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RESEARCH ARTICLE

Competency analysis of health workers: Interprofessional collaboration practices in a tertiary referral hospital in Surabaya

Hanum Firda Tsabitalya¹ , Fauna Herawati² , Halim Priyahau Jaya³, Rika Yulia² , Setiasih⁴ 

¹ Bachelor of Pharmacy Programme, Faculty of Pharmacy, University of Surabaya, Surabaya, Indonesia

² Department of Clinical and Community Pharmacy, Faculty of Pharmacy, University of Surabaya, Surabaya, Indonesia

³ Regional General Hospital, Dr. Soetomo, Surabaya, Indonesia

⁴ Developmental Psychology Laboratory, Faculty of Psychology, University of Surabaya, Surabaya, Indonesia

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Correspondence

Rika Yulia
Clinical and Community Pharmacy
Faculty of Pharmacy
University of Surabaya
Surabaya
Indonesia
rika_y@staff.ubaya.ac.id

Abstract

Background: There is a rising need for high-quality, efficient healthcare. Implementing interprofessional cooperation (IPC) between healthcare professionals is one of the initiatives that has raised the standard of treatment in hospitals. The disparity in competence amongst health professionals is one of several elements that affect the requirements for the successful implementation of cooperation. **Objective:** To examine the attitudes, abilities, teamwork, and positive roles implemented by health workers in interprofessional collaboration practices. **Method:** Cross-sectional research methodology was used in this observational study. The Chiba Interprofessional Competency Scale (CICS29) instrument, which has 29 verified items, was used to evaluate the proficiency of health workers. The value of five (always) until one (never) was used to distinguish between the various categories. **Result:** A very good Cronbach alpha score of 0.921 was used to verify the questionnaire. Exactly 109 health professionals, including 21 physicians, 34 pharmacists, 50 nurses, and four nutritionists, participated in the study as respondents. **Conclusion:** Based on the study's findings, it was determined that health professionals, including physicians, pharmacists, nurses, and nutritionists, possess a high level of competence or capacity regarding interprofessional collaboration in hospitals.

Introduction

The responsibilities placed on healthcare professionals today are becoming more complicated in delivering high-quality, efficient healthcare (Ulumiyah, 2018). Interprofessional practice collaboration (IPC) among healthcare professionals in hospitals is necessary to receive high-quality service (Kusumaningrum *et al.*, 2018). So, health workers must work in multidisciplinary teams and implement interprofessional collaboration throughout the chain to achieve optimal health service results and significantly reduce errors and costs (Sacre *et al.*, 2021). IPC, when it functions well, is one of the pillars of health services in the twenty-first century and

serves as a link to the administration of health services, which is becoming increasingly complicated and involves a variety of professionals (Carron *et al.*, 2021). When health professionals collaborate, they can accomplish more than work alone (Purnasiwi & Jenie, 2021). Some individuals are still opposed to successful collaboration, although doing so is not significant work (Rahmatiar & Sulistyarningsih, 2022).

IPC has the potential to revolutionise clinical practice across various healthcare domains. It is a collaborative process that involves professional caregivers or multi-professional health professionals operating as an interdisciplinary team with interprofessional collaboration to provide healthcare to patients (Sippli

et al., 2017). The World Health Organisation has recognised interprofessional collaboration as a critical strategy to enhance patient safety in healthcare since 2013. The benefits of collaboration in clinical practice among medical specialists are numerous, including reduced patient mortality risks, clinical error rates, length of stay (LOS), disputes and tensions between medical staff, and delays in care provision (Mukaromah *et al.*, 2018). Our study underscores these practical implications and highlights the significant potential for IPC to improve healthcare outcomes.

