

General Practitioners' Perceptions of Collaboration with Pharmacists in Primary Care Settings: A Study Driven by Social Capital Theory and Theory of Planned Behavior

Gabby Lovarya¹, Yosi Irawati Wibowo^{2,3*}, Adji Prayitno Setiadi³

¹Faculty of Pharmacy, Universitas Surabaya, Jl. Raya Kalirungkut, Surabaya 60293, Indonesia

²Drug Information and Pharmaceutical Care Center (PIOLK)

³Department of Clinical and Community Pharmacy, Faculty of Pharmacy, Universitas Surabaya, Jl. Raya Kalirungkut, Surabaya 60293, Indonesia

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Correspondence:

Yosi Irawati Wibowo

yosi_wibowo@staff.ubaya.ac.id



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Abstract

Background: Pharmacists are expected to take up broader clinical roles and collaborate with general practitioners (GPs); however, data on the perception of GPs' in the primary care settings is lacking.

Objective: This study aimed to explore GPs' perceptions driven by Theory Planned Behavior (TPB) and Social Capital Theory (SCT) towards collaboration with pharmacists in primary care settings.

Methods: Interviews using questionnaires (with a combination of open- and closed-ended questions) were conducted with GPs at all *Puskesmas* in East Surabaya (n=14). Descriptive analysis was used to summarize data from closed-ended questions, and thematic analysis was used for open-ended questions.

Results: A total of 28 GPs of 14 *Puskesmas* were included (i.e., 2 GPs per *Puskesmas*). The mean scores of each dimension for intrapersonal perceptions (based on TPB): 1) attitude (2.6 – positive); 2) subjective norms (3.3 – positive); 3) difficulty (2.75 – low). While the mean scores for interpersonal perceptions (based on SCT) are 1) level of trust (5.7 – high) and 2) level of social capital (6.0 – high). There were five themes for basic trusts: i) daily performance, ii) pharmacy skills and knowledge, iii) work experience, iv) performance track records, and v) ability to communicate and collaborate with GPs. This study highlighted while GPs generally have positive perceptions, some items warrant consideration, such as negative experiences with pharmacists (39.3%), lack of support from management (92.9%), and perceived difficulty practicing collaboration due to workload, cost, and facilities. Additionally, 42.9% of GPs reported that they cannot fully trust delegating work to pharmacists.

Conclusions: Findings from this study should provide guidance to develop strategies to optimize collaborative practice with GPs, thus facilitating the expanded clinical roles of pharmacists in primary care settings.

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INTRODUCTION

The pharmacy profession is often viewed as a health profession related to drug supply, including the preparation/dispensing of prescription drugs and the sale of non-prescription drugs.¹ However, in the last two decades, the role of pharmacists has undergone a significant evolution towards clinical pharmacy, which is a patient-oriented service.¹⁻⁴ Clinical pharmacy practice adheres to the philosophy of pharmaceutical service practice characterized by direct collaboration between pharmacists and other health professionals, especially physicians, to optimize patient therapy through the identification, management, and prevention of drug-related problems.² A review conducted by McCutcheon et al., showed that collaborative practices between pharmacists and physicians, including in delivering clinical pharmacy services, have been reported to improve patient treatment outcomes, both clinical (n = 27 studies) and humanistic outcomes (n = 15 studies).⁵

Despite the positive outcomes, pharmacist-physician collaboration practices remain a global challenge (Albassam et al., 2020),² including in Indonesia. Community Health Centers (*Puskesmas*), as the main primary health facilities in Indonesia, are at the forefront of providing health services to the Indonesians.⁶ Particularly, since the implementation of the National Health Insurance (JKN) by the Social Security Administering Agency (BPJS) for Health in 2014,⁶ the implementation of a tiered referral system has indirectly strengthened the position of *Puskesmas* as a leading health facility and a gatekeeper for secondary and tertiary health facilities. The Standards of Pharmacy Practices at

Puskesmas (Minister of Health Regulation Number 26 of 2020) has included clinical pharmacy services,⁷ where a collaboration between doctors and pharmacists is crucial for successful implementation.

