

OSCE-based Clinical Skill Education for Physical and Occupational Therapists

HIROAKI SAKURAI, RPT, PhD^{1, 2)*}, YOSHIKIYO KANADA, RPT, PhD^{1, 2)},
YOSHITO SUGIURA, RPT, MS³⁾, IKUO MOTOYA, RPT, MS⁴⁾, YOSUKE WADA, RPT, MS⁵⁾,
MASAYUKI YAMADA, OTR, MS¹⁾, MASAO TOMITA, RPT¹⁾, SHIGEO TANABE, RPT, PhD^{1, 2)},
TOSHIO TERANISHI, RPT, PhD^{1, 2)}, TORU TSUJIMURA, MD⁵⁾, SYUNJI SAWA, OTR, PhD^{1, 2)},
TETSUO OKANISHI RPT, PhD⁶⁾

¹⁾ *Fujita Health University School of Health Sciences: 1-98 Dengakugakubo, Kutsukake, Toyoake, Aichi 470-1192, Japan*

²⁾ *Fujita Health University Graduate School of Health Sciences, Japan*

³⁾ *Department of Rehabilitation, Health Care Service Facility for the Aged, Tobahouwaen, Japan*

⁴⁾ *Kawamura Hospital, Japan*

⁵⁾ *Tsujimura Surgical Hospital, Japan*

⁶⁾ *Nagoya Gakuin University, Japan*

Abstract. [Purpose] The aim of this study was to examine the applicability of the Objective Structured Clinical Examination (OSCE) to postgraduate education systems for novice and mid-career therapists in workplaces. [Subjects] Physical and occupational therapists with 1 to 5 years of clinical experience took the OSCE to assess their learning, with a physical or occupational therapy faculty member and a clinical supervisor as examiners. Another clinical supervisor acted as a simulated patient. [Methods] A Wilcoxon signed-rank test was performed to compare skills between before and after OSCE-based learning, and a Mann-Whitney U test was used to compare them between therapists with 1 to 2 years (novice) and 3 to 5 years (mid-career) of clinical experience. [Results] While no experience-related differences were observed in behavioral aspects, mid-career therapists exhibited markedly higher scores compared with novices in technical aspects, such as skills to guide patients for standing up, transfer, and dressing. [Conclusion] The OSCE may be sufficiently applicable to postgraduate education systems in workplaces.

Key words: OSCE, Clinical skill, Physical and occupational therapists

(This article was submitted Jan. 24, 2014, and was accepted Mar. 5, 2014)

INTRODUCTION

In Japan's super-aging society, social demands for rehabilitation are increasing. In line with this, the numbers of physical (PT) and occupational (OT) therapist training schools have rapidly increased; as of 2013, there were 248 and 182, respectively, and the total numbers of certified PTs and OTs were 110,000 and 65,000, respectively. The rapid increase in the number of therapists has consequently reduced the overall years of experience of therapists in clinical environments, suggesting a decrease in the quality of education provided by them to novices and students. Under these circumstances, it is necessary to place more importance on postgraduate education in workplaces, in addition to improving school education systems. However, at present, postgraduate education is independently provided by

associations, prefectural societies, or privately, and it would be difficult for therapists to establish systems to provide such education in their own workplaces by themselves. Furthermore, although a number of technical seminars for clinical therapists have been held, their contents are not applicable to some actual situations, as most of them solely involve healthy individuals. Considering such a situation, school education should enable students to sufficiently learn about the basic items necessary to achieve more specialized knowledge and skills after graduation, rather than only the application of skills. In line with this, some researchers point out the necessity of considering pre and postgraduate education separately to determine their appropriate contents and subsequently establishing comprehensive education systems¹⁾. To conduct consistent education at the undergraduate to postgraduate levels, we teach novice therapists using the same Objective Structured Clinical Examination (OSCE) items. The contents taught include how to use the knowledge and skills acquired through use of the undergraduate OSCE in clinical practice.

