

Development of a Communication Learning Program for Pharmacists

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{ Received August 16, 2014 }
{ Accepted December 8, 2014 }

Pharmacists are required to form a partnership with their patients in order to support their recuperation; however, pharmacists have few opportunities to learn how to acquire high-quality communication skills while providing patient-centered care. Therefore, we created a new simulated patient (SP) participatory learning program using the Database of Individual Patient Experience-Japan (DIPEX-Japan), and verified its effectiveness and influence.

The program comprised three stages: orientation, SP sessions plus general discussions using a video and a transcript of the SP session. For the SP sessions, we set up 10-min role-play situations between the SPs and the participants. After the role-play, the participants reflected on and discussed their communication skills during the role-play in small groups. General discussions with all the SPs and participants were conducted, based on the video and the transcript, to deepen the participants' understanding of the communication. The program's effectiveness and influence was evaluated using a 30-item questionnaire survey of awareness and behavior regarding pharmacist-patient communication. The results of the investigation were analyzed by student's *t*-test, analysis of variance, and correlation analysis. One hundred fourteen pharmacists participated in the program. Comparison of the responses before and one month after the study showed improvement in both awareness ($P < 0.05$) and behavior ($P < 0.01$). Our new SP participatory learning program focusing on the patient's background, thoughts, and feelings was able to improve awareness and behavior among pharmacists. Our program improved the communication skills of pharmacists and is expected to contribute to better pharmacist-patient communication.

Key words — pharmacist-patient communication, simulated patient, learning program, communication skills

Introduction

Patient-centered care is an important part of current medical treatment. It is a broadly accepted approach among medical workers, including pharmacists. In addition, medication adherence is also recommended for effective treatment.¹⁾ The World Health Organization introduced the “seven-star pharmacist” concept, which was adopted by the International Pharmaceutical Federation in 2000. In this concept, “Communicator” is one of the key roles of the pharmacist. The pharmacist is in an ideal position to provide a link between the prescriber and patient and to communicate infor-

mation on health and medicine to the public.²⁾

Therefore, pharmacists are required to support patients' medical care while simultaneously building a good relationship with them.

The ageing of society in Japan has led to an increase in the number of patients receiving home-based medical care (Ministry of Health, Labour and Welfare: http://www.mhlw.go.jp/seisakunitsuite/bunya/kenkou_iryuu/iryuu/zaitaku/dl/zaitakuiryuu_00.pdf, July 3, 2014). Furthermore, medical care for cancer patients has shifted from inpatient to outpatient care. In addition, opportunities for community pharmacists to communicate with patients with serious illnesses such as cancer

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are likely to increase; therefore, it will be necessary to raise the level of communication skills of pharmacists.

Simulation learning (role-playing) is an effective method of improving communication skills. It does so by incorporating strategies to help participants better understand the complexity and variety of the human condition.³⁾ An example of this learning method is the use of simulated patients (SPs), which was developed by Barrows *et al* (1964).⁴⁾ The current six-year education system of pharmacy students in Japan was established in 2006, and educational programs to cultivate humanism among pharmacists are an important part of the curriculum (The Pharmaceutical Society of Japan, Model Core Curriculum for Pharmaceutical Education, 2008: <http://www.pharm.or.jp/kyoiku/index.html>, July 3, 2014). Study using SPs has also been recommended in this curriculum; however, few pharmacists have had the opportunity to receive communication training. It is necessary for pharmacists to become lifelong learners and keep their knowledge and skills up to date.²⁾ Therefore, it is necessary to create learning environments that enable pharmacists to improve their communication skills.

The aim of this study was to improve not only pharmacists' manners, but also their communication skills, by focusing on patient-centered care. Therefore, we developed a new SP participatory learning program for pharmacists. This program was created using the words and experiences of actual patients taken from the Database of Individual Patient Experience (DIPEX-Japan).^{a)} Few studies have carried out education of communication using a database such as "healthtalk.org" and DIPEX-Japan. We carried out this new program for pharmacists, and have verified its effectiveness and influence.

Methods

1. Development of the learning program

i) Scenario creation

The scenarios used in our SP participatory learning program were created primarily from actual patients' "Health and Illness Stories," as published on the DIPEX-Japan website. These stories convey the patients' experiences with prostate and breast cancer. Based on these stories, scenarios, comprising scenes of pharmacist-patient communication, were created for both SP and learner use. In the SP-use scenarios, the following variables were specified as follows: the patient's age, gender, family structure, lifestyle background, and their thoughts and feelings (*eg*, grief, fear, and hope). The information provided in the learner-use scenarios was limited to that which the pharmacists would actually be able to ascertain at a medical institution. We created the scenarios while referring to the relevant literature about the pathological conditions and medical treatments for each type of cancer (The Japanese Urological Association. Prostate cancer medical treatment guidelines based on EBM, 2006 version: http://www.urol.or.jp/info/data/gl_zenritusen.pdf, July 3, 2014).^{5,6)} We ensured that the established scenarios were realistic and revised them, as necessary, by consulting with SPs, pharmacists, and doctors.

