

FACTORS INFLUENCING PHARMACIST KNOWLEDGE, ATTITUDE OF COMMUNICATION AND PERCEPTIONS OF COLLABORATION WITH HEALTH PROFESSIONAL IN THE IMPLEMENTATION OF MONITORING IN INPATIENTS

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Received: 15 Mar 2025, Revised and Accepted: 15 May 2025

ABSTRACT

Objective: In health services, interprofessional collaboration is needed because no single profession can meet patient needs. Good quality health services depend on professionals working together in interprofessional teams. This research aims to determine the factors that influence pharmacists' communication with other health professional as well as pharmacists' perceptions of collaboration.

Method: This research uses a quantitative, non-experimental research design with a cross-sectional approach. The research subjects were pharmacists who worked in hospitals and do a collaboration with health professionals. The instrument is a questionnaire, consisting of three parts: respondent demographics, measuring pharmacists' knowledge and attitudes about communication, Collaborative Practice Assessment Tool (CPAT) perception questionnaire. Knowledge items were tested for validity using the content validity method using expert judgment. Attitude items were tested for content validity using the Pearson Product Moment correlation coefficient, followed by Cronbach's Alpha reliability test. CPAT questionnaire scores were calculated using a 5-point likert scale and analyzed descriptively. Data were analyzed with chi-square and continued with multiple regression analysis tests for variables that met the requirements.

Result: The results found that 94.59% of respondents had knowledge in the good category, 5.41% in the sufficient category. Meanwhile, 51.35% of respondents had a positive attitude towards collaborative practices and 48.65% had a negative attitude. The results of measuring perceptions found that respondents had a positive perception of interprofessional collaboration practices, with the best perception in the domain of general relationship and the worst perception in the domain of decision making and conflict management.

Conclusion: From this research we can conclude that the factors that influence knowledge and attitudes are gender, age, and level of education. This study may be underpowered to detect effects of gender, age, education level, salary and work experience towards perception.

Keywords: Attitudes, Communication, Knowledge, Perceptions, Pharmacist

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INTRODUCTION

Interprofessional collaboration is cooperation between health professionals from different professional backgrounds with patients and their families to provide the best quality of care [1]. To be able to collaborate well requires communication skills and a positive attitude from each health professional. The findings of research indicate that interprofessional collaboration has not been fully implemented and is currently being implemented under the assumption that doctors assume leadership roles while pharmacists, nurses, and midwives serve as implementers [2]. However, there is still a lack of effective communication among healthcare professionals. A major hindrance to the implementation of collaboration among health professionals is the absence of effective communication across different professions, including physicians, nurses, and pharmacists. This deficiency in communication often results in errors while distributing medications to patients. The findings from the previous research, elucidating the significance of communication as a pivotal element in professional collaboration. In the absence of effective communication, the quality of patient treatment will be substandard and reliant only on subjective interpretation [3]. Another study in a hospital in East Java Province, Indonesia, revealed that there were no notable variations in the attitudes of the respondents in this particular group [4]. The effects of incorporating interprofessional cooperation on patient safety, patient satisfaction, and the quality of hospital services. Pharmacists

as part of the healthcare team are required to expand their role in the healthcare community such as in care of patients with chronic diseases [3, 5].

A previous study, it states that, the perception of pharmacists can also be built from their own self-confidence [6]. When pharmacists can master technology, computers, and therapy itself, they will be more receptive when they have to collaborate with other health workers in patient care. Meanwhile, the role of pharmacists in the collaboration needed is in the management of beyond use date. This is urgent to be communicated with nurses, so good interpersonal communication skills are needed [7].

Pharmacists should focus on building closer relationships with patients and increasing professionalism to provide appropriate recommendations. In order for interpersonal communication to produce effective interpersonal relationships and increased cooperation, pharmacists need to be open, trusting, supportive attitudes that encourage mutual understanding, respect, and mutual quality development [8]. For this reason, a positive perception is needed from pharmacists in collaborating with other health professionals. This study aims to determine the factors that influence pharmacists' communication with other personnel and pharmacists' perceptions in collaborating with other health professionals.

MATERIALS AND METHODS

This study uses a quantitative research design that is non-experimental and uses a cross-sectional approach. The sample of this study is pharmacists who have worked at the Regional General Hospital in Solo who meets the inclusion criteria. The sampling technique of this study is total sampling with the following criteria is the pharmacist willingness to fill out the questionnaire. Which the exclusions are pharmacist who has worked for less than 1 y and is leaving from work.

Variable

The independent variables are the demographic characteristics of pharmacists including: gender, age, marital status, education, age, work experience, and salary. While the dependent variables are the level of knowledge regarding communication between health professionals and pharmacists' attitudes in solving patient problems related to other health professionals and pharmacists' perceptions of interprofessional collaboration.