Until now, diverse approaches to postgraduate training have been implemented in clinical environments; however, such approaches have not been unified, and appropriate

*Corresponding author. Hiroaki Sakurai (E-mail: hsakurai@fujita-hu.ac.jp)

methods to assess novice therapists' clinical skills, as well as educational methodologies, have not yet been fully examined. In addition, clinical skill training is rarely provided by faculty members in clinical environments after graduation. Therefore, unification of postgraduate and clinical education methods, based on the results of objective assessment of clinical skills in early stages, may be the key to novice therapists' development.

At our university, physical and occupational therapies are regarded as a domain of therapeutics or a clinical science, and specialized education for students, in other words, "education to nurture specialists with clinical skills", has been provided, focusing on clinical demands, since our department was founded in 2004. In short, the education we provide focuses on clinical skills. However, in the current therapist education system, students' clinical skills are assessed by supervisors of clinical training facilities, rather than the faculty members of training schools; in therapist education to nurture "clinical professionals", this should be a critical issue. Our faculty members are also engaged in clinical treatment and are engaged in ongoing discussions concerning appropriate methods to train students by making use of therapists working in clinical environments. At our university, OSCE system has been adopted, with a view to specifying standards for clinical education in training schools and standardizing methods of assessment by clinical supervisors¹⁾. The OSCE is a method of clinical skill assessment proposed by Harden²⁾ in 1975 and has been reported to be appropriate for assessment of learning achievement levels in the psychomotor and emotional domains, which are difficult to evaluate with written examinations.

We have reported an association between OSCE scores, academic achievement levels, and clinical training outcomes, as well as inter-rater agreement rates (0.767 to 0.935) between faculty members, in our previous studies⁴⁻⁶⁾. Furthermore, in a recent study, we examined the appropriateness of adopting the OSCE in postgraduate education by confirming the consistency between OSCE scores, representing the results of assessment by faculty members, and clinical training outcomes assessed by clinical supervisors. As a result, favorable agreement rates were obtained in behavioral aspects, while challenges were revealed in the technical aspects.

The present study examined the applicability of the OSCE to postgraduate education systems for novice and mid-career therapists in workplaces.

SUBJECTS AND METHODS

The study involved PTs and OTs working in clinical environments for 1 to 5 years after graduating from training schools as OSCE examinees, and a physical or occupational therapy faculty member and a clinical supervisor as raters. Another clinical supervisor acted as a simulated patient. Before examination, the examiners (the faculty member and clinical supervisor) and simulated patient agreed upon the latter's condition, in addition to the points of assessment.

The OSCE consisted of items to assess skills to assist and guide patients performing the following level 3 activi-

ties: <elevating the upper body and sitting on the edge of the bed, standing up, wheelchair-to-bed transfer, dressing, toileting and walking. It was conducted before (examination 1) and after (examination 2) learning sessions consisting of 60-minute lectures regarding each item, practice, and practical guidance in clinical settings, focusing on the applicability of the OSCE items to clinical environments.

The OSCE was conducted in 3 rooms (stations), within each of which a task was presented, and the examinees made the rounds of these stations to implement all the tasks in accordance with the instructions. At each station, 2 examiners (a physical or occupational therapy faculty member and a clinical supervisor) and 1 simulated patient (another clinical supervisor) were present. The time to implement each task was 5 minutes, and, immediately after its completion, 2 minutes of feedback was provided. Subsequently, the examiners and simulated patient discussed and assessed the examinees' performance. The tasks were not previously shown to the examinees.

Predictive Analytics Software (PASW) Statistics 18.0 was used for statistical procedures. Comparison between before and after OSCE-based learning was performed by conducting a paired two sample (Wilcoxon signed-rank) test, and that between therapists with 1 to 2 years (novice) and 3 to 5 years (mid-career) of clinical experience was performed by conducting an unpaired two sample (Mann-Whitney U) test.

The study was approved by the ethics committee of the Fujita Health University (10-121). Prior to data collection, all subjects gave written informed consent after thorough explanation of the study.

RESULTS

On comparison between before and after OSCE (level 3)-based learning, no significant differences in behavioral aspects were observed in novice or mid-career therapists. Behavioral differences between novice and mid-career therapists were nonsignificant both before and after learning. In contrast, in the technical aspects, both novice and mid-career therapists showed significantly higher scores after learning than before learning. Significant differences were also observed between them after learning (Table 1).

