

Pharmacist-patient communication in Indonesia: The Roter Interaction Analysis System (RIAS) in a socio-hierarchical context

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Abstract

Background: Patient-centred communication skills are required for good counselling practice of a pharmacist. Little is known about the communication skill of pharmacists in the Indonesian setting, where socio-hierarchical gaps between health care provider - patient exist.

Objective: To assess the communication between pharmacist and patient in an outpatient clinical counselling setting in Indonesia.

Method: Data were analysed from 54 outpatient clinical counselling sessions conducted by pharmacists with their patients at a private hospital. Utterances in each session were coded and analysed using the Roter Interaction Analysis System (RIAS). The differences between the pharmacists' and patients' types of communication were analysed using Mann-Whitney tests.

Results: According to RIAS, 'biomedical communication' was dominated by the pharmacists and 'socio-emotional communication' was dominated by the patients. Statistical analysis showed there was a significant difference between the 'biomedical' and 'socio-emotional communication' between the patients and pharmacists ($p < 0.001$).

Conclusion: Pharmacist-patient communication in this study was directed mostly towards a pharmacist-centred communication. Further investigation is needed to explain the reasons behind this phenomenon and to identify whether the same result also occurred in different settings.

Keywords: *Counseling, Health Communication, Patient-centred Care, Pharmacist-Patient Communication, RIAS*

Introduction

In recent decades, pharmacy practice has changed from drug-oriented to patient-oriented pharmaceutical services with the goal of patient-centred care (American Association of Hospital Pharmacists, 1993). Patient-centred care emphasises the importance to focus on patients' interests including involving patients in the treatment decisions (Naughton, 2018). In patient-centered care, patients are treated with compassion and

patients' needs are respected; care is adjusted to the patient's condition and is provided in collaboration with other healthcare professionals (Aslam, Tan, & Prayitno, 2003; Barnett, 2017; NEJM Catalyst, 2017; Naughton, 2018). Most importantly, patients are not only considered as clinical cases but also as human beings who are facing difficulties and uncertainties (Barnett, 2017; NEJM Catalyst, 2017). According to Hawes (2018), as a part of patient-centred care practice, pharmacists make

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provisions for patients' specific health needs and become a patient partner as a healthcare provider and an advocate. The service requires not only medication-related competencies but also cultural competencies which are integrated within the cultural dimensions that influence patient behaviours and beliefs (American Association of Hospital Pharmacists, 1993; Epner & Baile, 2012; Schottenfeld *et al.*, 2016; Naughton, 2018).

The implementation of patient-centred practice in pharmaceutical care involves building a relationship between the pharmacist and patient as a basis of trust (Schottenfeld *et al.*, 2016; Barnett, 2017; NEJM Catalyst, 2017). The implementation is well-reflected in the pharmacist-patient counselling process. Counselling, as a critical component of the dispensing process, provides an opportunity for pharmacists to build a trustworthy relationship with patients and discuss the use of medication to ensure patients have comprehensive understanding of their treatment goal (Morrison & Wertheimer, 2001; Zhao *et al.*, 2012; Okumura, Rotta & Correr, 2014), strict adherence (Kaboli *et al.*, 2006; Zhao *et al.*, 2012; Kuntz *et al.*, 2014), and improvement of their quality of life (Morrison & Wertheimer, 2001; Kaboli *et al.*, 2006; Bosma *et al.*, 2007; Jennings *et al.*, 2007; Cavaco & Roter, 2010; Talasaz, 2012; Okumura *et al.*, 2014). Thus, pharmacists' communication skills have a significant role (Sporrong & Kaae, 2018). Allinson and Chaar (2016) explain that pharmacists are required to be aware of non-verbal as well as verbal communication, actively listen to patients, demonstrate empathy, competence, and confidence to encourage full disclosure from patients, and to respect cultural diversity. In other words, pharmacists need to talk not only about biomedical but also socio-emotional aspects to build the optimum pharmacist-patient relationship (Naughton, 2018). Effective communication optimises patients' chances to use medication appropriately and ultimately reach their therapeutic goals (Roter, 2006; Ellington *et al.*, 2008; Ngoh, 2009; Montgomery *et al.*, 2010; Murad, Chatterley & Guirguis, 2013). Addressing some key concerns of pharmacists, Stevenson (2004), in a systematic review, showed effective communication can prevent non-adherence to treatment and facilitate better outcomes for patients.

Cultural comprehension is an important part of effective pharmacist-patient communication (Hawes, 2018). Failure to understand the patients' culture can suppress effective patient-centred communication. Previous studies in Southeast Asian settings, mostly on doctors and nurses, show that culture has a great influence on communication between healthcare professionals and patients (Claramita *et al.*, 2013; Susilo *et al.*, 2013; Claramita & Susilo, 2014; McKinn *et al.*, 2017). According to Hofstede *et al.* (2010), this part of the world and many other places are strongly 'hierarchical' and 'collectivist'. In a strong hierarchical culture, the 'power-distance' dimension index among people is wide, including between healthcare professionals and patients, and among healthcare professionals (Hofstede *et al.*, 2010; Claramita & Susilo, 2014). Compared to the

individualistic culture, there is also a strong involvement of community and family in individual decision-making in the collectivist culture, including in healthcare and clinical decision-making (Claramita & Susilo, 2014). These cultural dimensions with high 'power distance' and 'collectivist' patterns also occur in many other Asian countries, such as China, India, and in Saudi Arabia, two of which have the largest populations in the world and wide-scale immigration across nations (Hofstede *et al.*, 2010). The wider 'power distance' and the 'community-oriented' decision-making may influence the communication between pharmacists and patients away from the patient-centred communication. Patients' concerns may be easily neglected, and pharmacist's and the family members' interests tend to dominate over individual preferences (Meeuwesen *et al.*, 2009).

With the aforementioned background and the current global context of migration, cultural competence to promote effective communication, especially culturally-related delivery, should be applied by pharmacists (Zweber, 2002; O'Connell *et al.*, 2007) not only in Indonesia but also around the world. To be able to develop an appropriate educational programme to prepare pharmacists to communicate with patients in the context of a wider socio-hierarchical gap, it is necessary to understand the existing pattern of interaction of patient-pharmacist in the clinical counselling setting and to identify the gap for improvement.