There are still no bridges nor a sense of a need for pharmacist-doctor collaboration in hospitals because of several factors that have been reported as barriers to IPC, including the feeling that giving recommendations could lead to mistakes, the fact that pharmacists still feel inferior to doctors, and the fact that competencies regarding pharmacist knowledge in more detail in the field of clinical pharmacy and pharmacotherapy are still insufficient (Wei *et al.*, 2022). Health professionals must embrace their competence to remove these barriers and ensure that IPC practices go smoothly (Bollen *et al.*, 2019). The intended competencies are the capacity to collaborate in teams and knowledge of the function of the profession of health workers. Knowledge, skills, and attitudes comprise interprofessional competence (Soemantari *et al.*, 2019).

Health workers must communicate well with patients or other health workers, so communication becomes one of the competencies in carrying out IPC (Wahyuni *et al.*, 2023). The pharmacist profession requires clinical pharmacy competence and must be brave in providing input or recommendations to doctors or clinicians in drug therapy based on evidence-based pharmacy (Al-Quteimat *et al.*, 2016). Clinical pharmacy competency, a profession required for pharmacists, requires courage when offering advice or suggestions to clinicians or doctors for drug therapy based on evidence-based pharmacy (Al-Quteimat *et al.*, 2016). Inter-professional collaboration is necessary to help clinician doctors give therapy and ensure they are mutually committed to working effectively to treat patients (Wei *et al.*, 2022).

A 2022 study by Soemantri and colleagues on 300 health professionals, including physicians, dentists, public health nurses, and pharmacists, demonstrated the implementation of IPC practice and showed that competence in IPC may be impacted. The four components of IPC implementation are relational (professional power, hierarchy, and socialisation processes), communicative (time and space for collaboration), organisational (systems and resources

for collaboration), and contextual (social culture, politics, and economics) issues.

Methods

Design

Convenience sampling was used since it is a non-probability sampling methodology. Inclusion standards for medical professionals working at the hospital, such as physicians, pharmacists, pharmacy technicians, and dietitians, were that they were willing to complete surveys. Physicians, pharmacists, and nutritionists on leave or ill throughout the data collection period were excluded from the study. Respondents were recruited by providing informed consent before filling out the questionnaire.

Instrument

With its Indonesian translation, the Chiba Interprofessional Competence Scale (CICS29) was used for this study. Twenty-nine statement items and six domains comprise CICS29, with a maximum possible total score of 145. CICS29 were from Japan and has previously undergone forward translation into the Indonesian language in the study by Soemantri and colleagues in 2022.

Data analysis

A Likert scale was used to determine the evaluation score for the CICS29 questionnaire, where each item had a possible response: always, frequently, not sure, nearly never, never, with score levels of five, four, three, two and one. Reactions to the competence questionnaire for health workers, to calculate the median score of respondents' responses and evaluate the differences in perceptions of health workers toward interprofessional collaboration practices, and interprofessional collaboration practices obtained from completing the Indonesian version of the CICS29 questionnaire were analysed using the SPSS (Statistical Program for Social Science) version 25 software. A non-parametric test called Kruskal-Wallis was conducted. In November 2022, this study was done at Dr. Soetomo Hospital in Surabaya, Indonesia. A post hoc analysis using Mann-Whitney determined the significant differences across occupations.

Ethical approval

The research and development ethics team at Dr Soetomo Hospital Surabaya granted ethical approval

for this study under the number 1144/LOE/301.4.2/XI/2022.

Results

In this study, 121 respondents (health workers in various hospital rooms) were physically administered questionnaires. Among the health professionals who responded to the questionnaire were twenty-one physicians, thirty-four pharmacists, fifty nurses, and four nutritionists (Table I). Surgery inpatient facilities, respiratory and pulmonology inpatient facilities, paediatric inpatient facilities, oncology, pharmacy inpatient facilities, and cardiac care facilities participated in this study. They utilised Google Forms to distribute surveys directly. After that, 109 surveys were completed, and only 12 weren't returned. Respondents from Dr. Soetomo Hospital, Surabaya, including physicians, pharmacists, nurses, and nutritionists, filled out the surveys.

