reserved

⁵ Wolfe, M., Moeller, K., and Woods, B. (2018). Medical Students' Perceptions on the Role of Pharmacists. All rights reserved

56. What do you expect are the traits of a pharmacist?

1 = professional

2 = knowledgeable

3 = trustworthy

4 = ethical

5 = accessible

6 = personable

7 = empathetic

Others: _____

Appendix B

Informed Consent

Study Title: “*Perceptions on Interprofessional Collaboration and Pharmacists’ Participation in Healthcare Settings*”

This informed consent form is for the healthcare students at Manila Adventist College, whom we are inviting to participate in research entitled “*Perceptions on Interprofessional Collaboration and Pharmacists’ Participation in Healthcare Setting.*”

Name of Principal Investigator: Student Researchers from Manila Adventist College

Name of Organization: Manila Adventist College School of Allied Health

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the complete Informed Consent Form

Part I: Information Sheet

Introduction

We are researchers from Manila Adventist College. We are currently conducting a study on the perceptions on interprofessional collaboration and pharmacists’ participation in healthcare settings: attitudes and skills as part of our thesis at the Manila Adventist College. We are inviting you to be a part of our research. You do not have to decide today whether you will participate in this research. Before you choose, you can message or talk to anyone of us you feel comfortable with about the study.

This consent form or the survey instrument may contain some terms you may not understand. Please ask or message us if you have any further questions regarding our study; we have indicated our contact numbers and email accounts so you can reach us at any time.

Purpose of the research

The purpose of this research is to evaluate the perceptions of healthcare professionals of Adventist Medical Center Manila on interprofessional collaboration and pharmacists' participation in a healthcare setting in terms of attitudes, skills, expectations, and beliefs in preparation for curricular development on interprofessional collaborative practice. We wanted to know about your perception of pharmacists' participation and how you feel about interprofessional collaboration.

Type of Research Intervention

This research will involve your participation by answering our questions in our online questionnaire that will take about 15-20 minutes.

Participant Selection

You are invited to participate in this research because your perceptions of interprofessional collaboration and pharmacists' participation can contribute to our understanding and knowledge of this field.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Should you change your mind about your involvement within the course of our online survey, you may choose to stop your participation even if you agreed earlier.

Procedure

We are asking you to help us learn more about interprofessional collaboration. We are inviting you to take part in this research project. If you accept, you will be asked to participate in an online survey.

The information recorded on the online questionnaire is confidential. Your name is not being included on the forms. Only a number will identify you. No one else except us and your interviewer will access your survey.

Duration

The research takes place over six months in total. During that time, we will send you the online questionnaire only once. Each online questionnaire will take about 15-20 minutes.

Risks

There is a risk that you may share some personal or confidential information by chance or that you may feel uncomfortable answering about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or participate in the online survey if you feel the question(s) are too personal.

Benefits

There will be no direct benefit to you. However, your participation will help us understand healthcare professionals' perceptions of interprofessional collaboration and pharmacists' participation in healthcare settings.

Confidentiality

We will not be sharing any information about you with anyone outside of the research team. The information that we collect from this research project will be kept private. Only the researchers will know your responses, and we will lock that information up with a lock and key. It will not be shared with or given to anyone.

Sharing the Results

Nothing you tell us today will be shared with anybody outside the research team. Nothing will be attributed to you by name. We will share the knowledge we get from this research with you and your institution before making it widely available. Each participant will receive a summary of the results. We will be providing the chairpersons of each department with an overview of the findings relevant to their department.

Right to Refuse or Withdraw

You do not have to participate in this research if you do not wish to do so. You may stop participating in the survey anytime you want to. We will allow you to review your remarks at the end of the study. You can modify or remove portions of those if you disagree with the answers, you wrote initially.

Whom to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact us through any of the following numbers: 09284370446, 09368279766, or 09615750536

Email: phrmrsch.groupfour@gmail.com

Part II:

Certificate of Consent

I have read the preceding information, or it has been explained. I have had the opportunity to ask questions about it. Any questions I have been asked to have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

We have accurately explained the information sheet to the potential participant, and the best of my ability, making sure that the participant understands that the following will be done:

1. online survey with the participant about perceptions on interprofessional collaboration and pharmacists' participation
2. possible follow up clarification of responses
3. publication of results from this online survey

We confirm that the participant was allowed to ask questions about the study. All the questions asked by the participant have been answered correctly and to the best of my ability. We confirm that the individual has not been coerced into giving consent. The consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Print Name of Researcher/person taking the consent _____

Signature of Researcher /person taking the consent _____

Date _____

Day/month/year

Curriculum Vitae

Personal Information

Name: Janica Mariz G. Coliamar

Date of Birth: December 4, 1999

Civil Status: Single

Gender: Female

Nationality: Filipino

Current Address: Block 8 Lot 2, Zone 6, Barangay Fatima,
General Santos City, Region 12, Philippines