ii) SP training

We requested the cooperation of the Oasis SP Society in the Aichi Prefecture and implemented specific role-play and feedback training for the SPs. These SPs were volunteers from the community.

iii) The learning program in practice

To recruit participants, we cooperated with the Aichi Prefectural Society of Hospital Pharmacists,

Aichi Pharmaceutical Association, Mie Pharmaceutical Association, Toyama Hospital Pharmaceutical Association, Ishikawa Hospital Pharmacists Association, Ishikawa Pharmaceutical Association, Ueda City Pharmaceutical Association, and Hofu City Pharmaceutical Association. About 8–12 pharmacists participated each time, and the learning program was held 13 times between September 2012 and June 2013.

Essentially, the learning program comprised three stages: orientation, SP sessions plus group discussions using a video of the SP session, and a transcript of the conversation between the pharmacist and the SP. During orientation, we obtained informed consent from the participants and conducted mini-lectures about prostate and breast cancer. This was done to provide some background about these diseases and alleviate any reluctance in participating. For the SP sessions, we set up 10-min role-play situations between the

SPs and the participants. After the role-play, the participants reflected on and discussed their communication skills during the role-play in small groups of four to six people. Next, general discussions with all the SPs and participants were conducted, based on the video and the transcript, to deepen the participants’ understanding of the communication. For the final part of the learning program, the SPs gave the participants feedback including their impressions of them as pharmacists and how they felt during the role-play. Two specially trained teachers served as facilitators of the discussion and feedback sessions, and summarized the entire proceedings (Fig 1).

2. Verification of the learning program

We used the “Communication Awareness and Behavior Checklist for Pharmacists” questionnaire to evaluate the effectiveness and influence of the learning program (Tables 1-1 and 1-2). The

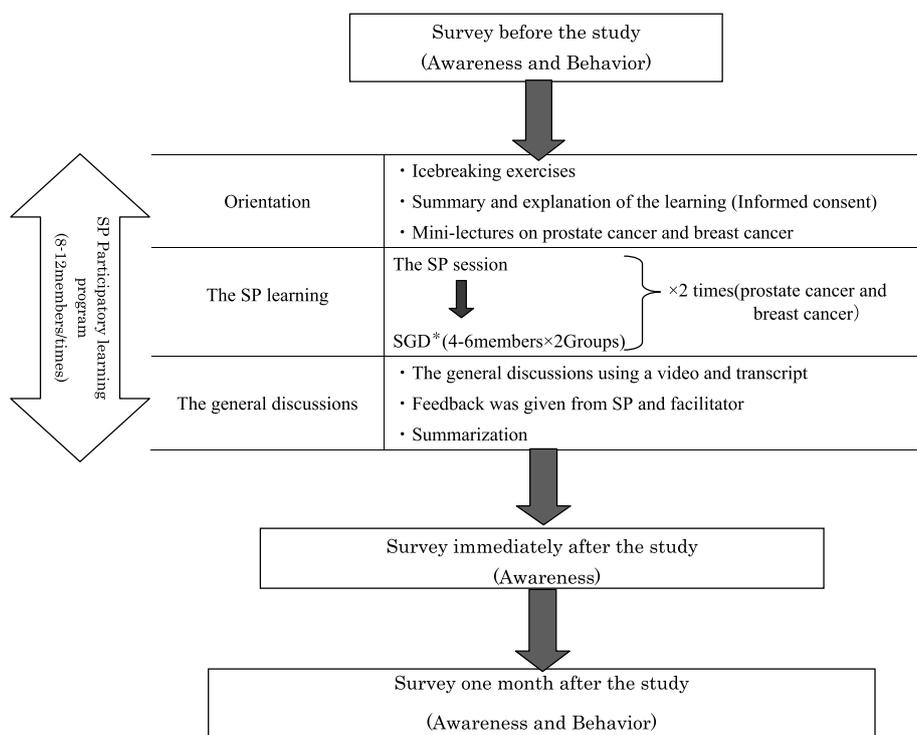


Fig 1 Implemental schedule of study and survey

* SGD: small group discussions.