To ascertain whether there were variations in competence between occupations, the respondent scores obtained in each domain were further examined using SPSS version 25. The CICS29 score included differences in the replies that might be affected by several variables, such as expertise and understanding in fostering interprofessional collaboration.

The data were not normally distributed according to the normality statistical test; hence, a non-parametric test using Kruskal-Wallis was conducted. The findings of the various tests on the CICS29 questionnaire's overall score revealed significant disparities across professions in each category, showing differences ($p < 0.05$) in interprofessional cooperation ability, as shown in Table II. According to Kruskal Wallis scores

for each profession across all domains, there were disparities in competence in each profession. The Mann-Whitney post hoc analysis revealed substantial variations in competency or ability among the doctors and the nurses in all categories ($p < 0.05$).

Table I: Demographic distribution

Demographic characteristics	Total (N=109)	Percentage (%)
Gender		
Man	31	28.44
Woman	78	71.55
Ages		
20 - 29	21	19.26
30 – 39	56	51.37
40 – 49	16	14.67
> 50 years old	16	14.67
Profession		
Doctor	21	19.66
[†] Pharmaceutical	34	31.19
Nurse	50	45.87
Nutritionist	4	3.67
Educational background		
Associate Degree		
Pharmaceutical	10	9.17
Nurse	18	16.51
Nutritionist	2	1.83
Bachelor degree		
Doctor	21	19.27
Pharmaceutical	12	11.00
Nurse	32	29.36
Nutritionist	2	1.83
Postgraduate		
[†] Pharmaceutical	11	10.09

[†]Pharmaceutical = Pharmacist and Pharmacy Assistant

Table II: Test results for each CICS29 domain by total score difference based on profession

Domain	Median Likert score (Kruskal Wallis)					p-value (Kruskal Wallis)
	Doctor	[†] Pharmaceutical	Nurse	Nutritionist	Total	
Attitude and convictions as a professional	4	5	5	4	5	0.001 [†]
Team management skills	5	4	5	4	5	0.000 [†]
Goal-achieving actions	4	5	5	4	5	0.001 [†]
Patient-centred services	4	5	5	4	5	0.001 [†]
Attitudes and behaviours that enhance team cohesion	4	5	5	4	5	0.001 [†]
Implementation of the professional role	4	5	5	4	5	0.002 [†]
Total	4	5	5	4	5	0.000[†]

[†] $p < 0.05$ There is a noticeable distinction [†]Pharmaceutical = Pharmacist and Pharmacy Assistant

Due to the data's non-normal distribution, healthcare professionals' competency was evaluated using the median value. Based on Table II, the outcomes were the median competence score for each domain on the Likert scale. A median score of four was attained in the medical field, indicating that the doctors were competent. A median score of five was achieved for the pharmaceutical industry (pharmacists and pharmacy technicians), suggesting they had a high level of competence. A median score of five in nursing indicates that the nurses were competent. The median value in the field of nutritionists was four, which denotes a high level of competency.

Discussion

The characteristics of respondents in occupations where women make up many healthcare professionals were evaluated. There were 78 respondents in this group, and 51.37% had bachelor's degrees. Nurses had the highest percentage of responders across all occupations, with 50 responses and an average tenure of more than 30 months.

Much research has been done on health professionals with more work experience and better attitudes toward procedures, including interprofessional collaboration (Yusra et al., 2019). Most of the respondents in this research worked as nurses. This is because Dr Soetomo Hospital employs many nurses, and on average, they have long work experience. This is in tandem with the beliefs expressed by Fagerström and colleagues in 2018 that a higher ratio is recommended if a higher number of healthcare workers is required, as this will likely improve patient outcomes.

The level of education, knowledge of collaboration, and comprehension of the roles of doctors or nurses can impact their attitude toward interprofessional collaboration (Munthe, 2019) regarding the relationship between attitudes and behaviour of collaboration and collaborative practice. The connection between attitudes and behaviours of collaboration and collaborative practice, the attitude of doctors and nurses toward interprofessional collaboration, can be influenced by three things: 1) their level of education, 2) their knowledge of collaboration, and 3) their understanding of the role of their profession. One of the elements of collaboration competency is knowledge.