Interprofessional collaboration between physicians and pharmacists is multidimensional, which involves individual, organizational, and environmental/external levels. At the individual level, physicians - as leaders of healthcare professional teams - have played a crucial role for a successful collaborative practices.⁸ Previous international studies have reported factors contributing at the individual (physician) level, such as limited knowledge of pharmacists' clinical skills and competencies, uncertainty regarding pharmacists' training and clinical judgment, lack of communication, and lack of pharmacist professionalism (e.g., commercial pressures on pharmacists that lead to bias).^{2, 4} The extension of pharmacists' clinical roles has also given physicians the impression that pharmacists are attempting to encroach on the role of physicians, thus discouraging collaborative practices.^{4, 9} Therefore, understanding physicians' perceptions that underlie their behavior in carrying out collaborative practices is essential.

Prior Indonesian research on the perceptions of general practitioners (GPs)' collaborative practices with pharmacists in primary care settings is still limited, and often focuses on the collaboration model for specific services, for example for diabetes patients.¹⁰ This study aimed to explore general practitioners' perceptions of collaboration with pharmacists based on the Theory of Planned Behavior (TPB) and Social Capital Theory (SCT) in *Puskesmas* in East Surabaya. The TPB approach is expected to explain the intrapersonal aspects (i.e., attitude, subjective norm, and behavioral control) of GPs that contribute to the development of collaborative behavior,¹¹ while the Social capital theory (SCT) approach is expected to explain the interpersonal aspects that contribute to the development of social interactions in collaborative practices (i.e., trust and social capital).¹² A thorough understanding on the perceptions of GPs, from both interpersonal and intrapersonal aspects, would provide a basis in developing strategies to improve GPs' participation in collaborative practices for optimal patient treatment in Indonesia.

METHODS

Research design and setting

This is a cross-sectional study using a questionnaire (consisted of a combination of closed-ended and open-ended questions) to obtain quantitative and qualitative data. This study was conducted at all *Puskesmas* in East Surabaya (n=14). Surabaya, the capital of East Java Province, consists of five regions (i.e., West Surabaya, East Surabaya, Central Surabaya, South Surabaya, and North Surabaya) and the most populous region in East Java Province with a total population of 2,893,698 people.¹³ East Surabaya is an area in Surabaya with significant residential development; data from 2014-2017 has indicated the area has the highest population compared to other regions.¹⁴ This study has obtained ethical approval from the University of Surabaya Ethics Committee (No. 52/KE/I/2023) and permission from the Surabaya City Health Office (No. 500.16.7.4/3663/S/RPM/436.7.15/2023).

Population and sample recruitment

The study population comprised all GPs practicing across 14 *Puskesmas* in East Surabaya. A list of GPs practicing at each *Puskesmas* was not available; however, based on the information from the Head of Surabaya Health Office, each *Puskesmas* had 2-4 GPs. This study involved 2 GP representatives from each *Puskesmas* since the minimum number of GPs per *Puskesmas* was 2. The 2 GP representatives were purposefully selected by the Head of *Puskesmas* based on the inclusion criteria: GPs who had at least 1 year of work experience, active status, and experience working with pharmacists. The estimated minimum sample for this study was 28 GPs from 14 *Puskesmas* (i.e., 2 GPs per *Puskesmas*).

Questionnaire development

This study used a questionnaire developed from previous research.^{1, 3, 4, 8, 9, 11, 15-26} The developed questionnaire consisted of three sections:

1. Characteristics of participants
2. Perceptions based on the Theory of Planned Behavior (TPB) (intrapersonal aspects)

This section obtained information regarding GPs' interpersonal perceptions of collaborating with pharmacists. Questions in this section were developed from various literature based on the TPB constructs, including:

- A. Attitudes Toward Collaboration with Pharmacists

Consisted of 3 closed-ended questions aimed at assessing GPs' positive or negative attitudes toward collaboration.

B. Subjective Norms Toward Collaboration with Pharmacists

Consisted of 5 closed-ended questions exploring subjective norms that influence the level of social pressure facing by GPs that might increase or decrease their intention to collaborate.

C. Behavioral Control (Perceived Barriers) to Collaboration with Pharmacists

Consisted of 19 closed-ended questions examining the barriers doctors perceive to collaboration with pharmacists. Perceived barriers have contributed to a person's level of confidence in their behavior (behavioral control).