Study subjects

The research subjects were pharmacists who work in hospitals, collaborate with other health professionals and are willing to be respondents.

Research instruments

The instrument used in this study was a questionnaire consists of 3 parts:

1. Demographic data: age, gender, education level, work experience and salary.
2. Measurement of pharmacists' level of knowledge and attitudes about communication.
3. Measurement of respondents' perceptions with the Collaborative Practice Assessment Tool (CPAT) questionnaire which consists of 5 domains.

Validity

Knowledge question items were tested for validity using the content validity method using expert judgement. While the attitude question items were tested for validity with content validity using the Pearson Product Moment correlation coefficient, and continued the reliability test with Cronbach's Alpha.

Data analysis

The data from this study were analyzed using SPSS version 20. The level of knowledge of respondents was categorised into three categories based on their scores: good (76%-100%), fair (56-75) and poor (<55%). Attitude categorisation refers to which states that an individual's attitude is said to be positive if the total score value is \geq average, and has a negative attitude if the total score value is <average [7].

RESULTS AND DISCUSSION

Based on table 1, seen that there were more female respondents (86.5%) than male (13.5%). Based on data from the Ministry of Health (2021), the majority of pharmacists in Indonesian were female. The age of the respondents is mostly at 31 – 40 y old (43.2%), all respondents are included in productive age (27-52 y old). This prove that person can carry out his duties optimally, so in this case pharmacists at a productive age can still carry out their role in accordance with applicable legislation [9, 1]. Then, the majority of education levels are undergraduate and pharmacists (83.8%) compared to postgraduate and pharmacists (16.2%). Furthermore, the dominant work experience of respondents is >10 y (62.2%). According to previous study, the longer a person works, the more experience and the higher the knowledge and skills [10]. Someone who has worked longer can make a wiser decision than someone who has just worked. Furthermore, the amount of salary that dominates is Rp. 3,500,000-Rp.5,000,000 (59.5%). There were 37 respondents who participated in this study with demographic characteristics listed in table 1.

The variables of gender and education level positively affect the knowledge variable. Meanwhile, the age variable negatively affects the knowledge variable. Gender has a positive effect on knowledge, where if the pharmacist is female, the value of knowledge will be higher. The older age of pharmacists will result in lower knowledge scores in communicating with other health professionals. A higher level of pharmacist education will also increase the value of knowledge, where the education level of postgraduate-pharmacists will have a greater attitude value than pharmacists with undergraduate.

Demographic data variables that directly affect pharmacists' knowledge include gender, age, and education level. Gender and age are variables that cannot be modified or changed. Meanwhile, the level of education can be modified, for example by further study to a higher level. The education level of respondents is dominated by undergraduate and Pharmacist. The theory conveyed by Everett M. Rogers states that the higher one's education can increase one's ability to build social relationships through communication [11]. From the results of the test of the effect of education level on pharmacist knowledge in communication between health professionals, significant results were obtained. According to previous study, education is a process in increasing knowledge, so the relationship between knowledge and education is directly proportional, with the increase in a person's level of education, the better his knowledge [12]. In this study, it was found that the variables of work experience and salary did not affect knowledge. Work experience is a factor that can affect a person's knowledge, because work experience is related to a person's interaction with the environment [13]. The longer the work experience will increase a person's knowledge. The work experience can be related to a person's sense of saturation in the work he does. Work experience is significantly related to the practice of interprofessional collaboration [14]. Work experience makes a person form a person have broad insight and form a more effective mindset in solving obstacles that occur in work according to experience while working [15]. However, based on the results of work experience is not significantly related to interprofessional communication [16].

Table 1: Distribution of respondents' demographic data

Demographic data	Number	Percentage (%) (n=37)
Gender		
Man	5	13.5
Woman	32	86.5
Age (year)		
21-30	7	18.9
31-40	16	43.2
>40	14	37.8
Level education		
Undergraduate and Pharmacist	31	83.8
Postgraduate and Pharmacist	6	16.2
Doctoral and Pharmacist	0	0
Work experience (years)		
<5	10	27.0
5-10	4	10.8
>10	23	62.2
Salary (IDR)		
3.500.000-Rp.5.000.000	22	59.5
>5.000.000	15	40.5

From this study it was found that attitudes towards communication were influenced by age, gender and education level. According to previous study, gender has a relationship with the therapeutic communication attitude of a nurse this is because men tend to be assertive, and unfriendly, but women have a caring, sensitive, and friendly character towards the feelings of others [17]. In the world of work, women tend to be good listeners and will capture the focus of the discussion while men are more able to lead the discussion [2]. The differences between men and women can complement each other in collaboration between health professionals. The age factor of older pharmacists will result in higher attitude values in communicating with other health professionals. A higher level of pharmacist education will also increase the attitude value, where the education level of postgraduate pharmacists will have a greater attitude value than pharmacists with under graduate education. Gender and age are variables that cannot be modified or changed. While the level of education can be modified by conducting training related to communication with other health professionals. For example,

training on Interprofessional Collaboration Practice (IPC), to improve collaboration as well as communication between health professionals.