The Roter Interaction Analysis System (RIAS) is one of the methods that has been used in various countries to analyse the interaction between healthcare professionals and patients. (Pires & Cavaco, 2014). RIAS provides a tool to analyse the dynamic interaction between patients and providers through medical dialogue because the coder works directly from the spoken records (audio or videotape), and it can allow the coder to analyse the voice tones. It also can encode multiple speakers (third parties which is very compatible with communal cultures). RIAS codes are very flexible in their application. The codes can be used individually or in combination (Roter & Larson, 2002; Cavaco & Roter, 2010). In Indonesia, Claramita *et al.*, (2011) used RIAS to describe doctor-patient communication. Their study shows doctor-patient communication was inclined toward 'biomedical communication'. Thus, it can be considered as a more doctor-centred communication. The ability to communicate using a more patient-centred care framework is one of the keys to successfully reach better health outcomes (Ellington *et al.*, 2008; Kim *et al.*, 2001), including the objectives of a counselling process by pharmacists.

Studies in pharmacist and patient communication using RIAS have already been done in pharmacy services. A study conducted by Cavaco and Romano (2010) described pharmacist-patient interactions with the general approach of the interaction. Other studies that describe pharmacist-patient interactions using simulated patients have been done by Chong, Aslani, and Chen (2014); and Nakayama *et al.* (2016). However, the first two studies were conducted in countries with low-power

distance index and the last study conducted in intermediate-power distance index. In countries with high power distance index, the communication was reported to incline toward 'biomedical communication'. To the best of the authors' knowledge, there are only limited international publications from Indonesia or other Asian settings that assess pharmacist-patient communication patterns using the RIAS method. The other studies on pharmacist-patient interaction were limited to describing the general overview of pharmaceutical care, e.g. the closest research looked at the 'readiness' of pharmaceutical care (Herman & Susyanty, 2012; Ernawati *et al.*, 2016).

This study aimed to examine the patterns of communication between pharmacists and patients using the RIAS method. Since current evidence in this area is scarce, this study will add to the evidence of pharmacist-patient communication patterns in the Southeast Asian setting. The evidence is necessary to determine the key domains to be strengthened to improve pharmacists' counselling skills regarding the need for a more patient-centred communication style. This information is essential to inform future educational programmes for pharmacists.

Methods

Context

A cross-sectional study was conducted at an outpatient clinic in a private hospital in an urban setting in Indonesia. Pharmacists provided counselling services for patients who needed information about their medicine and treatment plans. The counselling process took place in a private room where the pharmacists offer these services independently. Ethical clearance was obtained from the local institutional review board (No. 304/PSDM/IX/2013).

Subjects

Subjects were obtained using consecutive sampling and 72 sessions of counselling were recorded from pharmacists and patients who met the following inclusion criteria. The inclusion criteria were pharmacists who worked in the counselling room from October to December 2013 from 9.00am until 11.00am and had provided more than ten counselling sessions, patients who visited the pharmacist counselling service during the same period, and both pharmacists and patients were willing to participate in this study. The exclusion criteria were patients who cannot understand Indonesian language (listening, speaking, reading, and writing in Bahasa Indonesia). Six out of seven pharmacists signed up for this study; all were female.

After the researcher explained the procedures and requested agreement for participation, the pharmacists and patients signed the informed consent form. From a total of 75 patients, only three did not want to participate.

All pharmacists and patients completed an informed consent form before initiating the counselling sessions. Participants' identities were removed or disguised to ensure confidentiality.

Instrument and Procedure

The counselling sessions were audiotaped using a voice recorder placed on the pharmacist's desk. All parts of the conversations between pharmacists and patients were recorded. The first three recorded sessions from each pharmacist-patient interaction were excluded to minimise the Hawthorne effect (Claramita *et al.*, 2011). Within a maximum of 48 hours, the recordings were coded by the first and second authors. The languages used in the pharmacist-patient communication was Bahasa Indonesia, hence there was no language barrier from the coders, who are native speakers of Bahasa Indonesia and also fluent in English.

Analysis

The conversation recorded in each counselling session was encoded directly using RIAS. As a tool to analyse the communication between the pharmacist and the patient, RIAS consisted of two major parts, 'biomedical' and 'socio-emotional' communications. RIAS was used to code the 'utterances'. Utterances were pieces of conversation in the form of words or sentences. Utterances in 'biomedical communication' were the exchange of information related to medical conditions, treatments, lifestyle, and some psychosocial aspects. 'Biomedical communication' consisted of giving information and asking questions (open-ended and closed-ended questions) related to therapeutic regimens such as drug composition, drug indication, dose, administration, adverse drug reaction, drug interaction, warning and precaution, storage, and past medication history; medical condition such as diagnosis, and past medical history; lifestyle such as dietary intake and exercise; and some psychosocial aspects such as stress. Psychosocial communication was defined as utterances-related to treatment and management therapy in regard to psychosocial aspects for example stress management while 'socio-emotional communication' was the exchange of information related to the patient's personal life and environment such as concerns, laughs, reassurances, compliments, criticism, and empathy. RIAS categories are presented in Table I.

All utterances were coded. The coders were the first and second authors who were trained using the RIAS module by the last author who had published a study on doctor-patient communication skills using the same RIAS method. An inter-rater reliability test was conducted to assess the agreement between the two coders. Inter-rater reliability tests were performed on six recordings (10% of the data) of counselling sessions and analysed using Cohen's *kappa*. The values of *kappa* ranged from 0.81 to 0.97 showing high inter-rater reliability between the two coders. Over a three-month period, a total of 72