Responses included "agree" (score 1) and "disagree" (score 0); for negative questions, a score of 1 was given for "disagree" and a score of 0 for "agree." For the perceived barrier construct, responses of "agree" (score 1) and "disagree" (score 0). The total score for each dimension was calculated and categorized as positive and negative (Table 1).

Table 1. Perception scores of intrapersonal aspects (based on TPB)

Construct	Score category	
	Negative	Positive
A. Attitude	0-<2	2-3
B. Subjective norm	0-<3	3-5
C. Perceived barrier	0-<10 (low)	10-19 (high)

3. Perceptions based on Social Capital Theory (SCT) (interpersonal aspects)

This section explored GPs' interpersonal perceptions of collaboration. Questions in this section were developed from various literature based on the SCT constructs, including: ^{3, 8, 9, 11, 15, 19, 21-28}

A. Trust in pharmacists

This section consists of seven questions with agree/disagree responses to explore level of trust in pharmacists; 'agree' responses were scored 1, and 'disagree' responses were scored 0. The total score is calculated and categorized into three levels, i.e., low, moderate, and high (**Table 2**). Additionally, there was one open-ended question to explore the basis of trust.

B. Level of social capital for collaboration with pharmacists

Social capital represented resources that was required by GPs to collaborate with pharmacists. This section consisted of six questions related to the constructs of social capital, including: mutual understanding, environmental connectedness, trust, feelings of teamwork, mutual assistance, and shared values. Responses were based on agree/disagree; agree answers were scored 1, and disagree answers were scored 0. The total score was calculated and categorized as low, medium, and high (**Table 2**).

Table 2. Perceptions of GPs based on SCT (interpersonal aspects)

Construct	Score category		
	Low	Moderate	High
A. Level of trust	0-<3	3-<5	5-7
B. Level of social capital	0-<2	2-<4	4-6

Most of the questions in the developed questionnaire were closed-ended questions with binary formats as GPs had limited time for one-on-one interviews to complete the questionnaire (approximately 30 minutes); literature suggested that binary formats were easier to understand and involved less time and costs.²⁹ The validity of the questionnaire was tested in two stages: 1) content validity was conducted through discussions with three academics with pharmacy and medicine backgrounds to evaluate whether the questionnaire covered all the constructs intended to be measured; 2) face validity was conducted with two GPs at the Clinic X, a primary health facility, in Surabaya to evaluate the suitability of the questions to the constructs being measured, as well as the design, readability, and comprehension of the questionnaire. After data collection, it was shown that correlation between item scores and the total score was all significant ($p < 0.05$); thus, it can be said that each item has been included in the appropriate dimension. Furthermore, the reliability test using Cronbach's alpha reported values of 0.66 and 0.74 which can be considered as reliable.³⁰

Data collection

Data collection was conducted in November-December 2023. After approval from the *Puskesmas* were granted, the primary researcher contacted the *Puskesmas* administrative officer to arrange meeting with GPs selected as samples to explain about the study and schedule a one-on-one meeting at a time and place of the participant's convenience. During the one-on-one meetings, the researcher first explained the purpose of the study, and the informed consents were obtained from GPs who agreed to participate. Structured interviews using the developed questionnaire were then conducted; responses to closed-ended questions were marked, while responses to the open-ended question were audio-recorded. The interviews lasted approximately 30 minutes.

Data analysis

Quantitative data from the closed-ended questions in the questionnaire were analyzed descriptively by calculating the frequency and percentage for each participant's response. For each dimension of the TPB and SCT, a total score was calculated per participant; this was followed by calculating the mean ± standard deviation (SD), along with the median and minimum and maximum ranges for all participants. Qualitative data from the open-ended question regarding the basis of trust were analyzed using thematic analysis, which included the following steps: transcribing participant responses and familiarizing themselves with the data, coding, and then determining themes.³¹ The coding was conducted by the primary researcher; the codes and themes were discussed with the other members of research team to reach a consensus. The themes were presented to the participating GPs as a mean of member-checking to ensure trustworthiness.³¹

RESULT AND DISCUSSION

This is a descriptive study exploring the perceptions of GPs at *Puskesmas* based on TPB and SCT theories to provide a comprehensive understanding of their perceptions from both intrapersonal and interpersonal aspects.

