Standardized Patients versus Volunteer Patients for Physical Therapy Students' Interviewing Practice: A Pilot Study

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ABSTRACT

Purpose: To compare the use of standardized patients (SPs) and volunteer patients (VPs) for physical therapy students' interviewing practice in terms of students' perception and overall costs. **Methods:** Students in the Master of Physical Therapy programme ($n = 80$) at a Canadian university were divided into 20 groups of 4 and were randomly assigned to interview either an SP (10 groups) or a VP (10 groups). Students completed a survey about their perception of the usefulness of the activity and the ease and depth of information extraction. Survey responses as well as costs of the interview exercise were compared between SP and VP groups. **Results:** No statistically significant between-groups difference was found for the majority of survey items. The cost of using an SP was \$148, versus \$50 for a VP. **Conclusions:** Students' perceptions of the usefulness of the activity in helping them to develop their interview skills and of the ease and depth of extracting information were similar for both SPs and VPs. Because the cost of using an SP is about three times that of using a VP, using VPs seem to be a more cost-effective option.

Key Words: education, medical; patient simulation; survey; volunteers.

RÉSUMÉ

Objet : Comparer le recours aux patients normalisés (PN) et aux patients bénévoles (PB) par des étudiants en physiothérapie qui s'exercent à réaliser des entrevues en ce qui concerne la perception des étudiants et les coûts généraux. **Méthodes :** Des étudiants à la maîtrise en physiothérapie ($n = 80$) d'une université canadienne ont été divisés en 20 groupes de 4 personnes et on leur a aléatoirement attribué soit un PN ($n = 10$ groupes), soit un PB ($n = 10$ groupes) à interviewer. Les étudiants ont répondu à un sondage sur leur perception de l'utilité de cette activité, de la facilité avec laquelle l'information avait été obtenue et du niveau de détail de l'information obtenue. Les réponses au sondage ainsi que les coûts de l'exercice d'entrevue ont été comparés entre les groupes de PN et de PB. **Résultats :** Aucune différence importante sur le plan statistique entre les deux groupes n'a été relevée pour la majorité des points du sondage. Le cours du recours à un PN était de 148 \$, tandis qu'il était de 50 \$ pour un PB. **Conclusions :** La perception des étudiants en ce qui concerne l'utilité de l'activité pour les aider à parfaire leurs techniques d'entrevue ainsi que la facilité d'obtenir de l'information et le niveau de détail de l'information obtenue était similaire pour les patients normalisés et les patients bénévoles. Puisque le coût du recours à un PN est environ trois fois celui du recours à un PB, les patients bénévoles semblent être un choix plus rentable.

Standardized patients (SPs) are healthy individuals who have been trained to portray a set of symptoms and medical conditions to simulate real patients or clients in clinical environments.¹ Using SPs in clinical skills education is a common method of providing training to students to hone their skills for future client encounters.^{2–5} The Master of Physical Therapy (MPT) programme at the University of British Columbia uses SPs for interviewing practice during the first term of the curriculum. Although generally well accepted by students and effective at

achieving the goals of simulated learning,^{6–8} the use of SPs is costly, both in terms of remuneration for hours worked (which includes training hours as well as the actual encounter time) and in terms of faculty time to develop appropriate case scripts and adequately train the SPs.^{2,9} A study published in 2009 that surveyed about 200 US and Canadian physical therapist education programmes reported that 30% used SPs in their curricula; about 80% of those that did not use SPs expressed an interest in doing so but cited costs and faculty time to train

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the SPs as the main barriers.¹⁰ Another limitation of SPs is that the student learning experience may be somewhat limited because it relies on the SPs' effectively memorizing and feeding back or role-playing standardized behaviours and information.^{11,12}

An alternative to SPs is to use volunteer patients (VPs), real clients who volunteer their time to assist with students' learning; unlike SPs, they require fewer resources and can be integrated into the programme at a lower cost. Because VPs share their authentic health information rather than relying on standardized scripts, they tend to provide a more natural encounter that more closely simulates actual practice and may therefore provide a richer form of learning.^{11,13} Previous studies have reported that most medical students prefer to practice with real patients than with SPs because they feel their interactions are more valid and authentic and, as a result, more applicable to real clinical scenarios^{11,14,15}—an important element of contextual learning that facilitates acquisition of skills.¹⁶