Table I: Roter Interaction Analysis System (RIAS) categories used in the study

Categories	Example from RIAS	Example from this study
Socio-emotional exchange		
Personal remarks (Personal)	Hello, I'm Ika. How are you? I grew up in Jakarta, so traffic jams are a part of my daily	"Good afternoon, is it morning or afternoon? I often meet you in here"
Laughs, tells jokes (Laughs)	<i>Laughter</i>	<i>Laughter</i>
Shows concern or worry (Concern)	I'm worried about your blood glucose level	"I used many medicine, I'am afraid it will affect me"
Reassures, encourages or shows optimism (R/O)	You don't need to be worried	"It is okay. You don't need to be worried"
Shows approval-direct (Approve)	Good	"Good, keep your spirit"
Gives compliment-general (Comp)	You've done a great job	"I like the doctor, he can explain and answer everything about my condition, besides he likes to tell jokes"
Shows disapproval-direct (Disapprove)	No, I don't think so	"No, don't be like that"
Shows criticism-general (Crit)	The doctor never told me about my husband's condition	"The doctor said this medicine is less expensive, but it's just the same"
Shows agreement or understanding (Agree)	Yes, that's rights...	"Yes"
Back-channel responses (BC)	Mmmm.... hmmmm....	Hmmm.... Ok....
Empathy statements (Empathy)	You must be worried	"You must be confused to choose"
Legitimizing statements (Legit)	Many people feel the same way	-
Partnership statements (Partner)	I will help to monitor your medication	"Next month, if you meet the doctor, you need to come here again, and this is for you so you can take the medicine in this fasting month"
Self-disclosure statements (SDis)	My wife was diagnosed with breast cancer two years ago (SDis).	"It is natural mam, my mother also have a cramps if her stand too long"
Asks for reassurances (?Reassurance)	Do you think it's serious?	"Is it okay for me to use it?"
Task-focused exchange/Biomedical communication		
Medical condition		
- Gives Information (Gives-Med)	I have Diabetes Mellitus since 2001	"Drug allergies occur individually because the immune response of each person is different, usually appears reddish"
- Asks Closed-ended question ([?] Med)	Are there any other pains in addition to the chest pain?	"Have you ever felt a tingling sensation at the fingertips?"
- Asks Open-ended question (? Med)	How is your appetite?	"How is your last blood sugar level?"
Therapeutic Regimen		
- Gives Information (Gives-Thera)	This medication is a diuretic which will help your condition	"This drug is used to control your blood sugar level"
- Asks Closed-ended question ([?] Thera)	Are you allergic to penicillin?	"Does it matter if I take supplements everyday?"
- Asks Open-ended question (? Thera)	Why did you go off the amoxicillin?	Why do you need to take supplement everyday?"
Lifestyle Information		
- Gives Information (Gives-L/S)	I've been working out in the yard most days	"The best food consumption is foods that come from nature"
- Asks Closed-ended question ([?] L/S)	Who's living at home with you?	"Can I eat papaya?"
- Asks Open-ended question (? L/S)	How are you doing on your diet?	"What time do you have breakfast?"
Psychosocial Information		
- Gives Information (Gives-P/S)	I get very nervous if I don't work out everyday	"When I arrived in front of the doctor's house, my illness disappears"
- Asks Closed-ended question ([?] P/S)	Have you tried to see a social worker?	"Can stress affect my stomach?"
- Asks Open-ended question (? P/S)	What bothers you the most?	-
Counsels or Directs Behavior		
- Medical condition/Therapeutic regimen (C-Med/Thera)	You'll have to stop smoking if you want your condition to improve	"You must take the medicine routinely. Look mam, if you are not taking the medicine regularly it can make your sugar level higher, later it can cause complications anywhere"
- Lifestyle and Psychosocial (C-L/S-P/S)	You really need to get out and meet more people	"You should maintain your food. You need to reduce sweet food, salty, oily, and have to exercise lightly"

counselling sessions minus the three first recordings of six pharmacists were coded (total coded conversations included 54). The authors compared the difference between 'biomedical communication' and 'socio-emotional communication', within both pharmacists' and patients' utterances in the context of the study using the Mann-Whitney test. This analysis was conducted to determine the trends of the pattern of interaction between the pharmacists and patients. *P*-values <0.05 were considered statistically significant. Statistical analysis was conducted using the Statistical Package for the Social Sciences (SPSS) programme for Windows, version 23.

Results

Pharmacists' average age was 25.17 ± 1.72 years with average of 2.33 ± 1.54 years of working experience as a hospital pharmacist. The average age of patients who participated in this study was 48.90 ± 16.33 years; 68.5% (37/54) of patients were female; 17.7% (26/54) of patients were housewives; and 22.4% (33/54) graduated from high school.

The total number of utterances communicated by pharmacists and patients was 9,978, and the average was 184.78 ± 119.29 utterances per each encounter. Patients uttered more frequently (mean 94.85 ± 79.33) than pharmacists (mean 89.96 ± 49.94). The overall mean duration of the counselling sessions was 11.33 ± 7.39 minutes. The data of a number of interactions are presented in Table II. This study found that pharmacists' 'biomedical communication' differed significantly (mean per interaction 57.72 ± 37.56) compared with pharmacist 'socio-emotional communication' (10.56 ± 7.59 , $p < 0.001$). Similar with pharmacists, patients' 'biomedical communication' was also significantly greater (67.63 ± 0.84) compared with patients' 'socio-emotional communication' (11.35 ± 11.17 , $p < 0.001$). This phenomenon shows that both pharmacists and patients focused on pharmaceutical problems and were essentially 'neglecting' the 'socio-emotional' relationship between them, even though ample time for both was available.

Biomedical communication by pharmacists

Presented in more detail in Table III, pharmacists asked medical and therapeutic regimen questions significantly more than the patients. Moreover, they were predominantly using closed-ended questions. The five most frequent utterances in 'biomedical communication' by pharmacists were 'Therapeutic regimen: Gives Information (Gives-Thera)'; 'Counsels/Directs behaviour: Med. condition/Therapeutic regimen (C-Med/Thera)'; 'Medical condition: Asks closed-ended question ([?]Med)'; 'Therapeutic Regimen: Asks closed-ended question ([?]Thera)'; and 'Medical condition: Gives Information (Gives-Med)'. The five least frequent utterances in 'biomedical communication' were

'Psychosocial information: Asks open-ended question (?P/S)'; 'Psychosocial information: Asks closed-ended question ([?]P/S)'; 'Lifestyle information: Asks open-ended question (?L/S)'; 'Psychosocial information: Gives Information (Gives-P/S)'; and 'Lifestyle information: Asks closed-ended question ([?]L/S)'.