Interprofessional Collaboration Practice (IPC) training has been conducted in Japan in the post-earthquake and tsunami disaster on collaboration between health professionals is considered quite effective with a success rate of 78%. The success of this training can improve communication as well as collaboration between health professionals [18]. As age increases, it is not uncommon for someone to stop increasing their knowledge and skills. They tend to stick with the experience gained so far. Meanwhile, as someone gets older, they can become wiser. Of course, this also has an impact on their behavior and how they make decisions [21, 22].

Respondents' knowledge level of communication

From the results of the study found the level of knowledge of respondents listed in table 2.

Table 2: Respondents' knowledge categories

Knowledge level (score)	Number	Percentage (%) (n=37)
Good (76%-100%)	35	94.59%
Medium (56%-75%)	2	5.41%
Less (<55%)	0	0

The majority of respondents (94.59%) had a good level of communication knowledge. The relationship between a person's knowledge and level of education is very close, but it does not mean that someone with lower education absolutely has low knowledge as well. Because a person's level of knowledge is not only obtained through formal education but can also be from non-formal education. According to [2] seminars, training can make nurses gain specialised knowledge in communicating with patients and colleagues. So that the level of formal education is not the only determining factor in a person's level of knowledge. Respondents' best perception of collaboration was the domain of general relationships between members. This shows the formation of a relationship of mutual need between health professions. Meanwhile, the worst perception was in the domain of decision-making and conflict management. A study by [9] showed that pharmacists' assessment of their role was still limited to responding to doctors'

requests for drug information and supporting doctors in health services, but were not actively involved in decision-making related to patients. This suggests that there is a lack of confidence in pharmacists to take a more active role in patient care. A study about drug ordering system for example, claimed that collaboration of nurses and pharmacists was built from good communication and that's lead to not only improving patients safety such as through patients adherence but also cost savings in hospitals [24, 25].

Respondents' attitudes towards communication with other health professionals

From the attitude measurement, the average score is 63.41±7.74. So that it is declared a positive attitude if the score is ≥ 63.41 and a negative attitude if <63.41 . The results of measurements on respondents are listed in table 3.

Table 3: Respondents' attitude categories

Attitude	Number	Percentage (%) (n=37)
Positive (\geq mean)	19	51.35
Negative ($<$ mean)	18	48.65

Perceptions of respondents in collaboration with health professionals

The results of measuring respondents' perceptions of collaboration with other health professionals obtained a maximum score of 150

while the scores for each domain are listed in table 4. The average total score of the CPAT questionnaire was 121.76 out of a maximum score of 150 (81.17%). The maximum score is obtained from the number of statements multiplied by the highest score value, namely $30 \times 5 = 150$.

Table 4: CPAT score test results

Variable	Maximum score	Mean (Percentage against maximum score)
Total	150	121.76 (81.17%)
Domain		
General Relationships	40	34.46 (86.15%)
Team leadership	20	16.08 (80.4%)
General Role Responsibilities, Autonomy	35	27.59 (78.83%)
Communication and information exchange	30	24.59 (81.97%)
Decision-making and conflict management	25	19.03 (76.12%)

This indicates that respondents have a positive perception of the practice of interprofessional collaboration. From table 4, it was

found that the decision-making and conflict management domains had the lowest percentage than other domains, namely (76.12%).

While the domain of general relationships gets the best perception (86.15%). Pharmacists' perceptions of collaboration were found not to be influenced by demographic factors of age, gender, education level, work experience and salary amount. The differences between gender, age and work experience, there were no significant differences between the perceptions of these respondents. However, age and length of work experience experience more obstacles in the collaboration team, where the more mature a person is and the longer work experience has fewer obstacles in undergoing interprofessional collaboration practices [4]. One of the barriers to collaboration is the lack of communication between health professionals. The results of several studies [19] showed the influence of age and length of work on interprofessional collaboration. Respondents with a higher age or longer length of work have a positive attitude towards collaboration and more direct interaction with other professions. However, there are also studies that show no effect of age and length of work on interprofessional collaboration.