Among the six level 3 OSCE items, scores representing behavioral skills to assist/guide patients for elevating the upper body and sitting on the edge of the bed markedly increased after learning in both novice and mid-career therapists. Regarding technical skills, a significant increase in scores for elevating the upper body and sitting on the edge of the bed, toileting and dressing was observed after learning in both novice and mid-career therapists. Such an increase was also observed for transfer in novice and for standing up in mid-career therapists. Furthermore, scores for transfer were significantly higher in mid-career therapists than novice therapists after learning. Scores for dressing were also significantly higher in mid-career therapists than novice therapists before learning (Table 2).

On comparison between before and after learning, mid-career therapists showed markedly higher scores for the fol-

Table 1. Comparisons of scores between before and after OSCE-based learning and between novice and mid-career therapists

	Novice Therapists	Mid-career Therapists	Novice Therapists vs. Mid-career Therapists
Preparatory items			
Before Learning	96.6±3.4	96.8±2.8	
After Learning	97.1±1.3	97.4±0.9	
Before Learning vs. After Learning			
Technical items			
Before Learning	48.6±8.1	58.3±15.0	
After Learning	64.0±8.9	76.3±8.5	*
Before Learning vs. After Learning	*	*	

* $p < 0.05$

lowing 3 subitems of standing up after learning: being able to confirm the appropriate height of an adjustable bed, being able to confirm the position of a patient's buttocks and move them forward with guidance/assistance, and being able to appropriately control hip flexion, shift the axis of rotation to the knee joint, and move the patient's knees slightly forward using the legs based on the principle of leverage when leaving the bed. Such an increase in scores was also observed for the following 2 subitems of elevating the upper body and sitting on the edge of the bed in both novice and mid-career therapists: being able to remove and keep blankets and clothes on the bed in order and being able to confirm sufficient space for the lateral position. Novice therapists also showed significantly higher scores for the following three subscales after learning: being able to provide appropriate explanations before assessing movements to elevate the upper body and sit on the edge of the bed, being able to appropriately confirm the patient's consent, and being able to stand in an appropriate position for guiding the patient. On the other hand, mid-career therapists showed significantly higher scores for the following 2 sub-items after learning: being able to appropriately guide the head upward and being able to appropriately guide the lower body toward the lateral position. Regarding toileting, both novice and mid-career therapists showed markedly higher scores after than before learning for the following 6 subitems being able to provide guidance for appropriately standing up from the bed, being able to provide guidance for a change of direction and stable standing position, being able to confirm the appropriate posture when pulling down clothes, being able to provide guidance for appropriately sitting on the toilet seat, being able to provide guidance for appropriately standing up from the toilet seat, and being able to confirm the appropriate posture when pulling up clothes. Mid-career therapists also showed a significant increase in scores for the following 3 subitems being able to give advice for smoothly and appropriately handling clothes when pulling them down, being able to give advice for smoothly and appropriately handling clothes when pulling them up, and being able to provide

guidance for a change of direction and sitting on the edge of the bed. Regarding transfer, novice therapists showed a significant increase in scores for the following 4 subitems after learning being able to appropriately place the wheelchair by the bed being able to adjust the height of the bed to ensure safety being able to advise or assist the patient to take the feet off the foot plates, place them on the ground and raise them and, being able to support the patient's chest and abdomen with the forearms from behind before standing up. Regarding dressing, scores for being able to provide appropriate guidance/assistance for drawing the garment over the head (while maintaining the pelvis in a neutral position) markedly increased after learning in both novice and mid-career therapists. The novices therapist' scores for the following 8 subitems also significantly increased: being able to take appropriate safety measures, being able to confirm the maintenance of a stable sitting position and assist/guide for appropriate anteroposterior pelvic tilts being able to confirm the reach movements of the non-paralyzed upper limb being able to provide appropriate guidance for maintaining the paralyzed upper limb straight by the trunk and using the weight of the upper limb, being able to provide appropriate guidance for placing the paralyzed upper limb in the sleeves, being able to provide appropriate guidance for placing the non-paralyzed upper limb in the sleeves of a garment (while ensuring a stable sitting position), being able to provide appropriate guidance/assistance for the elbow and shoulder when placing the paralyzed upper limb in the sleeves of a garment and to prepare for pulling, and prepare for pulling an upper garment over the head and being able to correct the shoulder line and bottom edge of the garment on the paralyzed side. No significant differences between before and after learning were observed in scores for walking (Table 3).