Table 1-1 Communication Awareness and Behavior Checklist for Pharmacists

Items and Categories	awareness	behavior
Basic communication skills		
1. I interact with patients in a manner that gives them a sense of security and trust in me, such as using a warm tone of voice and facial expressions and behaving politely toward them.	1 2 3 4 5 6	1 2 3 4 5 6
2. I give consideration to the privacy of patients, such as in how I handle patient information and how loudly I speak when I am talking to a patient.	1 2 3 4 5 6	1 2 3 4 5 6
3. I interact with patients in accordance with their situation, taking into account patient convenience and their physical condition.	1 2 3 4 5 6	1 2 3 4 5 6
4. I make sure not to adopt a posture or position myself in a manner that may feel oppressive or intimidating to the patient, such as folding my arms or legs.	1 2 3 4 5 6	1 2 3 4 5 6
5. I interact with the patient in a moderate manner while maintaining eye contact with him/her.	1 2 3 4 5 6	1 2 3 4 5 6
6. At the end of a conversation with a patient, I make sure he or she has not misheard or misunderstood anything that I have explained.	1 2 3 4 5 6	1 2 3 4 5 6
7. I let the patients know that they can discuss anything with me at any time.	1 2 3 4 5 6	1 2 3 4 5 6
8. I always tell patients "Please take care of yourself" or make a similar kind remark when they are leaving.	1 2 3 4 5 6	1 2 3 4 5 6
Gathering and giving information		
9. I use closed questions that require a "yes" or "no" answer when I am collecting and confirming patient information.	1 2 3 4 5 6	1 2 3 4 5 6
10. I use open questions that patients can answer freely when I am trying to get them to tell me their complaints or their thoughts and feelings.	1 2 3 4 5 6	1 2 3 4 5 6
11. I do not use technical terms, but use easy-to-understand language when talking to patients.	1 2 3 4 5 6	1 2 3 4 5 6
12. I progress in the conversation with patients while checking that they understand what I have said.	1 2 3 4 5 6	1 2 3 4 5 6
13. I also show consideration by responding to the people who accompany the patients.	1 2 3 4 5 6	1 2 3 4 5 6
14. I do not simply give a one-way explanation, but first ask questions to make sure that the patient fully understands or whether he/she is unclear on any point. Then, I provide them with information in accordance with their answers.	1 2 3 4 5 6	1 2 3 4 5 6
Listening		
15. I make sure to listen fully to the patients' stories and do not interrupt them when they are speaking or mentally disparage their complaints or thoughts and feelings.	1 2 3 4 5 6	1 2 3 4 5 6
16. I nod my head and give other affirmative responses when patients are speaking and time them so that they feel comfortable speaking to me.	1 2 3 4 5 6	1 2 3 4 5 6
17. I confirm that the patient understands what I have said and how they are feeling, not only from what they say, but also from their tone of voice, facial expressions, gestures, and so on.	1 2 3 4 5 6	1 2 3 4 5 6
18. When I listen to patients, I pay attention not only to what they have to say, but also to how they are feeling.	1 2 3 4 5 6	1 2 3 4 5 6
19. I concentrate on listening to the patients' stories and do not let myself be distracted by my own thoughts, emotions, or preconceptions.	1 2 3 4 5 6	1 2 3 4 5 6
Promoting patient narratives		
20. I support patient self-determination by describing the choices they have for their particular problem.	1 2 3 4 5 6	1 2 3 4 5 6
21. When patients find themselves at a loss for words, I try to facilitate their explanation, such as by asking about the issue that they are having difficulties talking about.	1 2 3 4 5 6	1 2 3 4 5 6
22. I wait patiently when the patients become quiet during their story, such as when they are thinking about what they want to say or are searching for the right words.	1 2 3 4 5 6	1 2 3 4 5 6
23. I take into consideration the emotional words that the patients express in their stories, such as pain, anxiety, and happiness, and I respond to the patients verbally.	1 2 3 4 5 6	1 2 3 4 5 6
24. When the patients are not able to clearly express what they want to say, I clearly repeat back to them what they have said to confirm it.	1 2 3 4 5 6	1 2 3 4 5 6
25. When the patients speak for a long time, I repeat back to them what they have said to summarize and clarify their story.	1 2 3 4 5 6	1 2 3 4 5 6
26. When the patients have a mistaken impression or conviction, I first confirm what the exact circumstances are and then politely correct them.	1 2 3 4 5 6	1 2 3 4 5 6
Mental attitude		
27. The way I engage with patients enables us to address their problems together and guide them toward improvement.	1 2 3 4 5 6	1 2 3 4 5 6
28. When there is something I don't know or understand, I do not give an ambiguous response but address the situation by taking the responsibility to research it at that place and time.	1 2 3 4 5 6	1 2 3 4 5 6
29. I sincerely apologize to patients when I am not able to respond fully to their needs.	1 2 3 4 5 6	1 2 3 4 5 6
30. I always take the time to reflect on how I have been interacting with patients.	1 2 3 4 5 6	1 2 3 4 5 6