Although prior studies have investigated medical students' perspective on using SPs versus VPs for their training, to our knowledge no similar studies have been done with physiotherapy (PT) students. Furthermore, estimates for the costs of using an SP versus a VP for a PT student's interview training session are unclear. The purpose of this pilot study, therefore, was to compare the use of SPs versus VPs in guiding 1st-year PT students' interviewing skills training, in terms of both students' perceptions and overall costs.

METHODS

Participants and setting

Participants were 1st-year students in the MPT programme at the University of British Columbia who had not yet completed any clinical placements. The study formed part of a course to prepare students for professional practice and took place during a regularly scheduled class.

SPs were recruited from Chameleon Entertainment, a previously established pool of experienced SPs who regularly participate in medical and other health professional programmes and in the Physical Therapy National Competency Exam. Each of the 10 SPs was given a script, including a diagnosis that replicated that of one of the VPs in the study (e.g., hip pain), as well as a 2-hour orientation and training session. SP training reviewed the logistics of the interview session, the SP's role, and the content of each script and provided background and clarification for any questions related to the scripts. SPs also rehearsed their roles and received feedback from the trainers.

The 10 VPs were clients who were currently receiving physical therapy or had received physical therapy within the past 2 years for a specific issue and who had expressed interest in and enthusiasm for giving back to

the system and contributing to physical therapist education programmes. VPs were recruited through word of mouth by the clinical faculty and were included if they were able to communicate clearly and had no cognitive deficits (based on screening by the referring clinician). We chose these criteria because the students were at an early stage of their training in which the focus of learning was on mastering basic communication and interview skills rather than communicating with clients who have communication challenges or special needs.

VPs were asked to provide their reason for going to physical therapy (e.g., hip pain, shortness of breath with exercise, poor balance). With one exception, none of the VPs had previous classroom or clinical experience as educators for physical therapy students. VP orientation consisted of a 30-minute session, held immediately before the interviews, that provided an overview of the purpose, timing, and format of the interview. The SPs also attended this session for review purposes. VPs were told that they could refuse to answer any question they did not want to answer, but they were asked to be as honest as possible when they did respond. They were also encouraged not to provide additional information in response to questions but instead simply to answer the question the student asked and allow the student to probe for more information or detail. Ethical approval for the study was obtained from the Behavioural Study Review Board at the University of British Columbia. All participants provided informed consent.

Study design

In this experimental after-only study, each of the 80 students in the class was randomly assigned to 1 of 20 groups of 4 participants. Each group was then randomly allocated to participate in a 20-minute interview with either an SP or a VP, with the goal of obtaining basic medical and social history information from the interviewee; students were blinded to whether their interviewee was an SP or a VP. After the interviews, a large-group debriefing was held in class to answer any student questions related to the activity.

Outcome variables

Immediately after the interview, all students individually completed an anonymous survey that captured information about their perception of the usefulness of the learning experience in helping them to develop their interview skills, as well as the ease of information extraction and depth of information extracted from the interviewee. The survey had a total of eight main questions about (1) students' perception of how effective (or useful) the learning activity was; (2) their understanding of the client's goals for coming to physical therapy; (3) whether students asked about the client's history of present injury; (4) their perception of how easy it was to elicit this information from the client; (5) whether students asked about the client's past medical history;

(6) their perception of how easy it was to elicit this information from the client; (7) whether students asked about the client's social history; and (8) their perception of how easy it was to elicit this information from the client. Participants responded to questions 1, 4, 6, and 8 on a 5-point Likert-type scale; questions 2, 3, 5, and 7 had binary responses. Questions 4, 6, and 8 asked additional binary sub-questions, such as whether students needed to probe and ask to obtain information and whether a client offered a spontaneous response. Throughout and at the end of the survey, students were asked to write additional comments if they wanted to. The survey was developed through an iterative approach by two of the authors (SM and DM), based on their clinical teaching experiences and their knowledge of the subject area as well as on the learning objectives previously defined for the session.