Characteristics of participating GPs

A total of 28 GPs from 14 *Puskesmas* (i.e., 2 GPs per *Puskesmas*) participated in this study. Most of the participating GPs were female and under 50 years old, working 41-50 hours a day and serving more than 125 patients per week (**Table 3**). The high workload of GPs at *Puskesmas* might benefit from an effective interprofessional collaboration to ensure optimal care for patients.

Table 3. Characteristics of participating GPs

Characteristic	Result		
	n	%	
Personal factor	<i>Gender</i>		
	Male	3	10.7
	Female	25	89.3
	<i>Age</i>		
	≤ 30 year	6	21.4
	31-40 year	11	39.3
	41-50 year	8	28.6
	51-60 year	3	10.7
	<i>Education</i>		
	Bachelor degree + professional program (physician)	28	100
	<i>Country of origin (education)</i>		
	Indonesia	28	100
	<i>Working experience</i>		
	< 5 year	11	39.3
	5-9 year	5	17.9
	10-19 year	10	35.7
20-29 year	2	7.1	
<i>Working experience in the current Puskesmas</i>			
< 5 year	8	28.6	
5-10 year	6	21.4	
10-19 year	10	35.7	
20-29 year	4	14.3	

Characteristic		Result	
		n	%
Working environmental factor	<i>Working hours per week</i>		
	≤ 40 hours	4	14.3
	41-50 hours	23	82.1
	51-60 hours	1	3.6
	<i>Working hours per week dedicated to direct patient services</i>		
	11-20 hours	2	7.1
	21-30 hours	1	3.6
	31-40 hours	4	14.3
	41-50 hours	20	71.4
	51-60 hours	1	3.6
	<i>Average patient visits per week</i>		
	≤75	2	7.1
	76–100	1	3.6
	101–125	3	10.7
	≥126	22	78.6
	<i>Frequency of interactions with pharmacists</i>		
	Never/rarely	3	10.7
	Once a week	3	10.7
	Once a day	22	78.6
	<i>Initiator of the interaction</i>		
	General Practitioners (GPs)	22	48.9
	Pharmacist	23	51.1
	<i>The most frequent reason of interaction:*</i>		
Drug availability	27	32.5	
Drug alternative	13	15.7	
Dosage	11	13.3	
Directions for use	5	6.0	
Drug adverse effect	2	2.4	
Drug interaction	2	2.4	
Drug contra-indication	1	1.2	
Drug dosage forms	3	3.6	
Dispensing issues	12	14.5	
Readability and administrative suitability of a prescription	7	8.4	

*a participant can choose more than 1 answer.

Most GPs reported having frequent contact with pharmacists, typically once a day (78.6%). Furthermore, the professions that tended to initiate contact in collaboration were roughly equal between doctors (48.9%) and pharmacists (51.1%) (Table 3). GPs primarily contacted pharmacists regarding drug availability (32.5%), drug alternatives (15.7%), dispensing issues (14.5%), and drug dosage (13.3%). This finding indicated that interactions between GPs and pharmacists in most *Puskesmas* in East Surabaya have been established; however, most of their interactions were related to the drug logistic/supply, with limited interactions regarding patient clinical issues. In parallel with the previous research, most direct interaction with physicians was related to pharmacists' responsibilities in dispensing medications.⁴ Other research also indicates that interactions between physicians and pharmacists have primarily concerned drug logistics issues.¹ Collaborative practices between pharmacists and physicians, including in delivering clinical pharmacy services, have been reported to improve patient treatment outcomes.⁵

GPs' perceptions based on the Theory of Planned Behavior (TPB) (intrapersonal aspects)

The intrapersonal perceptions of doctors at the East Surabaya *Puskesmas* based on the TPB, including attitudes, subjective norms, and barriers, are presented in **Table 4**.