Table 1-2 意識と行動のチェックシート

項目とカテゴリー	意 識	行 動
基本のコミュニケーション		
1. あたためた口調や表情・丁寧な振る舞いなど、患者が安心感・信頼感を得られるような対応をしている。	1 2 3 4 5 6	1 2 3 4 5 6
2. 患者情報の取り扱いや対応時の声の大きさに注意するなど、患者のプライバシーに配慮している。	1 2 3 4 5 6	1 2 3 4 5 6
3. 患者の都合や体調など、患者の状況に応じた対応を行っている。	1 2 3 4 5 6	1 2 3 4 5 6
4. 腕組み・足組みなど、患者に圧迫感・威圧感を与えないような姿勢や位置取りをしている。	1 2 3 4 5 6	1 2 3 4 5 6
5. 患者と適度に視線を合わせながら接している。	1 2 3 4 5 6	1 2 3 4 5 6
6. 患者が聞きそびれたこと、わからなかったことなどがないかを対応の最後に確認している。	1 2 3 4 5 6	1 2 3 4 5 6
7. 何かあればいつでも患者の相談に対応する用意があることを患者に伝えている。	1 2 3 4 5 6	1 2 3 4 5 6
8. 「お大事に」など、終わりの一言を患者にかけている。	1 2 3 4 5 6	1 2 3 4 5 6
情報収集・情報提供		
9. 「はい」「いいえ」で答えられるような“閉じた質問”を用いて患者情報の収集や確認を行うようにしている。	1 2 3 4 5 6	1 2 3 4 5 6
10. 患者が自由に答えられるような“開いた質問”を用いて、患者の訴えや思いを引き出すようにしている。	1 2 3 4 5 6	1 2 3 4 5 6
11. 専門用語を使わず、わかりやすい言葉で説明している。	1 2 3 4 5 6	1 2 3 4 5 6
12. 患者の理解を確認しながら話を進めている。	1 2 3 4 5 6	1 2 3 4 5 6
13. 患者を取り巻く人にも配慮した対応をしている。	1 2 3 4 5 6	1 2 3 4 5 6
14. 一方的に説明するのではなく、まず患者の理解度や疑問点を聞き出し、それに適した情報提供をしている。	1 2 3 4 5 6	1 2 3 4 5 6
傾聴		
15. 患者の話を途中で遮ったり、訴えや思いを頭から否定したりせずに、患者の話に十分に耳を傾けている。	1 2 3 4 5 6	1 2 3 4 5 6
16. 患者が気持ち良く話せるタイミングの良いうなずきやあいづちをしている。	1 2 3 4 5 6	1 2 3 4 5 6
17. 患者の言葉からだけでなく、声のトーンや表情、仕草などから、患者の理解度や気持ちを確認している。	1 2 3 4 5 6	1 2 3 4 5 6
18. 患者の話の内容だけでなく、感情にも注目して話を聴くようにしている。	1 2 3 4 5 6	1 2 3 4 5 6
19. 自分の思考や感情、先入観に気を取られずに、患者の話に集中して耳を傾けている。	1 2 3 4 5 6	1 2 3 4 5 6
話を促すコミュニケーション		
20. 患者の問題に対して選択肢を示したうえで、患者の自己決定を援助している。	1 2 3 4 5 6	1 2 3 4 5 6
21. 患者が言葉に詰まった時には、詰まってしまった原因を尋ねるなど、患者が言葉を発しやすくしている。	1 2 3 4 5 6	1 2 3 4 5 6
22. 患者が話の途中で沈黙し、自分の中で考えたり、言葉を探したりしている時は、しばらく待つようにしている。	1 2 3 4 5 6	1 2 3 4 5 6
23. 辛い、不安、嬉しいなどの患者が話す感情の言葉を受け止め、それを患者に言葉で返している。	1 2 3 4 5 6	1 2 3 4 5 6
24. 患者が言いたいことをうまく話せていない時などには、内容を明確にして患者に返している。	1 2 3 4 5 6	1 2 3 4 5 6
25. 話が長くなってきた時などには、話の内容を要約し、簡潔にして患者に返している。	1 2 3 4 5 6	1 2 3 4 5 6
26. 患者が間違っただけの思い込みをしている際は、まず状況を正確に確認したうえで、丁寧に訂正をしている。	1 2 3 4 5 6	1 2 3 4 5 6
患者に対応する際の心構え		
27. 患者と共に問題に向き合い、改善点を見出していくことができるようなかかわり方をしている。	1 2 3 4 5 6	1 2 3 4 5 6
28. わからないことがあった場合は、あやふやにせず、その場で調べるなど責任を持った対応をしている。	1 2 3 4 5 6	1 2 3 4 5 6
29. 至らないことがあった時には、患者に対して真摯に謝罪している。	1 2 3 4 5 6	1 2 3 4 5 6
30. 日頃、患者への接し方を振り返るようにしている。	1 2 3 4 5 6	1 2 3 4 5 6

questionnaire was administered on three occasions: before, immediately after (only the “awareness” of participants was assessed), and one month after the study, and was filled out anonymously.