Table II: Number of utterances per pharmacist-patient interaction

No. of recording	Biomedical communication		Socio-emotional communication	
	Pharmacists	Patients	Pharmacists	Patients
1	125	146	17	12
2	18	15	14	10
3	43	35	6	2
4	44	36	15	7
5	108	123	11	6
6	63	87	36	58
7	15	10	1	2
8	20	27	13	8
9	39	32	19	12
10	64	49	20	13
11	79	55	12	7
12	56	48	9	10
13	19	5	5	4
14	37	39	4	10
15	80	55	12	6
16	9	8	3	2
17	52	45	8	12
18	83	63	18	7
19	40	57	8	8
20	110	65	6	4
21	48	27	4	7
22	31	36	9	6
23	182	243	30	26
24	122	102	20	19
25	42	37	5	9
26	84	132	10	21
27	36	27	4	9
28	73	93	8	7
29	34	61	8	10
30	47	34	2	8
31	39	117	36	44
32	40	57	8	8
33	23	27	8	8
34	44	53	11	4
35	26	20	4	4
36	28	24	9	2
37	60	241	20	35
38	34	27	11	5
39	44	67	7	10
40	111	256	18	10
41	31	30	3	9
42	84	74	4	8
43	27	30	5	9
44	37	20	6	7
45	49	66	15	13
46	179	163	14	6
47	44	33	12	20
48	95	58	11	12
49	30	32	11	7
50	70	288	7	47
51	31	25	3	3
52	67	36	13	10
53	29	37	5	8
54	92	79	1	4
Total	3117	3.652	570	613
Average	57.72	67.63	10.56	11.35
Max/min	179/9	288/8	36/1	58/2
SD	37.564	64.26	7.595	11.169

Table III: RIAS category in pharmacist and patient communication

RIAS	Codings	Frequency		Mean±SD		p-value	
		Pharm.	Patient	Pharm.	Patient	Pharm. vs Patient	
Biomedical communication	Therapeutic Regimen: Gives Information (Gives-Thera)	1267	1235	23.46±16.214	22.87±24.08	0.186	0.000* ^a
	Counsels/Directs behavior: Med. condition/ Therapeutic regimen (C-Med/Thera)	522	-	9.67±12.565	-	-	
	Medical condition: Asks closed-ended question ([?]Med)	385	81	7.13±4.841	1.5±2.247	0.000*	
	Therapeutic Regimen: Asks closed-ended question ([?]Thera)	364	443	6.74±6.446	8.20±7.059	0.212	
	Medical condition: Gives Information (Gives-Med)	348	1572	6.44±8.160	29.11±34.334	0.000*	
	Medical condition: Asks open-ended question (? Med)	66	23	1.22±1.850	0.43±1.268	0.000*	
	Counsels or Directs behavior: Lifestyle and Psychosocial (C-L/S-P/S)	54	-	1.00±4.112	-	-	
	Lifestyle information: Gives Information (Gives-L/S)	40	187	0.74±3.886	3.46±7.888	0.002*	
	Therapeutic Regimen: Asks open-ended question (?Thera)	28	41	0.52±1.397	0.76±2.656	0.690	
	Lifestyle information: Asks closed-ended question ([?]L/S)	25	10	0.46±1.610	0.19±0.729	0.154	
	Psychosocial information: Gives Information (Gives-P/S)	10	59	0.19±1.361	1.09±4.854	0.172	
	Lifestyle information: Asks open-ended question (?L/S)	5	0	0.09±0.559	0	0.155	
	Psychosocial information: Asks closed-ended question ([?]P/S)	3	1	0.06±0.302	0.02±0.136	0.553	
	Psychosocial information: Asks open-ended question (?P/S)	0	0	0	0	1	
	Total	3117	3.652	57,72±37,564	67,63±64,26	0.844	
Socio-emotional communication	Personal remarks, Social conversation (Personal)	88	181	1.63±2.701	3.35±7.661	0.875	
	Shows agreement or understanding (<i>Agree</i>)	78	84	1.44±1.920	1.56±1.808	0.432	
	Show approval-direct (<i>Approve</i>)	78	121	1.44±0.664	2.24±1.288	0.000*	
	Partnership Statement (<i>Partner</i>) (Pharmacists only)	75	-	1.39±1.847	-	-	
	Back Channel Response (BC) (Pharmacists only)	63	-	1.17±2.152	-	-	
	Reassurance, encourages, shows optimism (R/O)	59	5	1.09±1.248	0.09±0.293	0.000*	
	Laughs, tells jokes (Laughs)	57	36	1.06±2.050	0.67±1.883	0.055	
	Self Disclosure Statement (Sdis) (Pharmacists only)	32	-	0.59±2.327	-	-	
	Show concern or worries (Concern)	23	125	0.43±1.002	2.31±3.296	0.000*	
	Shows Disapproval-Direct (<i>Disapprove</i>)	10	11	0.19±0.585	0.20±0.451	0.341	
	Empathy Statements (<i>Empathy</i>)	6	0	0.11±0.420	0	0.043	
	Ask for Reassurance (? <i>Reassurance</i>)	1	30	0.02±0.136	0.56±1.144	0.000*	
	Gives Compliment-General (<i>Comp</i>)	0	11	0	0.20±1.234	0.080	
	Shows Criticism-General (<i>Crit</i>)	0	9	0	0.17±0.541	0.012	
	Legitimizing Statement (<i>Legit</i>)	0	0	0	0	1	
Total	570	613	10.56±7.595	11.35±11.169	0.644		

*Statistically significant

^aBoth pharmacist and patient 'biomedical communication' vs 'socio-emotional communication'

Socio-emotional communication by pharmacists

The five most frequent utterances in 'socio-emotional communication' by the pharmacists were 'Personal remarks (personal)'; 'Shows agreement or understanding (Agree)'; 'Shows approval-direct (Approve)'; 'Partnership statements (partner)'; and 'Back-channel (BC)'. The 'biomedical utterances' by pharmacists were significantly more frequent than the 'socio-emotional utterances' ($p < 0.000$). 'Reassurances: encourages, and Shows optimism (R/O)' in the 'socio-emotional utterances' were uttered significantly more by pharmacists than the patients, but were not in the five most frequently uttered statements. The five least frequent utterances in 'socio-emotional communication' were 'Legitimising statement (Legit)'; 'Shows criticism-general (Crit)'; 'Gives compliment-general (Comp)'; 'Empathy statement (Empathy)'; and 'Shows disapproval-direct (Disapprove)'.

