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Influence of Years of Experience on Clinical Competence of Novice Physical and Occupational Therapists in Japan

Abstract

Purpose: To increase the clinical competence of novice physical and occupational therapists, an accurate assessment of their clinical competence is necessary. However, no previous study has objectively analyzed the changes in novice therapists' clinical competence in Japan. Hence, this study investigated and evaluated the changes in the clinical competence of such therapists using an objective analysis. **Method:** The study included 34 novice therapists with 1–3 years of experience in clinical practice. Participants were divided into groups according to their years of experience. The clinical competence of the novice therapists was evaluated twice using a clinical competency evaluation scale. For comparison among the 3 groups, the scores of the first evaluation were used. For comparison within each experience-year, the scores from both evaluations were used. **Results:** A comparison of the 3 groups showed that therapists with 3 years of clinical experience had significantly higher clinical competence than therapists with 1 year of clinical experience. Between the first and second evaluations, all therapists with 1 year of clinical experience demonstrated increased scores, whereas scores decreased by approximately 50% for therapists with 2–3 years of clinical experience. **Conclusion:** These findings suggest that it is necessary to increase educational opportunities for therapists with 2–3 years of clinical experience and re-examine the content of their education and training.

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ABSTRACT

Purpose: To increase the clinical competence of novice physical and occupational therapists, an accurate assessment of their clinical competence is necessary. However, no previous study has objectively analyzed the changes in novice therapists' clinical competence in Japan. Hence, this study investigated and evaluated the changes in the clinical competence of such therapists using an objective analysis. **Method:** The study included 34 novice therapists with 1–3 years of experience in clinical practice. Participants were divided into groups according to their years of experience. The clinical competence of the novice therapists was evaluated twice using a clinical competency evaluation scale. For comparison among the 3 groups, the scores of the first evaluation were used. For comparison within each experience-year, the scores from both evaluations were used. **Results:** A comparison of the 3 groups showed that therapists with 3 years of clinical experience had significantly higher clinical competence than therapists with 1 year of clinical experience. Between the first and second evaluations, all therapists with 1 year of clinical experience demonstrated increased scores, whereas scores decreased by approximately 50% for therapists with 2–3 years of clinical experience. **Conclusion:** These findings suggest that it is necessary to increase educational opportunities for therapists with 2–3 years of clinical experience and re-examine the content of their education and training.

Keywords: clinical competence education, Japan, occupational therapy, physical therapy

INTRODUCTION

In Japan, to become physical and occupational therapists, high school students directly enter physical and occupational therapy programs at various training schools (three/four-year colleges, or four-year universities). For training school admission, there are no prerequisites except for a high school diploma.

The number of physical and occupational therapists is increasing annually in Japan. In 2018, they represented a total of 10,809 physical and 4,531 occupational therapists.¹ Currently, these numbers have increased to 115,825 and 84,947, respectively.^{2,3} However, this rapid increase might have resulted in a decline in the clinical competence of therapists, possibly because of a decrease in undergraduate and/or postgraduate education quality.⁴

Regarding the quality of undergraduate education, the Japanese Physical Therapy Association (JPTA) and the Japanese Association of Occupational Therapists (JAOT) modified the achievement criterion for undergraduate education in 2010 from “the level of being able to provide basic physical/occupational therapy” to “the level of being able to provide physical/occupational therapy with some degree of advice and instruction from a supervisor.”⁵ In light of this changed achievement criterion, novice therapists can be considered to have not acquired sufficient clinical competence prior to entering clinical practice. Motoya et al. examined the characteristics of novice therapists’ clinical competence at the time of hiring and reported that novice therapists had lower technical items than attitudinal items.⁶

To impart adequate postgraduate education to novice therapists, JPTA and JAOT have established the Newly Qualified Therapists Program (NQTP) and the Lifelong Education System (LES).^{7,8} However, the postgraduate education participation rate remains unsatisfactory (NQTP: 67.5%, LES: 66.1%).^{9,10} Many Japanese institutions (approximately 90%) use on-the-job training,⁴ and instructors teach novice therapists one-on-one. However, the instructors themselves may have insufficient clinical experience because approximately 50% of physical and occupational therapists in clinical practice are 21–30 years old.⁴ Moreover, the evaluation criteria may differ among instructors because their education is largely experience-based and subjective. Kimura et al reported that the instructor participation rate in teaching theory and methods was low (21.9%).¹¹ Therefore, it is important to objectively evaluate the clinical competence of novice therapists during postgraduate education.