Dennis and colleagues (2024) also explained that in the United States, professional degree programs in pharmacy and medicine apply interprofessional

practice education (IPE) because when providing health services, it is also essential to take a collaborative team approach in all professions. Implementing collaborative practices in a multidisciplinary educational environment can improve abilities to solve problems related to health services or collaborate in teams (Rabbani et al., 2021). Knowledge and understanding of collaboration will give physicians and nurses a perspective or overview that can affect their attitudes toward interprofessional cooperation (Salangeti et al., 2017).

The relationship between doctors and pharmacists in several areas, such as actions to achieve goals, services that value patients, and implementation of the role as a professional, shows that there are significant differences ($p < 0.05$) in the post hoc test, which can be concluded that both doctors and pharmacists have different competencies or abilities in this area. This was also clarified in the study by Viani and colleagues in 2021 on the coordination process, which also frequently happens between physicians and pharmacists. Still, when noticed, pharmacists help doctors deliver health services such as those connected to usage and knowledge about pharmaceuticals.

A survey by Khan and colleagues in 2020 on 483 respondents in hospitals in Pakistan revealed that 86.7% of doctors still trusted pharmacists to administer medications to patients safely and accurately, and 86.1% of doctors required the pharmacist's role in making drug recommendations to other doctors. In a post hoc test, the association between nurses and pharmacists in attitudes and beliefs as professionals, team management skills, attitudes, and behaviours that foster team cohesion revealed substantial variations in competence or ability ($p < 0.05$) between the two professions. Viani and colleagues, in 2021, found that when leadership was present, nurses might have felt as though they still had some right in connection with drug access or use. This may prevent them from reaching their objectives for patient care.

When collaborating, health workers' competencies or skills have an overall Likert scale score of five (5), which signifies good across all categories. Through self-ratings that demonstrate well with a value of five from one to five, the nursing and pharmaceutical professions evaluate their competency or capacity to perform interprofessional collaboration. Doctors and nutritionists evaluate their competencies or skills regarding inter-professional collaboration practices, and they do well, scoring four out of five possible points. This suggests that health workers displaying their attitudes can foster positive working connections in their respective fields of expertise (Ansa et al., 2020). Personal attitude is also a part of competence, which

means attitude is one of the most essential components of teamwork (Morley *et al.*, 2017).

According to Croft and colleagues in 2019, to become a pharmacist, one must be competent in providing health services to patients to achieve optimal results and can also collaborate in collaborative practices with other health workers. For instance, pharmacists must be active healthcare team members, so they require skills and attitudes that allow them to carry out various tasks (Thamby *et al.*, 2014). Competence, or the capacity to work together, such as the information, abilities, and attitudes each person possesses, will lead to fruitful outcomes in collaborative practice (Janssen *et al.*, 2020).

There is a shortage of research on the capacity for collaboration among health professionals. However, a study by MacNaughton *et al.* (2013) shows that competence can motivate healthcare professionals to engage in interprofessional collaborative activities. This led to the hypothesis that health professionals would join a collaborative team if they knew their duties in offering healthcare to the community.

Limitations

There are research limitations due to the limited characteristics of the respondents. Despite these limitations, we believe that this research contributes to understanding the competence of health workers in interprofessional collaboration in the context of providing health services. Further research is needed to provide more locations and various influencing factors in collaborative practice and examine the relationship between interprofessional collaboration competencies in health services.

Conclusion

The study's findings led to the conclusion that physicians, pharmacists, nurses, and nutritionists have a high level of competency or capability when it comes to the practice of interprofessional collaboration in hospitals.

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Conflict of Interest

The author certifies that no substantial conflicting financial, professional, or personal interests might affect how the work described in this paper is performed or presented.

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