To prepare the questionnaire, we reviewed the literature on pharmacist-patient communication⁷⁻¹³⁾ and created a list of 30 items in the five categories of “basic communication skills” (eight items), “gathering and giving information” (six items),

“listening” (five items), “promoting patient narratives” (seven items), and “mental attitude” (four items). We also collaborated with pharmacists and pharmacy teachers in selecting the items for the questionnaire. The questionnaire assessed not only pharmacists’ manners, but also the communication skills necessary for patient-centered care. The questionnaire was created in such a way that the pharmacists could assess their own awareness and behavior. “Awareness” and “behavior” for each of the 30 items were scored on a scale from 1 (low level of awareness and behavior) to 6 (high level of awareness and behavior). When a participant responded to the questionnaire, in terms of their awareness, were they aware of their communication skills, and in terms of their behavior, did the participants actually make use of their communication skills was what was assessed. The questionnaire was conducted the same asking methods. We also used the Kikuchi’s Scale of Social Skills that comprises 18 items (KiSS-18) to measure social skills as an external criterion.^{14, 15)}

The analysis consisted of comparing participants’ scores for the 30 questionnaire items before, immediately after, and one month after the study. We used a student’s *t*-test, analysis of variance, and correlation analysis (SPSS Statistics 22, IBM Corp, New York) to determine the effects of the learning program and regarded the data as an interval scale. Additionally, Cronbach’s coefficient alpha was calculated to determine the reliability of the questionnaire.

The learning program was conducted after receiving the approval of the Kinjo Gakuin University Ethics Review Board. This study was funded by a Grant-in-Aid for Scientific Research (No 23590627).

Results

1. Contents of the learning program and participant characteristics

We created learning scenarios with six patterns. When creating the scenarios, we referenced the stories from DIPEX-Japan’s “breast cancer stories” and “prostate cancer stories” that prominently express the mental conflict of patients. Three breast cancer scenarios were created as follows: (S1) counseling for patients diagnosed with breast cancer, (S2) counseling for patients about to start anticancer drug treatment, and (S3) counseling for patients undergoing anticancer drug treatment. In addition, three prostate cancer scenarios were created, which are as follows: (S4) counseling for patients diagnosed with prostate cancer, (S5) counseling for patients undergoing maximum androgen blockade therapy, and (S6) counseling for patients about to start pain relief treatment for bone metastases. SPs were then trained in these six scenarios.

The learning program was conducted 13 times in six prefectures, with 114 pharmacists. The ratio of male to female participants was 38:62 and 40% of the participants had < 10 years of work experience (short work experience group). Additionally, 75% of the participants worked as community pharmacists (Table 2). We devised the program to alleviate the pharmacists’ resistance to simulation learning, as evidenced by statements such as “I cannot provide counseling for an illness that I have not encountered before,” “I am embarrassed about performing in front of everyone,” and “I find it difficult to speak before a large group.” For example, we included icebreaking exercises and mini-lectures about cancer. Additionally, we introduced a summary of the small group discussions to share the participants’ reflec-

Table 2 Participants' characteristics (n = 114)

Variable	Percent
Gender	
Male	38
Female	62
Age	
~29	13
30~39	37
40~49	19
50~59	24
60~	7
Years of work experience	
~10 years Short work experience	40
~20 years	35
~30 years	17
~40 years	7
40 years~ Long work experience	1
Workplace	
Community Pharmacy	75
Hospital Pharmacy	23
Others	2

tions.

The general discussions took place using each video and transcript immediately after the SP session. The purpose of the general discussion was to address any problems with the participants' communication skills, such as their expressions and gestures, verbal habits, and effective silences.

This method helped participants understand their own communication difficulties.

2. Examining the effectiveness and influence of the developed learning program

To verify the effectiveness and influence of the new learning program, we conducted a survey that assessed the attitudes of the participants. There was no significant difference in the total score for awareness before and immediately after the study (Fig 2). However, there was a significant difference in the total score for awareness before the study, and one month after it ($P < 0.05$) (Fig 2). There was also a significant difference in the total score on the behavior before the study and one month after it ($P < 0.01$) (Fig 3).

Comparison of the total score for awareness before and immediately after the study according to the participants' characteristics (gender, years of experience, and workplace) did not show any significant differences (Fig 2). However, comparison of the scores before and one month after the study according to the same characteristics showed a significant difference in the total scores for aware-



Fig 2 Comparison of total score of 30 items in participant's characteristic (Awareness)

▨ Before the study, □ Immediately after the study, ■ One month after the study, Using analysis of variance, * $P < 0.05$.