On comparison between novice and mid-career therapists, significant differences were observed in scores for standing up and transfer after learning and for dressing. Among the sub-items of standing up, significant differences were observed in the 4 after learning. Among those of transfer, significant differences were observed in being able to advise the patient to participate in the activity as much as possible after confirming the patient's ability after learning. Among those of dressing, significant differences were observed in the following 3 before learning being able to take safety measures, being able to confirm the reach movements of the non-paralyzed upper limb, and being able to provide appropriate guidance for maintaining the paralyzed upper limb straight by the trunk and using the weight of the upper limb (Table 4).

DISCUSSION

In recent years, the OSCE has been used as an educational approach to objective assessment of clinical skills mainly in the field of medicine⁸⁻¹⁰. Compared with conventional written examinations, the OSCE enables examiners to assess clinical skills in the psychomotor, emotional, and cognitive domains, and clarify points to improve⁷. Saito et al. reported that adoption of the OSCE in medical educa-

Table 2. Comparisons of scores for the six level 3 OSCE items between before and after learning and between novice and mid-career therapists

	Novice and Mid-career Therapists	Novice Therapists	Mid-career Therapists	Novice Therapists vs. Mid-career Therapists
Preparatory items				
Standing up				
Before Learning	99.4±2.7	99.0±3.5	100.0±0.0	
After Learning	99.4±2.7	99.0±3.5	100.0±0.0	
Before Learning vs. After Learning				
Sitting up on a bed				
Before Learning	86.7±14.2	85.3±16	88.9±11.8	
After Learning	99.2±2.5	98.7±3.1	100.0±0.0	
Before Learning vs. After Learning		*	*	
Toilet activity				
Before Learning	98.9±3.7	99.0±3.5	98.6±4.2	
After Learning	98.9±3.7	99.0±3.5	98.6±4.2	
Before Learning vs. After Learning				
Transfer				
Before Learning	97.7±4.9	97.1±5.5	98.6±4.2	
After Learning	98.9±3.7	98.1±4.7	100.0±0.0	
Before Learning vs. After Learning				
Walking				
Before Learning	98.9±3.7	99.0±3.5	98.6±4.2	
After Learning	86.9±2.7	86.5±3.5	87.5±0.0	
Before Learning vs. After Learning		*		
Dressing activity				
Before Learning	98.9±5.3	98.1±6.9	100.0±0.0	
After Learning	100.0±0.0	100.0±0.0	100.0±0.0	
Before Learning vs. After Learning				

tion is effective for training of medical students by developing necessary basic skills in both technical and behavioral aspects, and it enables educators to guide students toward the appropriate integration of knowledge, skills, and behavior¹⁾. In fact, the OSCE adopted for clinical education in training schools has provided a certain effect⁴⁻⁶⁾; however, education methods in training schools and clinical training facilities have not yet been unified. Although a diverse range of training seminars has been held by the Japanese Physical Therapy Association for postgraduate skill improvement, not all novice therapists have necessarily participated in them. In addition, the quality of education for novices in workplaces widely varies and remains unclear.

Considering such a situation, this study examined the applicability of the OSCE to postgraduate education systems by performing comparisons of skills between before and after OSCE-based learning and between novice and mid-career therapists. As a result, no changes in the behav-

ioral aspects of the OSCE items were observed; the favorable scores before learning support the appropriateness of the current education method in the behavioral aspects. However, as this result was obtained in a single facility, further studies involving multiple facilities may be necessary to confirm it. In contrast, in the technical aspects, scores for all items increased after learning; the increase was particularly marked in mid-career therapists, suggesting the possibility of developing basic clinical skills that every therapist has to acquire through daily clinical practice, regardless of the field. Furthermore, considering that the increase in scores after learning was generally more marked in mid-career therapists than in novice therapists, their participation in training seminars, as well as self-directed learning and skill improvement, may have positively influenced OSCE-based learning as postgraduate education. On comparison of scores for the OSCE subitems, scores increased for similar subitems in novice and mid-career therapists. Particu-