A. Attitudes toward collaboration with pharmacists

This study found that GPs generally demonstrated positive attitudes toward collaboration with pharmacists (**Table 4**). Positive attitudes from both professions are crucial for establishing or enhancing interprofessional collaborative practice. The attitudes of healthcare professionals are a significant factor contributing to interprofessional collaboration and a prerequisite for effective physician-pharmacist collaboration.² Furthermore, 100% of GPs did not oppose collaboration with pharmacists to improve patient outcomes. This is in parallel with findings from previous research where physicians did not oppose the clinical role of pharmacists.^{1, 2, 8, 11, 17-20, 32}

Table 4. Perceptions of GPs Based on the TPB (Intrapersonal Aspects)

Intrapersonal aspects	Perception	
	Agree n (%)	Disagree n (%)
Attitude		
1. I do think that collaboration with pharmacists can improve patient therapy outcomes. ⁽⁻⁾	0 (0%)	28 (100%)
2. I did not support collaboration with pharmacists, since I had bad experience in the past. ⁽⁻⁾	11 (39.3%)	17 (60.7%)
3. The collaboration with pharmacists have no positive impacts on my clinical practice. ⁽⁻⁾	0 (0%)	28 (100%)
Mean ± SD =	2.6 ± 0.49*	
Median (range) =	2 (2-3)	
Subjective norm		
1. The existence of stereotypes about physicians and pharmacists can cause reluctance to contact each other. ⁽⁻⁾	2 (7.1%)	26 (92.9%)
2. There is a feeling of fear of being judged by the pharmacist professional group which causes me to be reluctant to initiate a relationship with a pharmacist. ⁽⁻⁾	1 (3.6%)	27 (96.4%)
3. I think most GPs in our <i>Puskemas</i> are not open for collaboration with pharmacists. ⁽⁻⁾	19 (67.9%)	9 (32.1%)
4. There is involvement of policy makers in our <i>Puskemas</i> or other authorities to create social pressure to implement collaborative practices with pharmacists. ⁽⁺⁾	2 (7.1%)	26 (92.9%)
5. I think pharmacists had limited access and adequate hierarchical structure to collaborate with GPs. ⁽⁻⁾	0 (0%)	28 (100%)
Mean ± SD =	3.3 ± 0.75	
Median (range) =	3 (1-4)	
Perceived barriers		
1. I feel that face-to-face communication with pharmacists at our <i>Puskemas</i> is still minimal to initiate collaboration.	10 (35.7%)	18 (64.3%)
2. Time constraints due to my primary responsibilities as a GP raise concerns about the increased workload of collaborative practice.	13 (46.4%)	15 (53.6%)
3. There is a gap in knowledge and qualifications between GPs and pharmacists where pharmacists have inadequate clinical and communication skills	1 (3.6%)	27 (96.4%)
4. I have no complete understanding of the role, knowledge, and skills of pharmacists.	7 (25.0%)	21 (75.0%)
5. I still need time to build trust and learn the role and skills of pharmacists to collaborate with them	12 (42.9%)	16 (57.1%)
6. Pharmacists at our <i>Puskemas</i> haven't demonstrated their trustworthiness by consistently contributing and collaborating, so I don't trust them enough to take their advice on patient care.	0 (0%)	28 (100%)
7. I feel the image of pharmacists is predominantly focused on commercial interests, merely like a 'drugstore clerk'.	0 (0%)	28 (100%)
8. I feel uncomfortable when pharmacists recommend what I should do.	3 (10.7%)	25 (89.3%)
9. Part of me feels that pharmacists are potential competitors who could take over my work and overstep our professional boundaries as GPs.	2 (7.1%)	26 (92.9%)
10. Pharmacist medication management services threaten my authority.	0 (0%)	28 (100%)
11. I feel uncomfortable with the autonomy pharmacists have when dealing with patients.	0 (0%)	28 (100%)
12. I do not involve pharmacists in all aspects of my patient care as they do not need to fully understand the individual patient's medical condition and treatment effects.	3 (10.7%)	25 (89.3%)
13. I think the collaboration will not have a positive impact on me, so I tend not to engage in it.	0 (0%)	28 (100%)
14. I have low acceptance toward collaboration with pharmacists due to mistrust, potential conflict, threats to my practice, a sense of sufficiency in my own professionalism, or resistance to change.	2 (7.1%)	26 (92.9%)
15. I feel that various administrative challenges will arise when collaborating with pharmacists, such as limited space and time for interaction, additional documentation requirements, and complex workflow management	11 (39.3%)	17 (60.7%)
16. The cost for facilitating collaborative practice (such as financial remuneration for pharmacists, logistical costs) might not match with benefits, thus patient or third-party will be resistance to paying	0 (0%)	28 (100%)
17. I am concerned that patients receive fragmented care due to the involvement of multiple healthcare professionals.	3 (10.7%)	25 (89.3%)
18. I am concerned that patients may receive conflicting information about medication use from GPs and pharmacists.	4 (14.3%)	24 (85.7%)
19. The roles, responsibilities, and boundaries of each profession are not clearly defined and documented in healthcare practices at our <i>Puskemas</i> .	6 (21.4%)	22 (78.6%)
Mean ± SD* =	2.75 ± 2.28	
Median (range) =	3 (0-7)	

* 'agree' responses were scored 1 and 'disagree' responses were scored 0; for negative questions (-), a reversed scoring was used.