At the beginning of the survey, students were asked whether or not they consented to their data being analyzed; surveys from students who did not provide this consent ($n = 4$) were removed before data analysis, and two other surveys were also excluded from analysis because they were missing key information. The final data analysis therefore included data for 74 students.

The costs associated with hiring and training an SP were obtained from Chameleon Entertainment, a community-based company that regularly provides SPs for health professional programmes at the University of British Columbia.

Data analysis

We compared the two groups' responses to the 5-point Likert-scale items using χ^2 tests of independence (treating data as categorical) as well as Mann-Whitney U tests (in view of the ordinal nature of the data). To compare binary items, we used χ^2 tests of independence (equivalent to two-sample z -tests of two proportions). To reduce the number of multiple comparisons, and thus the probability of false positives, we derived additional variables to count the number of yes responses for "student needed to ask client about his/her past medical history," "student needed to ask client about his/her social history," "client spontaneously volunteered information about past medical history," and "client spontaneously volunteered information about social history" items; study groups were compared on these derived variables using Mann-Whitney U tests. To adjust for multiple comparisons, the threshold for statistical significance was set at $p < 0.01$. To compare the costs of using SPs and VPs, we calculated the costs of using an SP versus a VP for one interview session.

RESULTS

We analyzed data from 74 students (36 assigned to interview SPs, 38 assigned to interview VPs). According to the survey data, 95% of students who interviewed the SPs and 97% of those who interviewed the VPs found the

activity useful or very useful, which indicates that both SPs and VPs are useful in helping students to develop their interview skills. We found no statistically significant differences between groups with respect to the ease of eliciting information on present history, past medical history, or social history from the interviewees (see Tables 1 and 2). Likewise, with two exceptions, we found no statistically significant between-group differences in the amount of probing required to elicit this information or in the amount of information spontaneously volunteered by the client (see Tables 2 and 3). Students who interviewed SPs were more likely to fully understand their clients' goals in coming for physical therapy (89%) than those who interviewed VPs (61%; $p = 0.005$). Also, students who interviewed SPs were less likely to ask whether their client had past physical therapy treatment (53%) than those who interviewed VPs (92%; $p = 0.001$).

Table 4 compares the costs of using an SP with those of using a VP for one interview session. The total cost of hiring and training an SP was calculated to be \$148 per session; for a VP, it was \$50. Costs for SPs are based on standardized industry rates. SPs in our study had to be paid for a minimum of 4 hours for the interviewing session, as per their contract, and an additional 2 hours of training. Faculty time to develop scripts and provide orientation for SPs are not included in these estimates but represent a significant additional cost of using SPs. VPs required only one visit to the educational setting, did not require extended orientation and training, and were given a nominal honorarium (in the form of a gift card) for volunteering their time.

DISCUSSION

For the majority of survey items, we found no statistically significant difference between groups, which may suggest that students had relatively similar perceptions of the usefulness of SPs and VPs. Responses to the questions "Do you feel you fully understood your clients' goals in coming for physical therapy?" and "Did you ask if the client had past physical therapy treatment?" showed statistically significant between-groups differences: Students in the SP group more fully understood the goals expressed by the interviewees, but fewer of them asked whether their client had physical therapy treatment in the past. The finding that more students in the SP group understood the expressed goals may be explained by the fact that SPs expected to be asked this question and had been coached on this part of the script, whereas VPs, despite having goals for seeking physical therapy, may not have expressed those goals in standardized terms and therefore framed their reasons less clearly than the SPs. It is less clear why fewer students in the SP group asked about past physical therapy treatment, because it does not appear that the SPs were more likely than VPs to spontaneously volunteer this information. This difference might also be due to chance, however, because a

Table 1 Participants' Responses to Questions about Standardized Patients and Volunteer Patients on a 5-Point Scale, Treating Data as Categorical (χ^2 Tests)