Correlations between respondents' demographic factors and knowledge and communication attitudes and perceptions of collaboration with other health professionals

From the results of the correlation test between demographic factors and respondents' knowledge, the variables of gender, age and education level have a p -value<0.05. This means that these three variables have a significant effect on the level of knowledge of pharmacists in communication with other health professionals. While the results of the correlation test between demographic factors and the attitude of respondents obtained the variables of gender, age, work experience and level of education have a p -value<0.05. This indicates that the four variables have a significant effect on pharmacists' attitudes in communication with other health professionals. The perception of pharmacists in collaborating with other health professionals is influenced by the factors of age, work experience and education level because it has a p -value<0.05.

Table 5: Analysis of the correlations between respondent demographics on knowledge and communication attitudes and perceptions of collaboration with other health professionals

Demographic data	Correlation between demographics Vs knowledge	Correlation between demographics Vs attitude	Correlation between demographics Vs perception
	<i>p-value</i>	<i>p-value</i>	<i>p-value</i>
Gender	0.014	0.002	0.121
Age	0.028	0.000	0.000
Work experience	0.430	0.009	0.046
Level education	0.000	0.000	0.006
Salary	0.930	0.186	0.616

Table 6: Result of multiple linear regression test

Dependent variable	Independent variable	Significance
Knowledge*	Gender	0.001
	Age	0.000
	Level education	0.000
Attitude*	Gender	0.000
	age	0.003
	Work experience	0.250
	Level education	0.012
Perception*	age	0.085
	Work experience	0.734
	Level education	0.218

Note: Y= Knowledge variable or attitude variable or perception variable; a= Constanta; b= Regression Coefficient; X1= Gender; X2= Age; X3= work experience; X4= Level education; X5= Salary

Linear regression equation

$$Y = 12.847 + 0.392 X_1 - 0.406 X_2 + 0.772 X_4$$

$$Y = 29.603 + 10.384 X_1 + 6.212 X_2 - 1.782 X_3 + 6.181 X_4 - 1.498 X_5$$

$$Y = 89.994 + 6.959 X_1 + 6.592 X_2 - 1.028 X_3 + 5.825 X_4$$

Knowledge- Based on the Multiple Regression test, of the three variables (age, gender and education level) included in the regression, all have a significant effect on the knowledge variable. This is indicated by the significance value<0.05.

Attitude- Based on the Multiple Regression test, of the five variables (age, gender, salary, work experience and education level) included in the regression, only the variables of gender, age and education level have a positive effect on the attitude variable. This is indicated by the significance value<0.05.

Perception- Of the four independent variables included in the regression, namely gender, age, work experience and level of education, all variables do not have a significant effect on the perception variable because the significance value is>0.05.

This research is in line with research that there is no relationship between age and work experience with perception [20]. Healthworkers wanted to know truly what other people want in their own integrity, then we must enter that person's world by getting to know them. Knowing each other will form perceptions and responses between one another. So that the longer you know someone in collaboration, the perception will be different from those who have just known someone. The educational background of each health professional will affect a person's behaviour in carrying out their roles and responsibilities when carrying out collaborative actions [3]. However, this study is also not in line with the previous study states that interprofessional collaboration can run well if from the beginning during the education of health professionals has implemented Interprofessional Education (IPE). The results of this study explain that Interprofessional Education (IPE) can improve good cooperation in collaboration [14]. Globally, this interprofessional collaboration in health is indeed faced with many challenges. Logistical constraints and interpersonal challenges—such as hierarchical power imbalances and communication difficulties—were identified as significant barriers to the attainment of personal professional development and the enhancement of interprofessional collaborative competencies through IPE. Moreover, some participants reported experiencing a sense of

overload due to the increased demands associated with IPE-related tasks. So, in order to survive, be sustainable, and produce real benefits, IPE must be evaluated periodically. Combining experienced and willing-to-learn people on a team is very beneficial compared to recruiting as many new members as possible [23].

CONCLUSION

From the results of the research it was found that respondents had knowledge about communication in the good category as much as 94.59%, in the sufficient category (5.41%). In the attitude towards collaboration practices, 51.35% of respondents had a positive attitude and 48.65% had a negative attitude. The factors that influence respondents' knowledge are gender, age and education level. Respondents' attitudes towards collaboration were influenced by factors of gender, age, and education level. From the results of measuring perceptions with the CPAT questionnaire, it was found that respondents had a positive perception of the practice of interprofessional collaboration, with the best perception in the domain of general relationships and the worst perception in the domain of decision making and conflict management. It was found that age, education level, salary, gender and work experience are difficult to influence perception.

ACKNOWLEDGEMENT

The authors would like to acknowledge the financial support provided by tridarma integration grant scheme from Universitas Muhammadiyah Surakarta.

AUTHORS CONTRIBUTIONS

The first and second author are conceived of the presented idea. They developed the theory and performed the computations. The rest of authors verified the analytical methods. All authors discussed the results and contributed to the final manuscript.

CONFLICT OF INTERESTS

The authors declare no conflicts of interest regarding this manuscript.

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