Table 2. Continue

	Novice and Mid-career Therapists	Novice Therapists	Mid-career Therapists	Novice Therapists vs. Mid-career Therapists
Technical items				
Standing up				
Before Learning	67.0±15.9	63.1±17.6	72.8±11.5	
After Learning	73.9±17.6	64.2±14.1	87.8±12.0	*
Before Learning vs. After Learning			*	
Sitting up on a bed				
Before Learning	41.6±14.6	40.8±13.8	42.8±16.4	
After Learning	59.3±14.5	55.4±14.2	65.0±13.7	
Before Learning vs. After Learning		*	*	
Toilet activity				
Before Learning	42.8±15.1	39.9±14.7	47.0±15.5	
After Learning	69.1±18.4	63.3±19.8	77.4±12.8	
Before Learning vs. After Learning		*	*	
Transfer				
Before Learning	57.2±19.6	53.5±13.8	62.5±25.8	
After Learning	74.6±14.8	69.6±14.5	81.9±12.5	*
Before Learning vs. After Learning		*		
Walking				
Before Learning	42.8±15.1	39.9±14.7	47.0±15.5	
After Learning	48.9±18.7	42.9±18.3	57.4±16.6	
Before Learning vs. After Learning				
Dressing activity				
Before Learning	64.1±17.8	56.2±14.7	75.6±16.1	*
After Learning	88.2±9.2	86.5±9.4	90.6±8.8	
Before Learning vs. After Learning		*	*	

* p<0.05

larly, in novice therapists, scores for a large number of the sub-items of transfer and dressing significantly increased, highlighting the necessity of providing them with education focusing on these domains.

Regarding dressing, mid-career therapists exhibited markedly higher scores than novices before learning; this may be explained by novice PTs having insufficient experience in this domain, dressing is frequently considered a learning item for OT students in schools, and most PTs learn about it through clinical practice after graduation. Similarly, the novices' scores for basic skills, such as being able to adjust the height of the bed to ensure safety and being able to confirm the reach movements of the non-paralyzed upper limb, and technical skills, such as being able to provide appropriate guidance for maintaining the paralyzed upper limb straight by the trunk and using the weight of the upper limb, were generally lower than those of mid-career therapists, suggesting the importance of pro-

viding education related to this activity in consideration of the contents of all these sub-items. Mid-career therapists showed such higher scores, presumably due to their basic abilities, which had improved through ADL training, such as FIM-based approaches, in addition to typical physical therapy approaches.

After learning, scores for standing up were markedly higher in mid-career therapists than novice therapists; as standing up is one of the main rehabilitation tasks and mid-career therapists had accumulated their knowledge of it through daily clinical experiences for a longer period of time, the effect of OSCE-based learning in reviewing the points of clinical skills may have been more marked in them compared with novices. Mid-career therapists' scores for the subscales of standing up also markedly increased, particularly in the technical aspects, supporting the appropriateness of the OSCE-based learning method for improving therapists' skills even after completing basic education

Table 3. Comparison of scores for the six level 3 OSCE items between before and after learning (in novice and mid-career therapists)