5-point Likert-scale questions and response options	No. (%) of responses		χ^2	<i>p</i> -value
	SP Group (<i>n</i> = 36)	VP Group (<i>n</i> = 38)		
1. Overall how effective was the learning activity?			4.09	0.25
1 = Not at all useful	0 (0)	0 (0)		
2 = Not useful	0 (0)	1 (3)		
3 = Neither	2 (6)	0 (0)		
4 = Useful	20 (56)	26 (68)		
5 = Very useful	14 (39)	11 (29)		
4. How easy was it to elicit the history of the present injury from the client?			3.91	0.42
1 = Very difficult	0 (0)	1 (3)		
2 = Difficult	0 (0)	1 (3)		
3 = Neither	7 (19)	7 (18)		
4 = Easy	17 (47)	22 (58)		
5 = Very easy	12 (33)	7 (18)		
6. How easy was it to elicit the past medical history from the client?			3.45	0.33
1 = Very difficult	0 (0)	0 (0)		
2 = Difficult	3 (8)	5 (14)		
3 = Neither	8 (22)	6 (16)		
4 = Easy	22 (61)	18 (49)		
5 = Very easy	3 (8)	8 (22)		
8. How easy was it to elicit the social history from the client?			2.97	0.56
1 = Very difficult	0 (0)	2 (5)		
2 = Difficult	2 (6)	1 (3)		
3 = Neither	9 (26)	8 (21)		
4 = Easy	19 (54)	19 (50)		
5 = Very easy	5 (14)	8 (21)		

SP = standardized patient; VP = volunteer patient.

Table 2 Participants' Responses to Questions about Standardized Patients and Volunteer Patients on 5-Point Scale Items and Derived Variables, Treating the Data as Ordinal (Mann–Whitney Tests)

Questions	Mean (SD)		Test statistic (<i>Z</i>)	<i>p</i> -value
	SP group (<i>n</i> = 36)	VP group (<i>n</i> = 38)		
5-point Likert-scale survey questions				
1. Overall how effective was the learning activity? (1–5)	4.33 (0.59)	4.24 (0.59)	−0.68	0.50
4. How easy was it to elicit the HPI from the client? (1–5)	4.14 (0.72)	3.87 (0.84)	−1.29	0.20
6. How easy was it to elicit the PMH from the client? (1–5)	3.69 (0.75)	3.78 (0.95)	−0.68	0.50
8. How easy was it to elicit the SH from the client? (1–5)	3.77 (0.77)	3.79 (0.99)	−0.45	0.65
Derived variables, no. of yes responses				
PMH: "Did you ask client" items (0–8)	4.92 (1.25)	4.50 (1.13)	−1.43	0.15
PMH: "Did client spontaneously volunteer" items (0–6)	0.67 (1.10)	1.89 (1.33)	−0.64	0.52
SH: "Did you ask client" items (0–7)	3.83 (1.54)	3.58 (1.64)	−0.88	0.38
SH: "Did client spontaneously volunteer" items (0–6)	1.50 (1.11)	1.66 (1.07)	−0.76	0.45

SP = standardized patient; VP = volunteer patient; HPI = history of present illness; PMH = past medical history; SH = social history.

small number of false positives is expected with multiple comparisons.

Both participants' comments on the survey and their informal feedback after the interviews suggest that the students in the VP group appreciated the authenticity of their experience. Reasons for this included the VPs' ability to go off script and answer any question the students raised. By contrast, the SPs sometimes had to say "I don't know" or refrain from answering if the

students asked questions that were not covered in their scripts. The VPs were also able to provide more depth and details in their answers. This finding is not surprising because SPs are trained not to deviate from a pre-determined script; it is nearly impossible to prepare SPs for every question novice students might ask. In addition, VPs are perhaps more likely to give the students a more realistic experience in terms of talking too much or not enough, asking for clarification, or answering

Table 3 Participants' Responses to Questions about Standardized Patients and Volunteer Patients on All Binary Items (χ^2 Tests)