Biomedical communication by patients

The five most frequent utterances in 'biomedical communication' by patients were 'Medical condition: Gives Information (Gives-Med)'; 'Therapeutic regimen: Gives information (Gives-Thera)'; 'Therapeutic regimen: Asks closed-ended question ([?]Thera)'; 'Lifestyle information: Gives information (Gives-L/S)'; and 'Medical condition: Asks closed-ended question ([?]Med)'. The five least frequent utterances in 'biomedical communication' by patients were 'Psychosocial information: asks open-ended question (?P/S)'; 'Lifestyle information: Asks open-ended question (?L/S)'; 'Psychosocial information: Asks closed-ended question ([?]P/S)'; 'Lifestyle information: Asks closed-ended question ([?]L/S)'; and 'Medical condition: Asks open-ended question (?Med)'.

Socio-emotional communication by patients

The five most frequent utterances in 'socio-emotional communication' by patients were 'Personal remarks (Personal)'; 'Shows concern or worries (Concern)'; 'Shows approval-direct (Approve)'; 'Shows agreement or understanding (Agree)'; and 'Laughs, tells jokes (Laughs)'. The five least frequent utterances in 'socio-emotional communication' were 'Legitimising statement (Legit)'; 'Empathy statement (Empathy)'; 'Reassurances: encourages, Shows optimism (R/O)'; 'Shows criticism-general (Crit)'; and 'Shows disapproval-direct (Disapprove)'. The authors found that the 'biomedical utterances' were also uttered significantly more than 'socio-emotional utterances' by the patients in this study ($p < 0.000$). Patients uttered 'Asks for reassurance (?R/O)' and 'Shows concern or worries (Concern)' significantly more than the pharmacists. They gave compliments more frequently than the pharmacists, but the number was not significantly different. Therefore, the patients in this study were also inclined towards a more biomedical-focused communication; similar to the pharmacists, although the patients did make more expressions on socio-emotional aspects, they still neglected these important aspects.

The 'Shows approval-direct (Approve)' and 'Shows agreement or understanding (Agree)' utterances of patients in this study might not reflect the true patient understandings and actual approval or agreement. Below is an example, that we found frequently in this study.

Pharmacist: "This drug should be taken three times in a day."

Patient: "Yes."

Pharmacist: "People with diabetes should keep the dietary habit. It should be clear not to eat sweets, salty foods, oils, coconut milk and must exercise."

Patient: "Yes, yes, yes."

Both patients and pharmacists did not mention something to indicate that the 'Yes' was indeed an agreement. Usually, when there was an agreement, the healthcare provider would ask the patients to repeat what they already understood. For example, the patient's response might be: "Ok, so I need to take my medicine after breakfast, lunch, and dinner."

Discussion

Patient-centred care requires excellent communication skills of pharmacists which may significantly improve patient satisfaction, adherence, and outcomes, as well as their quality of life (Kansanaho *et al.*, 2005; Ellington *et al.*, 2008; Murad *et al.*, 2013). A critical aspect of improving the quality of communication skills in counselling is harmony or balance between 'biomedical' and 'socio-emotional' communications. This approach can build a closer relationship and prevent problems in communication such as inaccuracies in gathering information on medical history, inaccuracies in therapeutic decision-making, and patient confusion (Roter, 2006; Watermeyer & Penn, 2009).

The findings of this study showed that the communication between pharmacists and patients tended predominantly to be 'biomedical communication'. The brief results of this study are in line with previous research using RIAS (Kim *et al.*, 2001; Cavaco & Romano, 2010; Claramita *et al.*, 2011). However, the pharmacist-patient interaction was slightly different than the doctor-patient interaction that was studied by Claramita *et al.* (2011) in regards to the average duration of pharmacists' counselling that was longer than that found in doctor-patient communication (more than 11 minutes compared to only 5 minutes of the doctors'). Pharmacists were found to be trying to communicate with patients both in 'biomedical' and 'socio-emotional' ways, which can be described from 'partnership statements (Partner)' and 'self-disclosure statement (SDis)' uttered by the pharmacists, yet the utterances were still not adequate or balanced. Nevertheless, pharmacists in this study are shown to have limited interests in the patients' personal story. For example, the pharmacists did not explore patients' perspectives on the

healing process. Therefore, pharmacists and patients in this study communicated with more 'biomedical' than 'socio-emotional' communication, but overall pharmacists tend to be more dominant in 'biomedical communication'. This finding is because pharmacists have more knowledge about healthcare and medications than the patients; hence, they tend to explain or provide more in-depth education for patients without consciously realising that patient education and counselling may not be effective without adequate exploration of patients' concerns, beliefs, attitudes, and behaviours at the beginning of the consultation (Naughton, 2018).

The use of 'biomedical communication' alone has a limitation in building a partnership with patients. It also can cause difficulties in understanding patients' perceptions of their treatment, including the use of the medications. One example illustrates the potential confusion by focusing on an explanation to take a medication three times a day, where the patient could perceive this as one tablet divided into three portions, each of which was to be taken three times a day. Pharmacists need to have not only medication-related competences but also cultural competences and integrate these skills into practice to ensure patient understanding (Zweber, 2002; O'Connell *et al.*, 2007).

Many patients tend to ask pharmacists about their medical condition, which may occur because the patients do not receive adequate information of this from their doctors, due to the doctor-patient paternalistic style of communication (Claramita *et al.*, 2011). However, when the patients did not feel satisfied when they talk to the pharmacist, it is also possible that the patients prefer to seek information from other non-healthcare providers, or maybe traditional healers as reported in doctor-patient communication studied by Susilo *et al.* (2019). In this case, the healthcare provider-patient communication will not be effective in reaching the goal of the treatment.