	Novice Therapists	Mid-career Therapists
Standing up		
Preparatory items		
• Appropriately groomed		
• Being able to appropriately greet		
• Being able to provide appropriate explanations before assessing movements to stand up		
• Being able to appropriately confirm the patient's consent		
Technical items		
• Being able to confirm the appropriate height of an adjustable bed		*
• Being able to confirm the position of the patient's buttocks, and move them forward with guidance/assistance		*
• Being able to move the patient's legs at an appropriate angle, confirm the appropriate width between his/her feet and condition on the heels on the floor, and correct them with guidance/assistance		
• Being able to correct the posture, alignment, and center of balance with guidance/assistance		
• Being able to confirm and give advice for anterior pelvic tilt and participation as a preparatory step for leaving the bed		
• Being able to support the patient's pelvis with the hands and his/her trunk with the chest, while standing with the knees bent when leaving the bed		*
• Being able to move the patient's knees forward using the legs when leaving the bed		
• Being able to bend the patient's head and trunk forward and shift the center of balance at a safe speed with guidance/assistance		
• Being able to support the patient's knees and ensure appropriate hip, knee, and trunk extension with guidance/assistance after leaving the bed		
• Being able to correct the alignment with guidance/assistance to maintain a stable standing position		
Sitting up on the bed		
Preparatory items		
• Appropriately groomed		
• Being able to appropriately greet		
• Being able to provide appropriate explanations before assessing movements to elevate the upper body and sit on the edge of the bed	*	
• Being able to appropriately confirm the patient's consent	*	
• Being able to appropriately remove a bed rail near the patient's leg		
• Being able to remove and keep blankets and clothes on the bed in order	*	*
Technical items		
• Being able to motivate the patient to rise and enhance his/her activeness		
• Being able to confirm sufficient space for the a lateral position		
• Being able to roughly determine the patient's remaining functions	*	*
• Being able to provide appropriate explanations regarding procedures from elevating the upper body to sitting on the edge of the bed		
• Being able to appropriately guide the head upward		*

Table 3. Continue

	Novice Therapists	Mid-career Therapists
<ul style="list-style-type: none"> • Being able to appropriately guide the upper body toward a lateral position • Being able to appropriately guide the lower body toward a lateral position • Being able to give instructions at appropriate times throughout the activity • Being able to stand in an appropriate position for guiding the patient • Being able to take preventive measures against falls while maintaining an appropriate sitting position 	*	*
Toilet activity		
Preparatory items		
<ul style="list-style-type: none"> • Appropriately groomed • Being able to appropriately greet • Being able to provide patients with appropriate explanations before toilet training • Being able to appropriately confirm the patient's consent 		
Technical items		
<ul style="list-style-type: none"> • Being able to confirm appropriate environments for the activity • Being able to provide appropriate explanations regarding procedures • Being able to provide guidance for appropriately standing up from the bed • Being able to provide guidance for a change of direction and stable standing position • Being able to confirm the appropriate posture when pulling down clothes • Being able to give advice for smoothly and appropriately handling clothes • Being able to provide guidance for appropriately sitting on the toilet seat • Being able to provide guidance for maintenance of an appropriate sitting position • Being able to give advice for appropriately cleaning the anus/genitals • Being able to provide guidance for appropriately standing up from the toilet seat • Being able to confirm the appropriate posture when pulling up clothes • Being able to give advice for smoothly and appropriately handling clothes when pulling them up • Being able to provide guidance for a change of direction and sitting on the edge of the bed 	*	*
Transfer		
Preparatory items		
<ul style="list-style-type: none"> • Appropriately groomed • Being able to appropriately greet • Being able to provide appropriate explanations before assessing transfer • Being able to appropriately confirm the patient's consent 		

Table 3. Continue

	Novice Therapists	Mid-career Therapists
Technical items		
<ul style="list-style-type: none"> • Being able to appropriately place the wheelchair by the bed • Being able to adjust the height of the bed to ensure safety • Being able to advise or assist the patient to raise the foot plates • Being able to advise the patient to participate in the activity as much as possible • Being able to provide guidance for moving the buttocks forward and sitting on the anterior part of the wheelchair seat • Being able to place the non-paralyzed foot slightly ahead of the paralyzed one • Being able to support the patient's knee on the paralyzed side by maintaining it between the distal parts of both thighs • Being able to give advice for bending the trunk forward while placing the hands by the waist or on the knees • Being able to support the patient's chest and abdomen with the forearms before standing up • Being able to give instructions to stand up together at an appropriate time • Being able to guide/assist the patient to turn his/her buttocks to the bed and slowly sit on it • Being able to correct the posture when sitting on the edge of the bed and make it stable 	<ul style="list-style-type: none"> * * * 	<ul style="list-style-type: none"> * * *
Walking		
Preparatory items		
<ul style="list-style-type: none"> • Appropriately groomed • Being able to appropriately greet • Being able to provide appropriate explanations before performing gait analysis • Being able to appropriately confirm the patient's consent 		
Technical items		
<ul style="list-style-type: none"> • Being able to take safety measures • Being able to ensure appropriate walking environments • Being able to confirm appropriate clothes, shoes, and aids for walking • Being able to advise the patient to participate in the activity as much as possible • Being able to confirm the ability to move in a standing position • Being able to appropriately instruct to start walking • Being able to appropriately provide guidance/assistance during the swing phase on the paralyzed side • Being able to appropriately provide guidance/assistance during the initial contact to loading response phases on the paralyzed side • Being able to appropriately provide guidance/assistance during the mid-stance phase on the paralyzed side • Being able to appropriately provide guidance/assistance during the terminal stance phase on the paralyzed side • Being able to confirm appropriate walking rhythms • Being able to appropriately guide the patient after walking 		