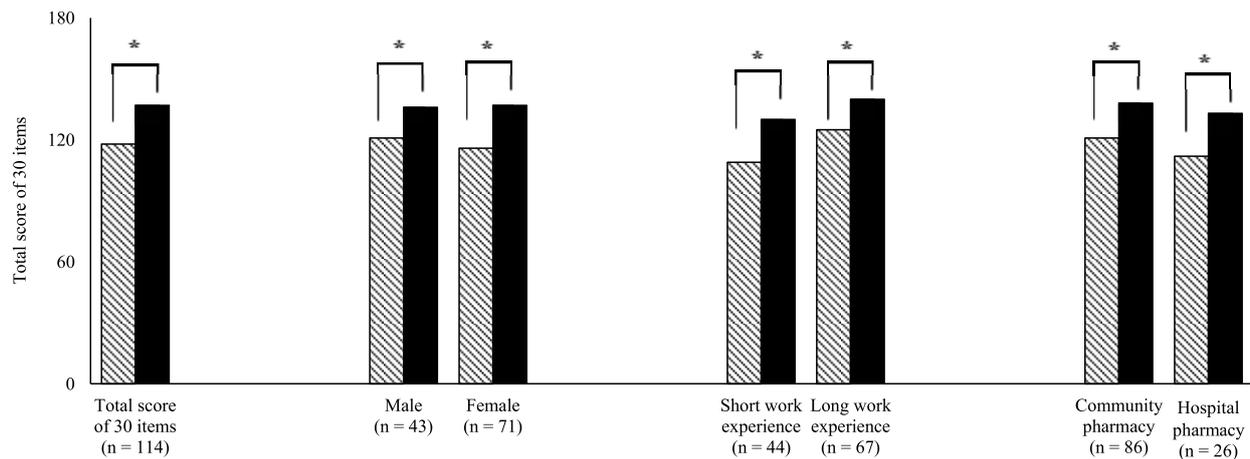


Fig 3 Comparison of total score of 30 items in participant's characteristic (Behavior)

▨ Before the study, ■ One month after the study, Using student's *t*-test, * $P < 0.01$.

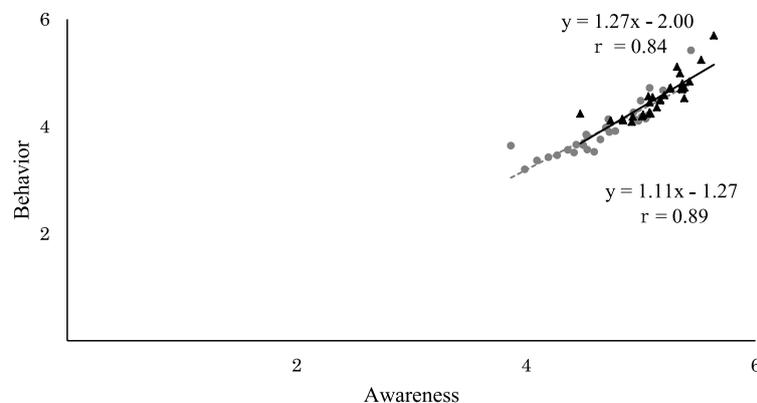


Fig 4 Correlation between awareness and behavior in 30 items (n = 114)

Before the study (●, - - - - -), One month after the study (▲, ———)

ness ($P < 0.05$) and behavior ($P < 0.01$) (Figs 2 and 3).

Analysis of the correlation between awareness and behavior showed a significant positive correlation, both before ($r = 0.89$, $P < 0.01$) and one month after the study ($r = 0.84$, $P < 0.01$) (Fig 4). Furthermore, there was a significant positive correlation between community pharmacists' awareness before and immediately after the study ($r = 0.93$, $P < 0.01$) (Fig 5). There was also a significant positive correlation between community pharmacists' awareness before and one month after the study ($r = 0.95$, $P < 0.01$) (Fig 5). Similar results were obtained for the hospital pharmacists

(before and immediately after the study: $r = 0.82$, $P < 0.01$; before and one month after the study: $r = 0.86$, $P < 0.01$) (Fig 6). Moreover, the scores for each of the 30 items were higher for the community pharmacists as compared with those for the hospital pharmacists (Figs 5 and 6).

Item analysis found no significant difference before and immediately after the study in most of the questionnaire items ($P > 0.05$) (Table 3). However, there was a significant difference between the scores on all items before and one month after the study, in both awareness and behavior ($P < 0.05$) (Table 3). Further, category analysis found similar results ($P < 0.01$) (Table 3).

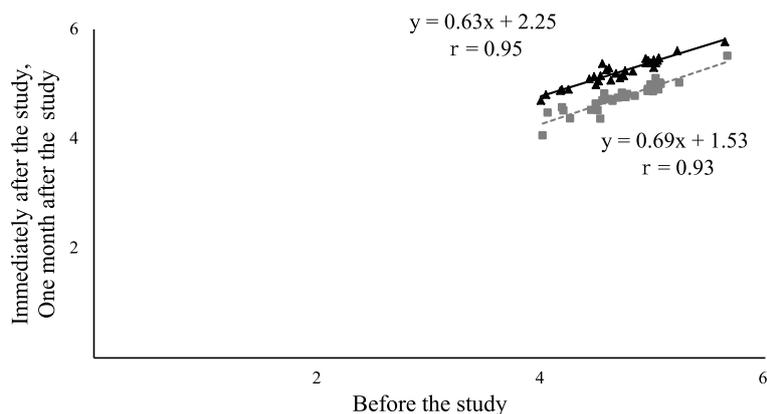


Fig 5 Correlation between before the study and immediately after the study, and between before the study and one month after the study in awareness of community pharmacists (n = 86)
Immediately after the study (■, -----), One month after the study (▲, ———)