Binary survey questions	No. (%) of responses		χ^2	<i>p</i> -value
	SP group (<i>n</i> = 36)	VP group (<i>n</i> = 38)		
2. Did you fully understand your client's goals in coming for physical therapy?	32 (89)	23 (61)	7.79	0.005*
HPI				
3. Did you ask client about the HPI?	35 (97)	38 (100)	1.07	0.30
4a. Did you need to probe to ascertain specific info about HPI?	29 (81)	28 (74)	0.49	0.48
4b. Did you need to rephrase your question to get the info needed about HPI?	17 (47)	12 (32)	1.67	0.20
4c. Did your client fully answer your questions about HPI?	30 (83)	33 (89)	0.53	0.47
PMH				
5. Did you ask about the PMH?	36 (100)	36 (97)	0.99	0.32
6a. Did you need to probe to ascertain information about PMH?	23 (64)	24 (65)	0.01	0.93
6b. Did you need to rephrase your question to get info needed about PMH?	13 (36)	10 (27)	0.70	0.40
6c. Did your client fully answer your questions about PMH?	29 (81)	28 (74)	0.49	0.48
6d. Did you ask about history of smoking?	4 (11)	4 (11)	0.01	0.94
6e. Did your client spontaneously volunteer whether they had a history of smoking?	0 (0)	4 (11)	3.90	0.048
6f. Did you ask what medications your client was on?	36 (100)	38 (100)	N/A	N/A
6g. Did your client spontaneously volunteer what medications they were on?	3 (8)	6 (16)	0.96	0.33
6h. Did you find out about any over-the-counter medications?	21 (58)	11 (29)	6.50	0.011
6i. Did you ask about relevant lab tests and results your client had?	32 (89)	25 (66)	5.57	0.018
6j. Did your client spontaneously volunteer results of specific lab tests?	7 (19)	6 (16)	0.17	0.68
6k. Did you ask about medical imaging tests your client had?	29 (81)	24 (63)	2.75	0.097
6l. Did your client spontaneously volunteer medical imaging test results?	13 (36)	16 (42)	0.28	0.60
6m. Did you ask if your client had past physical therapy treatment?	19 (53)	35 (92)	14.50	0.001*
6n. Did your client spontaneously volunteer if they had past physical therapy treatment?	8 (22)	12 (32)	0.82	0.37
SH				
7. Did you ask about your client's SH?	34 (94)	37 (97)	0.41	0.52
8a. Did you need to probe to ascertain information about SH?	26 (74)	22 (58)	2.17	0.14
8b. Did you need to rephrase question to get info needed about SH?	4 (11)	11 (29)	3.43	0.064
8c. Did your client fully answer questions about SH?	28 (80)	28 (74)	0.41	0.52
8d. Did you ask for type of housing your client lives in?	18 (50)	15 (41)	0.66	0.42
8e. Did your client spontaneously volunteer type of housing lived in?	4 (11)	4 (11)	0.01	0.94
8f. Did you ask about number of stairs in your client's house and if there is a handrail?	12 (33)	13 (34)	0.01	0.94
8g. Did your client spontaneously volunteer steps to door and handrail?	4 (11)	2 (5)	0.85	0.36
8h. Did you ask who lived with the client?	19 (53)	15 (40)	1.32	0.25
8i. Did the client spontaneously volunteer who lived with?	1 (3)	2 (5)	0.29	0.59
8j. Did you ask about client's occupation?	28 (78)	25 (66)	1.31	0.25
8k. Did your client spontaneously volunteer their occupation?	4 (11)	12 (32)	4.57	0.033
8l. Did you ask about your client's recreational activities?	31 (86)	35 (92)	0.69	0.41
8m. Did your client spontaneously volunteer recreational activities?	13 (36)	15 (40)	0.09	0.77

**p* < 0.01.

SP = standardized patient; VP = volunteer patient; HPI = history of present injury; PMH = past medical history; N/A = not applicable; SH = social history.