Although generally had positive attitudes, some GPs (39.3%) in this study reported negative experiences when collaborating with pharmacists. In parallel, previous research reported negative experiences of physicians when dealing with pharmacists, for example, in the cases where pharmacists changing prescription medications without their permission.⁴ To address this issue, a multidimensional approach involving educational institutions, the Indonesian Health Service, the Indonesian Ministry of Health, and the Indonesian Pharmacists Association (IAI) might be required to develop strategies for pharmacists to continuously improve themselves to become competent professionals. The lack of pharmacists working in *Puskesmas* should also be addressed immediately so that pharmacists would have adequate time and energy to develop their clinical skills, engage, and prove themselves as significant members of healthcare professional team.

B. Subjective norms regarding collaboration with pharmacists

Subjective norms referred to how respondents have perceived the presence or lack of support from their environment for certain behaviors.¹ This study shows that GPs generally perceived positive subjective norms or support from their environment for collaborating with pharmacists (**Table 4**).

Most GPs (92.9%) disagreed that there were stereotypes that make physicians and pharmacists reluctant to contact each other. The stereotype issue might not come across the East Surabaya *Puskesmas* as the organization has arranged frequent informal contact between GPs and pharmacists. Literature suggested that pharmacists' involvement in patient therapy management can erode stereotyping physicians as independent decision-makers in the patient drug therapy, while pharmacists only responsible for dispensing medication.¹¹ Most GPs in this study also did not perceive any hierarchical differences with pharmacists. Various literature suggests that power differences between professions are a barrier to interprofessional collaboration.^{15,22} A patient-centered perspective can prevent healthcare professionals from establishing their professional power and jurisdiction.¹⁵ However, the lack of involvement from *Puskesmas* management requires special attention.

C. Perceived Barriers to Collaboration with Pharmacists

Identifying barriers for collaboration and designing interventions to address them is crucial to ensure a successful implementation of interprofessional collaboration.² This study showed that less than 50% of GPs stated that there were barriers to implementing collaborative practices. The most frequently reported barriers were time, cost, and facilities (question 2 – agree 46.4%; question 5 – agree 42.9%; question 15 – agree 39.3%) (**Table 4**). Many factors have been reported to discourage physicians from collaboration, such as a significant increased time and documentation workload.¹¹ While documentation is necessary and beneficial, it can be seen as an effort-intensive practice.²³ Additionally, one study reported that pharmacists felt physicians did not have enough time to support their clinical pharmacy services.²¹ Few physicians contacted pharmacists on their own initiative due to time constraints.²⁴ Conversely, physicians also recognized that pharmacists were too busy to spend time with them and were concerned that they would prolong their workday or disrupt them.¹¹ The availability of space and time are important for health professionals to have regular and effective contacts, which has been an important factor for collaboration.²¹

GPs' perceptions based on SCT (interpersonal aspects)

Interpersonal perceptions of GP's interpersonal based on SCT, including trust and social capital can be seen at **Table 5**.

A. Trust in pharmacists

This study shows that GPs at the East Surabaya *Puskesmas* generally reported a high level of trust in pharmacists (**Table 5**). The quality of interprofessional collaboration is influenced by trust, respect, and appreciation for each other.^{9, 21, 24} Trust is a vital key that enables solidarity and social cooperation, as well as managing complex relationships in developing a successful collaboration.^{8, 19, 24, 27} Hence, GPs' high level of trust – as reported in this present study – might indicate a good basis for collaboration with pharmacists. It should be noted, however, while most GPs has high acceptance of pharmacists (question 6) and/or seen them as trustworthy (question 7), the majority did not trust pharmacists as drug expert and/or credible in drug therapy (questions 2 and 3). This might indicate that GPs might be willing to work with pharmacists, but not in clinical areas.