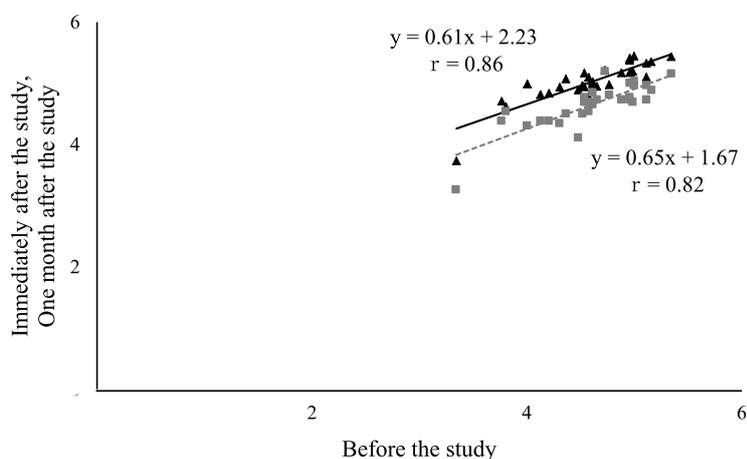


Fig 6 Correlation between before the study and immediately after the study, and between before the study and one month after the study in awareness of Hospital pharmacists (n = 26)
Immediately after the study (■, -----), One month after the study (▲, ———)

On the other hand, there was significantly increased before and immediately after the study in three items (item 6 “At the end of a conversation with a patient, I make sure he or she has not misheard or misunderstood anything that I have explained,” item 20 “I support patient self-determination by describing the choices they have for their problem,” and item 21 “When patients find themselves at a loss for words, I try to facilitate their explanation, such as by asking about the issue that they are having difficulties talking

about”). There was significantly reduced before and immediately after the study in item 29 “I sincerely apologize to patients when I am unable to respond fully to their needs” (**Table 3**).

To verify the reliability of the questionnaire Cronbach’s coefficient alpha was computed. The Cronbach’s alphas for the total score on the 30 items before, immediately after, and one month after the study ranged from 0.96 to 0.98 (**Table 4**). The correlation between awareness at one month after the study and KiSS-18 was slightly low.

Table 3 Items and categories analysis

Items	Awareness			Behavior		Category	Awareness			Behavior	
	<i>F</i> value	Multiple comparison		<i>t</i> value			<i>F</i> value	Multiple comparison		<i>t</i> value	
1	9.22	3 > 1, 3 > 2	**	6.47	**	Basic communication skills	11.23	3 > 1, 3 > 2	**	8.07	**
2	12.57	3 > 1, 3 > 2	**	6.16	**						
3	14.47	3 > 1, 3 > 2	**	7.52	**						
4	3.73	3 > 2	*	3.41	**						
5	7.22	3 > 1, 3 > 2	**	5.16	**						
6	11.76	2 > 1, 3 > 1	*	5.86	**						
7	4.32	3 > 1	**	3.84	**						
8	3.50	3 > 1	*	3.80	**						
9	15.44	3 > 1, 3 > 2	**	5.14	**	Gathering and giving information	15.39	3 > 1, 3 > 2	**	7.15	**
10	10.36	3 > 1, 3 > 2	**	5.32	**						
11	12.81	3 > 1, 3 > 2	**	5.33	**						
12	11.03	3 > 1, 3 > 2	**	6.53	**						
13	14.51	3 > 1, 3 > 2	**	7.17	**						
14	13.68	3 > 1, 3 > 2	**	6.65	**						
15	12.51	3 > 1, 3 > 2	**	4.29	**	Listening	15.03	3 > 1, 3 > 2	**	6.08	**
16	13.62	3 > 1, 3 > 2	**	6.10	**						
17	9.75	3 > 1, 3 > 2	**	6.48	**						
18	9.01	3 > 1, 3 > 2	**	5.99	**						
19	9.87	3 > 1, 3 > 2	**	7.66	**						
20	17.75	2 > 1, 3 > 1, 3 > 2	*	7.10	**	Promoting patient narratives	22.90	3 > 1, 3 > 2	**	7.78	**
21	15.19	2 > 1, 3 > 1	**	7.98	**						
22	16.93	3 > 1, 3 > 2	**	7.07	**						
23	18.87	3 > 1, 3 > 2	**	7.28	**						
24	19.49	3 > 1, 3 > 2	**	6.07	**						
25	19.94	3 > 1, 3 > 2	**	6.06	**						
26	21.12	3 > 1, 3 > 2	**	5.45	**						
27	11.51	3 > 1, 3 > 2	**	6.99	**	Mental attitude	30.84	3 > 1, 3 > 2	**	10.59	**
28	23.32	3 > 1, 3 > 2	**	5.91	**						
29	20.76	1 > 2, 3 > 1, 3 > 2	*	6.43	**						
30	21.17	3 > 1, 3 > 2	**	8.10	**						

* $P < 0.05$ ** $P < 0.01$ Awareness: Using one-way analysis of variance and Bonferroni's test. Behavior: Using Student's *t*-test. Each numbers of multiple comparison show. 1. Before the study, 2. Immediately after the study and 3. One month after the study.**Table 4** Cronbach's coefficient alphas for the total score of the 30 items in every point of the survey

	Awareness			Behavior	
	Before the study	Immediately after the study	One month after the study	Before the study	One month after the study
Cronbach's coefficient alpha	0.96	0.98	0.96	0.96	0.97

However, there were relatively high correlations between these 30 items (awareness and behavior of before the study, behavior of one month after the study) and the KiSS-18, which ranged from 0.41 to 0.59.