Table 3. Continue

Dressing activity	
Preparatory items	
• Appropriately groomed	
• Being able to appropriately greet	
• Being able to provide appropriate explanations before assessing dressing	
• Being able to appropriately confirm the patient's consent	
Technical items	
• Being able to take appropriate safety measures	*
• Being able to confirm the maintenance of a stable sitting position	*
• Being able to confirm the reach movements of the non-paralyzed upper body	*
• Being able to confirm appropriate procedures before placing the arms in the sleeves of a garment	*
• Being able to provide appropriate guidance for maintaining the paralyzed arm straight by the trunk and using the weight of the upper body	*
• Being able to provide appropriate guidance for placing the paralyzed arm in the sleeves of a garment	*
• Being able to provide appropriate guidance for placing the non-paralyzed arm in the sleeves of a garment (while ensuring a stable sitting position)	**
• Being able to provide appropriate guidance/assistance for the elbow and shoulder when placing the paralyzed arm in the sleeves of a garment and to prepare for pulling an upper garment over the head	**
• Being able to provide appropriate guidance/assistance for drawing the garment over the head (while maintaining the pelvis in a neutral position)	*
• Being able to correct the shoulder line and bottom edge of the garment on the paralyzed side	*

** $p < 0.01$, * $p < 0.05$

Table 4. Differences in scores for the level-3 OSCE items between novice and mid-career therapists

Standing up: Technical items	Novice Therapists vs. Mid-career Therapists	
	Novice Therapists	Mid-career Therapists
• Being able to confirm the appropriate height of an adjustable bed		
• Being able to confirm the position of the patient's buttocks, and move them forward with guidance/assistance		
• Being able to move the patient's legs at an appropriate angle, confirm the appropriate width between his/her feet and condition on the heels on the floor, and correct them with guidance/assistance		
• Being able to correct the posture, alignment, and center of balance with guidance/assistance		*
• Being able to confirm and give advice for anterior pelvic tilt and participation as a preparatory step for leaving the bed		*
• Being able to support the patient's pelvis with the hands and his/her trunk with the chest while standing with the knees bent when leaving the bed		*
• Being able to move the patient's knees forward using the legs when leaving the bed		*
• Being able to bend the patient's head and trunk forward and shift the center of balance at a safe speed with guidance/assistance		*
• Being able to support the patient's knees and ensure appropriate hip, knee, and trunk extension with guidance/assistance after leaving the bed		*
• Being able to correct the alignment with guidance/assistance to maintain a stable standing position		*