Table 5. Perceptions of GPs based on SCT (Interpersonal Aspects)

Interpersonal aspects		Perception	
A. (1) Level of Trust		Agree n (%)	Disagree n (%)
1.	I have adequate trust to pharmacists that I don't need to double-check and can delegate tasks to him/her.	16 (57.1%)	12 (42.9%)
2.	I trust pharmacist as drug experts	2 (7.1%)	26 (92.9%)
3.	The pharmacist is credible in drug therapy	2 (7.1%)	26 (92.9%)
4.	I can reasonably rely on the pharmacist to do what he or she says.	6 (21.4%)	22 (78.6%)
5.	I feel it takes less time to build trust in my relationship with the pharmacist.	16 (57.1%)	12 (42.9%)
6.	My acceptance of collaboration with the pharmacist is high due to trust.	26 (92.9%)	2 (7.1%)
7.	I feel pharmacists at our <i>Puskesmas</i> have demonstrated their trustworthiness by consistently contributing and collaborating, so I trust them enough to take their advice on my patient care	28 (100%)	0 (0%)
		Mean ± SD =	5.7 ± 1.11
		Median (range) =	6 (3-7)
(2) Basis of trust		Theme	Example of quotes
How do you know that you can trust your pharmacist partner in a collaboration?		a. Daily performance	"... from what they do on daily basis" (D2) "... can be seen from their daily performance." (D23)
		b. Pharmacy skills and knowledge	"They have adequate dispensing skills as well as knowledge about drug therapy and diseases." (D4) "... from how they assist with rational use of drugs, dosage, and provide drug information to the patient." (D28)
		c. Work experience	"Duration of working or (clinical) experience" (D18) "Working experience" (D12)
		d. Track record of achievements	"(We know as) every month there is a review on the performance of pharmacists – and a grade was provided." (D17) "... from their level of performance in delivering a program, patient recovery rate, and how they ensure drug availability." (D3)
		e. Ability to work/communicate with GPs	"(The pharmacist) has the initiative to confirm if there is a problem, for example with regards to dosage." (D21) "... always communicate where there is a prescription with LASA (look alike sound alike) or high dose. Additionally, (they) always remind us if there is something wrong in our prescriptions." (D26) "If they can provide acceptable justification or literature." (D7)
B. Level of social capital		Agree n (%)	Disagree n (%)
1.	At our <i>Puskesmas</i> , there is unity and agreement.	0 (0%)	28 (100%)
2.	At our <i>Puskesmas</i> , we trust each other.	0 (0%)	28 (100%)
3.	At our <i>Puskesmas</i> , there is a feeling of 'we' (a sense of belonging or being part) among staff.	0 (0%)	28 (100%)
4.	At our <i>Puskesmas</i> , the working environment is good	0 (0%)	28 (100%)
5.	At our <i>Puskesmas</i> , there is willingness to help each other	0 (0%)	28 (100%)
6.	At our <i>Puskesmas</i> , we shared the same values	0 (0%)	28 (100%)
		Mean ± SD =	6.0 ± 0.00
		Median (range) =	6.0 (6.0-6.0)

* 'agree' responses were scored 1 and 'disagree' responses were scored 0

B. Trust in pharmacists

This study shows that GPs at the East Surabaya *Puskesmas* generally reported a high level of trust in pharmacists (**Table 5**). The quality of interprofessional collaboration is influenced by trust, respect, and appreciation for each other.^{9, 21, 24} Trust is a vital key that enables solidarity and social cooperation, as well as managing complex relationships in developing a successful collaboration.^{8, 19, 24, 27} Hence, GPs' high level of trust – as reported in this present study – might indicate a good basis for collaboration with pharmacists. It should be noted, however, while most GPs has high acceptance of pharmacists (question 6) and/or seen them as trustworthy (question 7), the majority did not trust pharmacists as drug expert and/or credible in drug therapy (questions 2 and 3). This might indicate that GPs might be willing to work with pharmacists, but not in clinical areas.