Discussion

The aim of this study was to improve pharmacists' communication skills by focusing on patient-centered care. Therefore, we created a new SP participatory learning program using DIPEX-Japan, and verified its effectiveness and influence.

To verify the effectiveness and influence of the new learning program, we developed a 30-item questionnaire that placed importance on pharmacists' practical communication skills and also assessed the pharmacists' awareness and behavior. Cronbach's coefficient alphas for the total score on survey were acceptable and there was a significant correlation between the survey items (awareness and behavior) and the KiSS-18. We confirmed the reliability and validity of the tool from results of the Cronbach's coefficient alphas and KiSS-18. Therefore, the survey can be considered a valid tool for examining communication skills among pharmacists.

There was no significant difference in the participants' awareness before and immediately after the study. On the other hand, there was a significant difference in the awareness and behavior before and one month after the study. This indicates that the effects of the learning program may take time to be firmly established. The high positive correlation obtained between awareness and behavior indicates that these are inextricably linked, *ie*, with a change in the awareness, there is a change in behavior. Our SP participatory learning program using actual patient scenarios had a large effect on awareness and behavior in the pharmacists' communication.

Comparison of the assessment results according to the participants' characteristics revealed significant differences before and one month after the study. This tendency did not change when making comparisons based on the participants' characteristics. Therefore, the program proved useful regardless of the characteristics of the individual participants.

Community pharmacists scored higher on each survey item as compared to the hospital pharmacists. One reason for this may be the pharmacy

work environment such as scale of a hospital and a pharmacy, the number of diagnosis and treatment departments, the number of hospital beds *et al*. Based on these results, it can be inferred that the backgrounds of the participants should be considered when designing communication learning programs in the future.

Item analysis revealed a significant difference before and immediately after the study in four items, with "patient-centered care" being a common theme across these items. There was significantly increased before and immediately after the study in three items (items 6, 20 and 21). Although the participants had low awareness before the study in these items, it is thought that this is because it was able to be aware after the study when it is important communication. On the other hand, there was significantly reduced before and immediately after the study in item 29. From this result, it was thought that the participants had high awareness before the study, but their awareness decreased because the participants noticed that it could not arrive at the level that a patient found. These results showed that pharmacists were able to strongly recognize the importance of understanding a patient's thoughts and feelings and communicating effectively, and that they respected the patient's wishes throughout the program.

It was revealed that pharmacists could not change their behavior without improving their awareness. One of the problems raised by this program is whether pharmacists are able to change their awareness. The small group and general discussions, the feedback from the SPs and the facilitator, and the pharmacist's reflection on their own communication skills have a major influence on the pharmacist's ability to change their awareness and on the program's overall effective-

ness. In addition, these program components are all affected by the facilitator. Since the same facilitators carried out all the 13 program sessions in the current study, the bias introduced by the facilitators was considered small. However, training of the facilitators who can initiate and manage smooth discussions and aid pharmacists in improving their communication skills through a patient-centered approach is required. Furthermore, we verified the effectiveness of this program, focusing on the participants' awareness and behavior. It is necessary to carry out the objective assessment in the future.

Conclusions

In the present study, we created a new SP participatory learning program for pharmacists using actual patient information obtained from the DIPEX-Japan, and verified its effectiveness and influence. It was found that this program trains pharmacists to focus on the patient's background, thoughts, and feelings, and was able to improve the awareness and behavior of pharmacists. Effective communication learning that incorporates the valued concept of patient-centered care will be important in the future. In conclusion, our new learning program contributed to improving the communication skills of pharmacists.

Endnotes

a) DIPEX-Japan (Database of Individual Patient Experience-Japan) (<http://www.dipex-j.org/>, October 23, 2014) was developed using Oxford University's "healthtalk.org" (<http://www.healthtalk.org/>, October 23, 2014) as a model. DIPEX-Japan delivers information on a range of illnesses and other health-related issues by sharing real life

experiences from patients. The database carries video clips from interviews on experiences of illnesses such as breast cancer and prostate cancer and is open to public for free access.

Acknowledgements

We would like to thank the pharmacy staff of the Aichi Prefectural Society of Hospital Pharmacists, Aichi Pharmaceutical Association, Mie Pharmaceutical Association, Toyama Hospital Pharmaceutical Association, Ishikawa Hospital Pharmacists Association, Ishikawa Pharmaceutical Association, Ueda City Pharmaceutical Association, and Hofu City Pharmaceutical Association who cooperated in this study.

Conflict of interest

No potential conflicts of interest were disclosed.

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