In 'biomedical communication' utterances, pharmacists were significantly more often giving information related to therapeutics regimens compared to patients. The pharmacist also gave counselling about health behaviour for the patient. Therefore, the pharmacists are fulfilling their duties as healthcare providers and as medication experts. Pharmacists also asked many questions about patients' medical conditions as an effort of gathering information related to patients' knowledge of disease to prevent discrepancies in the provision of information from other healthcare professionals. The pattern marks how pharmacists tried to provide information related to treatment regimens according to the patient's condition. However, pharmacists tended to use closed-ended questions more than open-ended questions which is in line with the previous research in a country with intermediate-power distance index (Nakayama *et al.*, 2016) and high-power distance index (van Hulst *et al.*, 2011), meaning that little time and attention are given to explore the patients' perspectives. Open-ended questions are essential to promote building rapport, gathering information and avoiding misperceptions, especially at the beginning of the consultation, whereas closed-ended

questions are necessary to ask about a specific matter or for confirmation about something. Therefore, the two kinds of questions should be used together for a more complete understanding (Tindall, Beardsley & Kimberlin, 2003; Hawes, 2018). Strengthening pharmacists' or pharmacy students' skills in this area is needed to improve their performance in gathering information, and explore patients' perspective through continuous practice or professional training (Nakayama *et al.*, 2016).

In line with Hofstede *et al.* (2010), the authors interpreted the results in this study as a tendency of communication with cultural high-power distance where pharmacists in this context put themselves above the patients' position regarding social hierarchy, and as a result, the information sharing was mostly one-directional. This result is also in line with another study in patient counselling in a Finnish setting (Kansanaho *et al.*, 2005). The professional distancing can be seen in the lack of 'socio-emotional' forms of communication, such as personal concern, empathy, legitimacy, partnership, and motivation (reassurance, encourage, optimism), which were not widely used in the conversations by both pharmacists or doctors from this study and previous studies (Watermeyer & Penn, 2009; Hofstede *et al.*, 2010; Claramita *et al.*, 2011).

The study found that pharmacists' personal utterances were limited to greetings and offering a seat. Expressions of concern, empathy, legitimising, partnership, and motivation were almost entirely absent. Whereas, patients in this research were much more revealing in 'socio-emotional' utterances and they tended to initiate a discussion on social problems. Despite the patients' significant concerns and reassurance seeking, pharmacists' responses were still inadequate. Pharmacists had not yet shown personal interest in patients, which is usually preceded by exploring the patients' perspectives on the healing process, or pharmacists might not be ready to respond to patients' social problems. In the counselling process, pharmacists ideally should give more attention to the patient as a person and consider patients not just as a medical problem to diagnose and treat indifferently (Tindall *et al.*, 2003; Roter, 2006; Claramita *et al.*, 2011). This pattern indicates the pharmacists' approach had not yet developed into an optimal patient-centred communication. Pharmacists need continuing education in socio-emotional communication because education about knowledge alone is not enough to support professional practice. (Kansanaho *et al.*, 2005)

Utterances related to an agreement were sometimes not the true reflection of agreement in this study since the patient only said 'Yes' but did not show their actual understanding. Although patients included in this study were voluntarily asking for counselling, some patients seemed to accelerate the process of counselling by saying 'Yes' to additional questions asked by pharmacists, especially when their own questions had already been answered. The tendency again indicates that communication has not been entirely patient-centred (Kim *et al.*, 2001; Claramita *et al.*, 2011). This finding

suggests that based on their perceived needs, the concern of the patients may not be sufficiently responded to by the pharmacists. The gap in communication between pharmacists and patients indicates there may be different perceptions of information needed by patients.

The background of the predominance of 'biomedical communication' that is demonstrated by the pharmacists and patients in the study should be further studied. There may be other explanations for the phenomenon such as pharmacists being too focused on the provision of information related to the patient's course of treatment, whether it was intentional or not, and as a result, they tended to neglect building relationships with patients. Another possibility is the general lack of knowledge and skills related to pharmacists' interpersonal communication. The need for more adequate communication skills training for pharmacists, including incorporating pharmacists' cultural competence are needed (Kansanaho *et al.*, 2005; Claramita *et al.*, 2011). Claramita *et al.* (2011) found that the presence of social and cultural boundaries significantly contributed to these communication patterns, both because of the limitations of the hierarchy of cultures in Indonesia and other restrictions, such as time. Characteristics of patients (*e.g.* socioeconomic status, health literacy) and their experiences of the disease and medication may also influence the pharmacist-patient communication (Naughton, 2018), though this study focused on communication regardless of patients' characteristics and disease. Future research is needed to better determine the impact of patients' characteristics and disease on pharmacist-patient communication.

The RIAS methods were based on the Bale's interaction of analysis method (developed in 1950). The Bale's coding system could capture communication between two communicators, and the categories reflect the medical and healthcare professionals' content and context, based on the previous two characteristics of 'biomedical' and 'socio-emotional'. Originally, the coders did not have to do the transcription, but directly listened to the audio/video recorders and reflected on the RIAS items, thus the interactional dynamics could be assessed from the intonations of the utterances (Roter, 2006). The authors used the RIAS methods in this study to get closer to the actual experiences of the health providers-patients communication. It was not an actual observation, but the authors used audio-recorded pharmacist-patient interactions in this study. All parts of the instruments in the study may influence the findings and have some limitations. For example, the audio-recorders for data collection could not obtain the full expressions of the communicators, and the RIAS methods for the content analysis are less suited for capturing the real emotion of the interaction. Furthermore, interpretations of the coders should carefully be assessed at the beginning with an inter-rater reliability method as was done in this study. Further study of patients' expectations and preferences is needed to better analyse this issue since cultural settings within

the high-power distance countries may differ from where RIAS was developed.

Nevertheless, the findings of this study can be used as a basis for mapping the pharmacists' communication skills and for future research in order to improve education in pharmacists' interactions, especially in communication skills. Future improvement in pharmacy education related to communication skills is still needed. 'Socio-emotional communication' needs to be included in pharmacist's curriculum. Training for pharmacy students or undergraduate pharmacists may be needed to strengthen the pharmacist's skill in showing their care for patients through 'socio-emotional communication'. Cultural context also needs to be emphasised in communication training or education for pharmacists and must be integrated in communication skills education. Further research is needed to determine the reasons behind inadequate and indirect communication between pharmacists and patients in Indonesia and to better identify patients' needs for counselling, especially when a counselling programme for patients with certain chronic or complex diseases is required (van Hulten *et al.*, 2011).

Research with a wider population and multiple settings is also needed to identify whether the same result may also be applied in different contexts. It is equally important to analyse the possible influence of cultural backgrounds to determine appropriate interventions such as improving pharmacists' ability through communication skills training to encourage them to become more aware of the importance of the patient-oriented process (O'Connell *et al.*, 2007). In the future, studies to find the impact of better counselling of pharmacists on patients' outcome will also be valuable to evaluate communication skills focused educational programmes for pharmacists.