Table 4. Continue

	Novice Therapists	Mid-career Therapists
Transfer: Technical items		
• Being able to appropriately place the wheelchair by the bed		
• Being able to adjust the height of the bed to ensure safety		
• Being able to advise or assist the patient to raise the foot plates		*
• Being able to advise the patient to participate in the activity as much as possible		
• Being able to provide guidance for moving the buttocks forward and sitting on the anterior part of the wheelchair seat		
• Being able to place the non-paralyzed foot slightly ahead of the paralyzed one		
• Being able to support the patient's knee on the paralyzed side by maintaining it between the distal parts of both thighs		
• Being able to give advice for bending the trunk forward while placing the hands by the waist or on the knees		
• Being able to support the patient's chest and abdomen with the forearms before standing up		
• Being able to give instructions to stand up together at an appropriate time		
• Being able to guide/assist the patient to turn his/her buttocks to the bed and slowly sit on it		
• Being able to correct the posture when sitting on the edge of the bed and make it stable		
Dressing activity: Technical items		
• Being able to take appropriate safety measures	*	
• Being able to confirm the maintenance of a stable sitting position		
• Being able to confirm the reach movements of the non-paralyzed upper body	*	
• Being able to confirm appropriate procedures before placing the arms in the sleeves of a garment		
• Being able to provide appropriate guidance for maintaining the paralyzed arm straight by the trunk and using the weight of the upper body	*	
• Being able to provide appropriate guidance for placing the paralyzed arm in the sleeves of a garment		
• Being able to provide appropriate guidance for placing the non-paralyzed arm in the sleeves of a garment (while ensuring a stable sitting position)		
• Being able to provide appropriate guidance/assistance for the elbow and shoulder when placing the paralyzed arm in the sleeves of a garment and to prepare for pulling an upper garment over the head		
• Being able to provide appropriate guidance/assistance for drawing the garment over the head (while maintaining the pelvis in a neutral position)		
• Being able to correct the shoulder line and bottom edge of the garment on the paralyzed side		

* p<0.05

programs.

The results of this study suggest that the OSCE may be sufficiently applicable to postgraduate education systems in workplaces, in addition to school education systems. Rehabilitation medicine is a practical system, in which medical services are provided based on learning achievements. Therefore, in therapist education aiming to nurture learning specialists, it may be important to review the significance of OSCE-based skill education from a viewpoint of rehabilitation medicine in order to systematize it with new approaches, rather than simply adopting medical education systems. Further studies may be necessary to examine the learning effects of the OSCE at different levels.

REFERENCES

- 1) Nakaya H: Challenges of physical therapist education. *Phys Ther*, 2004, 21: 1498–1507.
- 2) Saitoh E, Kanada Y, Tomita M, et al.: *The Objective Structured Clinical Examination(OSCE) for Physical Therapist and Occupational Therapist*. Tokyo: Kanahara publication, 2011, p 275.
- 3) Harden RM, Stevenson M, Downie WW, et al.: Assessment of clinical competence using objective structured examination. *BMJ*, 1975, 1: 447–451. [[Medline](#)] [[CrossRef](#)]
- 4) Kanada Y, Sakurai H, Sugiura Y, et al.: Standardizing the assessment of the clinical abilities of physical therapists and occupational therapists using OSCE. *J Phys Ther Sci*, 2012, 24: 985–989. [[CrossRef](#)]
- 5) Sakurai H, Kanada Y, Sugiura Y, et al.: Standardization of clinical competency evaluation in the education of physical therapists and occupational therapists. —Establishment of an OSCE compliant education system—. *J Phys Ther Sci*, 2013, 25: 101–107. [[CrossRef](#)]
- 6) Sakurai H, Kanada Y, Sugiura Y, et al.: Standardization of clinical skill evaluation in physical/occupational therapist education —effects of introduction of an education system using OSCE—. *J Phys Ther Sci*, 2013, 25: 1071–1077. [[Medline](#)] [[CrossRef](#)]
- 7) Sakurai H, Kanada Y, Sugiura Y, et al.: Reliability of the OSCE for Physical and Occupational Therapists. *J Phys Ther Sci*, 2014, 26: (in press).
- 8) Yoshimoto R, Morita S, Shimizu K, et al.: Trial of objective structured clinical examination before the evaluation practice in physical therapy education —through the result of osce and the written examination for the evaluation practice—. *Yanagawariha Fukuokakokusai Kiyō*, 2007, 3: 9–14.
- 9) Yamaji T, Watanabe J, Asakawa Y, et al.: Development and trial of objective structured clinical examinations in physical therapy education. *Phys Ther Jpn*, 2004, 31: 348–358.
- 10) Yokoo M, Harada S: Trial of objective structured clinical examination for practical training and student's feedback. *Yanagawariha Fukuokakokusai Kiyō*, 2011, 7: 34–39.
- 11) Saitoh E, Kanada Y, Tomita M, et al.: *The Objective Structured Clinical Examination (OSCE) for Physical Therapist and Occupational Therapist*. Tokyo: Kanahara Publication, 2011, pp 3–5.