In addition, this study showed that there are five themes related to the basis of physicians' trust in pharmacists, namely: i) daily performance, ii) pharmacy skills and knowledge, iii) duration of work or experience, iv) track record of achievements, and vi) ability to work/communicate with GPs (**Table 5**). Literature suggested that physicians' trust in pharmacists within interprofessional collaboration has often formed based on the development of a good track record through consistent and high-quality contributions to patient care or other evidence that can support the pharmacist's trustworthiness.²⁶ GPs in this study tended not to look at the pharmacist's academic background or position as the basis of their trust, rather they put a strong emphasis on their direct observation of the pharmacist's demonstration of competence.

The most important issue that needs to be addressed is to build mutual trust between physicians and pharmacists despite their educational/professional background differences. Trust takes time to develop, and interactions to each other has been found to foster emotional closeness and familiarity with each other's work, thus facilitating trust and respect.^{9, 25} In addition, building trust and respect includes understanding of each other's roles, effective communication, good opinions from other professionals, professional commitment, and a willingness to collaborate.²¹ Once trust is obtained, physicians tend to be more willing to actively seek pharmacist advice.¹⁹ One interesting finding from previous research is the association between trust and productivity. The more physicians trust pharmacists, the less effort they have to make to supervise, double-check, and redo their work.²⁷ This, in turn, reduces physicians' workload. Pharmacists, on the other hand, can enhance their clinical role and provide more professional and systematic services to patients, thereby achieving job satisfaction.⁹

C. Social capital for collaboration

This study indicated that GPs have perceived high levels of social capital in collaborating with pharmacists (**Table 5**). Successful collaborations generally involve professionals who share similar values and goals, namely, a shared motivation to provide better patient care.^{19, 21} When pharmacists and physicians do not share the same perspective on their respective roles and goals, collaboration becomes more difficult due to a lack of trust. Differing perspectives can actually be renegotiated or changed through regular social interactions.^{21, 25}

This study used TPB and SCT to understand GPs' intrapersonal and interpersonal perceptions which reflected the individual (GP) level contributing to collaboration; while generally GPs reported positive intra/interpersonal perceptions, high perceived barriers warrant further exploration for improvements. Limitations of this study include the limited sample size; hence, the generalizability of the inter/intrapersonal factors reported in this study is limited to GPs in the *Puskesmas* of East Surabaya. Furthermore, the selection of GPs was carried out by purposeful sampling based on the inclusion criteria, as a list of GPs from all *Puskesmas* (sampling frame) was not available. However, based on the information obtained that each *Puskesmas* has 2-4 active GPs, two GPs selected as representatives should be able to provide insights on the perceptions of GPs in East Surabaya *Puskesmas*. In addition, the use of binary formats in this questionnaire forced participants with an opinion in the middle to transform into an extreme answer, resulting in a higher tendency to agree. However, the use of predictive wording (i.e., refer to what one should do, what is right or wrong, or good or bad) in this questionnaire might help the accuracy of the binary format in providing directions of answers.²⁵ Further qualitative research would be required to explore the root causes of intra/interpersonal issues found in this study as a basis to develop strategies to optimize interprofessional collaboration in *Puskesmas*. This can be used as a model for other regions in Indonesia.

CONCLUSION

This study provided comprehensive insights on the perceptions of GPs toward collaboration with pharmacists based on TPB and SCT theories. GPs at the East Surabaya *Puskesmas* generally had positive intra/interpersonal perceptions of collaborating with pharmacists, several issues warrant attention. These issues include intrapersonal aspects, such as negative experiences with pharmacists, feeling lack of support from authorities, and perceived barriers related to workload, costs, and supporting facilities; as well as interpersonal issues related to a lack of trust in pharmacists to fully delegate work. Findings in this study are expected to provide feedback for stakeholders in developing strategies to optimize interprofessional collaboration between GPs and pharmacists and facilitate the development of the clinical role of pharmacists, particularly in East Surabaya *Puskesmas*.

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GENERATIVE AI DISCLOSURE STATEMENT

The authors confirm that no Generative Artificial Intelligence (AI) or AI-assisted technologies were utilized in the writing, data analysis, or preparation of this manuscript.

AUTHOR CONTRIBUTION STATEMENT

Gabby Lovarya: Investigation, Data curation, Writing—Original draft preparation; **Yosi Irawati Wibowo:** Methodology, Validation, Writing- Reviewing and Editing; **Adji Prayitno Setiadi:** Conceptualization, Supervision, Methodology.

CONFLICT OF INTEREST DECLARATION

The authors declare no conflict of interest.

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