Table 4 Cost Comparison between Standardized Patients and Volunteer Patients

Cost	SPs	VPs
Travel	\$40 (parking pass \$20 × 2)	\$20 (parking pass)
Orientation and training	\$36 (2 h minimum at \$18/h)	\$0
Activity	\$72 (4 h minimum at \$18/h)	\$30 (gift card)
Total cost	\$148	\$50
Additional costs not taken into consideration	Faculty time for hours additional orientation and script development	
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SPs = standardized patients; VPs = volunteer patients.

questions inappropriately, leading to enhancing students' understanding of how clients in the clinical setting may actually respond.¹¹

The overall lack of statistically significant between-groups differences suggests that students' perceptions of the learning activity were likely similar for the SP and VP groups. Students in both groups provided comparable evaluations of the usefulness of the activity in enabling them to develop their interview skills, as well as of the ease and depth of obtaining information from the interviewees. Our cost comparison showed that even when faculty time for training and script development is excluded, the cost of hiring and training an SP is three times that of using a VP. In the current climate of economic restraint and larger class sizes, the cost savings of using VPs may be important. The drain on faculty time represented by script writing and orientation for SPs may provide another incentive to use VPs for interviewing activities. Our findings are supported by previous research indicating that the factors hindering the expansion of SP use in US and Canadian physical therapist education programmes are costs and constraints on faculty time.⁷ Although an earlier study found that the cost of using SPs was reasonable and was covered in the current budgets of most physical therapist education programmes,¹⁷ recent and continuing increases in these costs, along with the increase in class sizes, are making this option less feasible. Using VPs seems more viable and cost effective and may provide a more natural form of training.

Some clinical education programmes have expressed concern about finding a sufficient number of VPs and have moved to using SPs for this reason.^{18,19} Although lack of volunteers may be a valid concern, in our study we did not have any challenges recruiting the required number of VPs. Ideally, the educational programme could create a pool of interested VPs to be drawn on when needed. Although the ethics of using nominally reimbursed VPs can be debated, it is important to note that our recruited volunteers were happy to participate, enjoyed the experience, and offered to repeat it in future years.

Limitations and future directions

Our study has several limitations. First, our sample consisted of students from only one university, and therefore the generalizability of the results is limited. Second, the lack of between-groups differences may indicate inadequate power to detect statistical significance; the aim of this pilot study was to provide foundational work, and future studies with larger sample sizes and adequate power are warranted. Third, we did not collect demographic data; however, our class cohort is typically homogeneous, approximately 60% female with the majority in the age range of 24–28 years. We hope that random group assignment created a demographic balance between the two groups. Fourth, given our limited re-

sources and because the study was conducted during a regularly scheduled class meeting, the interviews were conducted in groups of four; it is possible that students' responses to the survey items might have been different had they conducted their interviews individually. Fifth, because this was a pilot study, the validity of the survey was not assessed; future larger studies should validate the survey before using it.

Finally, our study looked at students' perceptions of the use of SPs versus VPs, without measuring differences in students' interviewing skills or seeking clients' perspectives on students' abilities as demonstrated with either type of client. Likewise, students' comfort and confidence with the interviews were not evaluated and should be explored in future studies because both play important roles in students' satisfaction with the learning experience.²⁰ Future studies should also investigate students' learning outcomes associated with the use of SPs versus VPs.

CONCLUSIONS

This research provides a foundation for future research investigating the use of SPs versus VPs to guide the interviewing skills of novice physical therapy students. According to the preliminary findings, students' perceptions of the usefulness of the activity in enabling them to develop their interview skills, as well as of the ease and depth of extracting information from the client, were comparable for SPs and VPs. The cost of using an SP is about three times that of using a VP, which suggests that VPs are a cost-effective option. Future research is required to examine learning outcomes associated with the use of VPs versus SPs.

KEY MESSAGES

What is already known on this topic

Standardized patients (SPs) are used in some physical therapy education programmes to help students build their clinical skills; however, the costs of using SPs are high. Using volunteer patients (VPs) may be more cost effective and may also offer additional advantages, such as a richer and a more realistic form of learning. Previous studies have reported that medical students prefer VPs over SPs in terms of the authenticity and depth of their learning.

What this study adds

First-year physical therapy students' perceptions of the usefulness of the activity in enabling them to develop their interview skills, as well as the ease and depth of extracting information from the client, seem to be comparable for SPs and VPs. The costs of using an SP for an interview session may be prohibitive, because they are at least three times those of using a VP. This study provides a foundation for future larger studies examining learning outcomes associated with the use of VPs versus SPs.

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