Conclusions

The findings of this study demonstrate that the direction of pharmacist-patient communication in a high-power distance society is more towards a 'biomedical communication' than 'socio-emotional communication' according to the model provided by RIAS. The results show the pharmacists in this study are less able to build relationships with patients with an optimal patient-centred communication. The findings of this research also reinforce the recommendation that patient-centred communication skills training is needed to improve pharmacists' communication skills.

References

- Allinson, M. & Char, B. (2016). How to build and maintain trust with patients. *The Pharmaceutical Journal*, **297** (7895), 1-8
- American Association of Hospital Pharmacists. (1993). ASHP statement on pharmaceutical care. *AJHP: American Journal of Health-System Pharmacy*, **50**, 1720-1723

- Aslam, M., Tan, C.K. & Prayitno, A. (2003). *Farmasi klinis (clinical pharmacy): menuju pengobatan rasional dan penghargaan pilihan pasien*. Jakarta: PT Gramedia.
- Barnett, N. (2017). Patient-centered care in pharmacy practice (online). Available at: <https://www.sps.nhs.uk/wp-content/uploads/2017/08/Patient-centred-care-in-pharmacy-practice-for-OPnet-7-Nov-2017-Nina-Barnett.pdf>. 25th August, 2018
- Blom, L., Jonkers, R., Kok, G. & Bakker, A. (1998). Patient education in 20 Dutch community pharmacies; analysis of audiotaped patient contacts. *International Journal of Pharmacy Practices*, **6**(2), 72-76. doi: 10.1111/j.2042-7174.1998.tb00919.x
- Bosma, L., Jansman, F.G.A., Franken, A.M., Harting, J.W. & Van den Bemt, P. (2008). Evaluation of pharmacist clinical interventions in a Dutch hospital setting. *Pharmacy World and Science*, **30**(1), 31-38. doi: 10.1007/s11096-007-9136-9
- Cavaco, A.N. & Romano, J.P. (2010). Exploring pharmacist–customer communication: the established blood pressure measurement episode. *Pharmacy World and Science*, **32**(5), 601–609. doi:10.1007/s11096-010-9413-x
- Cavaco, A. & Roter, D. (2010). Pharmaceutical consultations on community pharmacies: utility of the Roter Interaction Analysis System to study pharmacist–patient communication. *International Journal of Pharmacy Practice*, **18**, 141-148. doi:10.1211/ijpp/18.03.0003
- Chong, W.W., Aslani, P. & Chen, T.F. (2014). Pharmacist–patient communication on use of antidepressants: a simulated patient study in community pharmacy. *Research in Social and Administrative Pharmacy*, **10**(2), 419–437. doi:10.1016/j.sapharm.2013.05.006
- Claramita, M., van Dalen, J. & van der Vleuten, C.P.M. (2011). Doctors in a Southeast Asian country communicate sub-optimally regardless of patients' educational background. *Patient Education and Counseling*, **85**(3), e169–e174. doi:10.1016/j.pec.2011.02.002
- Claramita, M., Nugraheni, M.D.F, van Dalen, J. & van der Vleuten, C. (2013). Doctor-patient communication in Southeast Asia: a different culture? *Advance in Health Sciences Education*, **18**(1), 15-31. doi:10.1007/s10459-012-9352-5
- Claramita, M. & Susilo, A.P. (2014). Improving communication skills in the Southeast Asian health care context. *Perspectives on Medical Education*, **3**(6), 474-479. doi:10.1007/s40037-014-0121-4
- Ellington, L., Matwin, S., Jasti, S., Williamson, J., Crouch, B., Caravati, M. & Dudley, W. (2008). Poison control center communication and impact on patient adherence. *Clinical Toxicology*, **46**, 105-109
- Ernawati, D., Lee, Y.P., Sunderland, B. & Hughes, J. (2016). Are Pharmacy Graduates from an Indonesian University Prepared to Deliver Patient Care? *Preprints* **2016**, 2016120146. doi:10.20944/preprints201612.0146.v1.
- Epner, D.E. & Baile, W.F. (2012). Patient-centered care: the key to cultural competence. *Annals of Oncology*, **23**(3), 33-42. doi: 10.1093/annonc/mds086
- Hawes, E.M. (2018). Patient education on oral anticoagulation. *Pharmacy*, **6**(2), 34. doi:10.3390/pharmacy6020034
- Herman, M.J. & Susyanty, A.L. (2012). Analysis of Pharmacy Services By Pharmacist In Community Pharmacy (Kajian Praktek Kefarmasian oleh Apoteker di Apotek Komunitas. *Buletin Penelitian Sistem Kesehatan*, **15**(3), 271–81
- Hofstede, G., Hofstede, G.J. & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind: Intercultural Cooperation and its Importance for Survival*. New York: McGraw Hill.
- Jennings, D.L., Ragucci, K.L., Chumney, E.C.G. & Wessell, A.M. (2007). Impact of clinical pharmacist intervention on diabetes related quality-of-life in an ambulatory care clinic. *Pharmacy Practice*, **5**(4), 169-173
- Kaboli, P.J., Hoth, A.B., McClimon, B.J. & Schnipper, J.L. (2006). Clinical pharmacists and inpatient medical care a systematic review. *Archive of Internal Medicine*, **166**(9), 955-964. doi: 10.1001/archinte.166.9.955
- Kansanaho, H., Cordina, M., Puumalainen, I. & Airaksinen, M. (2005). Practicing pharmacists' patient counseling skills in the context of reflectivity. *Pharmacy Education*, **5**(1), 19-26. doi:10.1080/156022105000750 77
- Kim, Y.M., Kols, A., Bonnin, C., Richardson, P. & Roter, D. (2001). Client communication behaviors with health care providers in Indonesia. *Patient Education and Counseling*, **5**, 59-68
- Kuntz, J.L., Safford, M.M., Singh, J.A., Phansalkar, S., Slight, S.P., Her, Q.L., Lapointe, N.A., Mathews, R., O'Brien, E., Brinkman, W.B., Hommel, K., Farmer, K.C., Klingler, E., Maniam, N., Sobko, H.J., Bailey, S.C., Cho, I., Rumpitz, M.H., Vandermeer, M.L. & Hornbrook, M.C. (2014). Patient-centered interventions to improve medication management and adherence: a qualitative review of research findings. *Patient Education and Counseling*, **97**, 310-326. doi:10.1016/j.pec.2014.08.021
- McKinn, S., Linh, D.T., Foster, K. & McCaffery, K. (2017). Communication between health workers and ethnic minorities in Vietnam. *Health Literacy Research and Practice*, **1**(4), e163-e172. doi:10.3928/24748307-20170629-01
- Meeuwesen, L., van den Brink-Muinen, A. & Hofstede, G. (2009). Can dimensions of national culture predict cross-national differences in medical communication? *Patient Education and Counseling*, **75**(1), 58–66. doi:10.1016/j.pec.2008.09.015