Educational Background

Tertiary Education: N/A

Secondary Education: Manila Adventist College Senior High School (2018)
Pasay City, Metro Manila

Primary Education: Pasay Adventist Church Elementary School (2012)
Pasay City, Metro Manila

Awards received

- **High Honors**
Manila Adventist College Senior High School
(2018)
- **Achiever's Award**
Manila Adventist College Senior High School
(2018)
Pasay Adventist Church Elementary School
(2012)

Membership/Office to Organizations

- **Chapter Representative**, Federation of Junior Chapters of the Philippine Pharmacists Association (2021 to present)

Participation in Trainings, Seminars, Conferences

- Manila Adventist College 6th Annual and 1st Virtual Multidisciplinary Research Conference
Theme: "Sustaining Research Quality Amidst and Beyond the Pandemic"
Zoom
September 27-28, 2021

Participation in Trainings, Seminars, Conferences

- Manila Adventist College
6th Annual and 1st Virtual Multidisciplinary Research Conference
Theme: “Sustaining Research Quality Amidst and Beyond the Pandemic”
Zoom September 27-28, 2021

Curriculum Vitae

Personal Information

Name: Doen David Philip G. Eleosida

Date of Birth: January 6, 2001

Civil Status: Single

Gender: Male

Nationality: Filipino

Current Address: 792 VL Hilario St. Poblacion Bustos,
Bulacan



Educational Background

Tertiary Education: N/A

Secondary Education: Saint Jean Baptiste Academy (2018)
F. Vergal de Dios St. Concepcion, Baliwag, Bulacan

Primary Education: Grace Christian Academy (2012)
702 Dr. Gonzales St. Sabang Baliwag, Bulacan

Awards received

- **High Honors**
Grace Christian Academy (2012)
- **Achiever's Award**
Grace Christian Academy (2012)

Membership/Office to Organizations

- **Active Member**, Federation of Junior Chapters of the Philippine Pharmacists Association (2021 to present)

Participation in Trainings, Seminars, Conferences

- Manila Adventist College 6th Annual and 1st Virtual Multidisciplinary Research Conference
Theme: "Sustaining Research Quality Amidst and Beyond the Pandemic"
Zoom
September 27-28, 2021

Curriculum Vitae

Personal Information

Name: Sunshine Mel M. Sagnoy

Date of Birth: April 7, 1999

Civil Status: Single

Gender: Female

Nationality: Filipino

Current Address: Block 3, Lot 37, Yemen St., San Marino
City Subdivision, Brgy. Salawag, Dasmariñas City, Cavite



Educational Background

Tertiary Education: N/A

Secondary Education: Manila Adventist College Senior High School (2018)
Pasay City, Metro Manila

Primary Education: Fatima Central Elementary School (2012)
Uhaw, General Santos City

Awards received

- **With Honors**
Manila Adventist College Senior High School (2018)
Pasay City, Metro Manila

Membership/Office to Organizations

- **Active Member**, Federation of Junior Chapters of the Philippine Pharmacists Association (2021 to present)

Participation in Trainings, Seminars, Conferences

- Manila Adventist College 6th Annual and 1st Virtual Multidisciplinary Research Conference
Theme: “Sustaining Research Quality Amidst and Beyond the Pandemic”
Zoom
September 27-28, 2021

Curriculum Vitae

Personal Information

Name: Vina Rose Dahilig-Talan
Date of Birth: December 2, 1982
Civil Status: Married
Gender: Female
Nationality: Filipino
Current Address: Paranaque City



Educational Background

Post-graduate Fellowship: Postgraduate Fellowship in Plant Medicine Research and Drug Formulations 2013
 Rangsit University
 Muang-Ake, Pathum Thani, Thailand

Post-graduate Education: Master of Science in Pharmacy (major in Hospital Pharmacy) 2015
 University of the Philippines Manila

Tertiary Education: Bachelor of Science in Industrial Pharmacy 2004
 University of the Philippines Manila

Secondary Education: St. Mary's Academy 1999
 Caloocan City, Metro Manila

Primary Education: St. Mary's Academy 1995
 Caloocan City, Metro Manila

Awards received

- Scholarship Award 2015 Good Pharmacy Practice Training Programme
 Sponsored by the Federation of Asian Pharmaceutical Association (FAPA) and
 Pharmaceutical Society of Taiwan
 July 2015

Membership/Office to Organizations

- Associate Member, Division IV Pharmaceutical Sciences
 National Research Council of the Philippines
- Member, Philippine Association of Colleges of Pharmacy
- Member, Philippine Pharmacists Association