- Montgomery, A.T., Lindbland, A.K., Eddy, P., Soderlund, E., Tully, M.P. & Sporrang, S.K. (2010). Counselling behavior and content in a pharmaceutical care service in Swedish community pharmacies. *Pharmacy World Science*, **32**, 455-463
- Morrison, A. & Wertheimer, A. I. (2001). Evaluation of studies investigating the effectiveness of pharmacists' clinical services. *AJHP: American Journal of Health-System Pharmacy*, **58**(7), 569-577
- Murad, M.S., Chatterley, T. & Guirguis, L.M. (2013). A meta-narrative review of recorded patient-pharmacist interaction: Exploring biomedical or patient-centered communication. *Research in Social Administrative Pharmacy*, **10**(1), 1-20. doi:10.1016/j.sapharm.2013.03.002
- Nakayama, C., Kimata, S., Oshima, T., Kato, A. & Nitta, A. (2016). Analysis of pharmacist-patient communication using the Roter Method of Interaction Process Analysis System. *Research in Social and Administrative Pharmacy*, **12**(2), 319-326. doi: 10.1016/j.sapharm.2015.05.007
- Ngoh, L.N. (2009). Health literacy: a barrier to pharmacist-patient communication and medication adherence. *Pharmacy Today*, **15**, 45-57
- Naughton, C.A. (2018). Patient-centered communication. *Pharmacy*, **6**(18). doi:10.3390/pharmacy6010018
- O'Connell, M.B., Korner, E. J., Rickles, N.M. & Sias, J.J. (2007). Cultural Competence in Health Care and Its Implications for Pharmacy Part 1. Overview of Key Concepts in Multicultural Health Care. *Pharmacotherapy*, **27**(7), 1062-1079. doi:10.1592/phco.27.7.1062
- Okumura, L.M., Rotta, I. & Correr, C.J. (2014). Assessment of pharmacist-led patient counseling in randomized controlled trials: a systematic review. *International Journal of Clinical Pharmacy*, **36**, 882-891. doi:10.1007/s11096-014-9982-1
- Pires, C.M. & Cavaco, A.M. (2014). Communication between health professionals and patients: review of studies using the RIAS (Roter Interaction Analysis System) methods. *Revista da Associação Médica Brasileira*, **60**(2), 156-172. doi:10.1590/1806-9282.60.02.014
- Roter, D. (2006). The Roter method of interaction process analysis. Baltimore: Bloomberg School of Public Health, Department of Health Policy and Management, The John Hopkins University
- Roter, D. & Larson, S. (2002). The Roter Interaction Analysis System (RIAS): utility and flexibility for analysis of medical interactions. *Patient Education and Counseling*, **46**(4), 243-251
- Schottenfeld, L., Petersen, D., Peikes, D., Ricciardi, R., Burak, H., McNellis, R. & Genevro, J. (2016). Creating Patient-Centered Team-Based Primary Care. AHRQ Pub. No. 16-0002-EF. Rockville, MD: Agency for Healthcare Research and Quality
- Sporrong, S.K. & Kaae, S. (2018). Trends in pharmacy practice communication research. *Pharmacy*, **6**(127)
- Stevenson, F.A., Cox, K, Britten, N & Dunbar, Y. (2004). A systematic review of the research on communication between patients and health care professionals about medicines: the consequences for concordance. *Health Expect*, **7**, 235-245
- Susilo, A.P., Marjadi, B., van Dalen, J. & Scherpbier A. (2019). Patient decision-making in the informed consent process in a hierarchical and communal culture. *The Asia Pacific Scholar*, **4**(3), 57-66. doi:10.290.60/TAPS.2019-4-3/OA2085
- Susilo, A.P., van Dalen, J., Scherpbier, A., Tanto, S., Yuhanti, P. & Ekawati, N. (2013). Nurses' roles in informed consent in a hierarchical and communal context. *Nursing Ethics*, **20**(4), 413-425. doi:10.1177/0969733012468467
- Talasaz, A.H. (2012). The potential role of clinical pharmacy services in patients with cardiovascular diseases. *Journal of Tehran Heart Center*, **7**(2), 41-46
- Tindall, W.N., Beardsley, R.S. & Kimberlin, C.L. (2003). *Communication Skill in Pharmacy Practice 4th ed.: A Practical Guide for Students and Practitioners*. Philadelphia: Lippincott Williams & Wilkin.
- van Hulst, R., Blom, L., Mattheusens, J., Wolters, M. & Bouvy, M. (2011). Communication with patients who are dispensed a first prescription of chronic medication in the community pharmacy. *Patient Education and Counseling*, **83**, 417-422
- Watermeyer, J. & Penn, C. (2009). The organization of pharmacist-patient interactions in an HIV/AIDS clinic. *Journal of Pragmatics*, **41**(10), 2053-2071. doi:10.1016/j.pragma.2009.02.010
- NEJM Catalyst. (2017). What is patient-centred care? (online). Available at: <https://catalyst.nejm.org/what-is-patient-centered-care/>. Accessed 3rd August, 2018
- Zhao, P.X., Wang, C., Qin L., Yuan, M., Xiao, Q., Guo, Y.H. & Wen, A.D. (2012). Effect of clinical pharmacist's pharmaceutical care intervention to control hypertensive outpatients in China. *AJJP: African Journal of Pharmacy and Pharmacology*, **6**(1), 48-56. doi:10.5897/ajpp11.633
- Zweber, A. (2002). Cultural competence in pharmacy practice. *American Journal of Pharmaceutical Education*, **66**, 172-176