The Clinical Competence Evaluation Scale (CCES) is one of the objective evaluation methods that is widely used to assess clinical competence of therapists in Japan.^{12,13} Additionally, this evaluation scale can be assessed objectively and easily. Sakurai et al evaluated the clinical competence of novice therapists using the CCES at a single point in time and examined the difference in years of experience.¹²

However, earlier studies have neither examined changes in clinical competence of novice therapists using CCES nor verified the changes in such competence with years of experience. This study examined the clinical competence of novice therapists and evaluated changes in their clinical competence due to postgraduate education by individual instruction based on the differences between groups with varying experience levels. This was accomplished by applying an existing evaluation in two steps to provide useful insights into the effectiveness of postgraduate individual instruction for novice therapists.

METHODS

Ethics Statement

The aims and details of this study were explained to all participants, and all participants provided informed consent for inclusion in the study. This study was approved by the Ethics Committee of Fujita Health University (approval no. 15-265).

Study Design

This study used a follow-up cross-sectional design.

Participants

The participants were 26 novice physical therapists and 8 occupational therapists with 1–3 years of clinical experience after graduation. The novice therapists were divided into 3 groups: those with 1 year of experience, those with 2 years of experience, and those with 3 years of experience. Additionally, 5 clinical instructors were also recruited with 5 (n = 2), 6 (n = 2), and 7 years of clinical experience (n = 1) after graduation. The participants were recruited from a private rehabilitation hospital in Japan.

Procedure

Instructors who worked at the same hospital as the novice therapists evaluated their clinical competence. Two evaluations were conducted, with the first in July 2018 and the second in March 2019.

Clinical Competence Evaluation Scale

Clinical competence was evaluated using a standard scale for evaluating a therapist's independence.^{12,13} Therapists were considered competent if they met the following criteria: 1) possessed fundamental clinical competence, 2) did not require intensive instruction, and 3) were capable of working as a member of the profession.

The Clinical Competence Evaluation Scale comprises 55 items across 3 main sections, as detailed below:

1. The basic attitude section (19 items) evaluates whether therapists have the attitude required of healthcare professionals and responsible members of the society. For example, their reports, liaisons, and discussions must be generally appropriate, and therapists must behave appropriately, as both team members and individual therapists.
2. The therapist technique section (20 items) evaluates whether therapists have acquired sufficient mastery of basic clinical evaluation techniques relating to muscle strength and joint range of motion.
3. The clinical reasoning and competence section (16 items) evaluates practical competence in a clinical setting (e.g., proposing treatment programs and providing appropriate assistance during walking).

The clinical competence evaluation scale has a scoring system consisting of 5 grades, from 0 to 4. The scores are defined as follows:

- 0: Assessment is not possible.
- 1: The participant cannot understand or perform the appropriate tasks even with supervision and instruction.
- 2: The participant can understand and perform the appropriate tasks to some extent if supervised and instructed.
- 3: The participant can understand and perform the appropriate tasks correctly if supervised and instructed.
- 4: The participant can understand and perform the appropriate tasks correctly without supervision or instruction.

Data Analysis

The total score for the clinical competence evaluation scale and the scores for each section were calculated. The Kruskal-Wallis test was used to compare the experience-year groups with each other and multiple comparison tests were conducted as a post-hoc test when the Kruskal-Wallis test showed significant differences. Within each experience-year group, changes in the total score and scores for each section were tested using the Wilcoxon signed-rank sum test. For all tests, a significance level of less than 5% was considered significant. Statistical analyses were performed using PASW Statistics version 18 (SPSS, Chicago, IL, USA).

RESULTS

The results are shown in Figure 1. The total score for the first evaluation differed significantly among the three groups ($p < 0.05$). According to the results of multiple comparison tests, the total score for therapists with 1 year of clinical experience was significantly lower than for those with 2–3 years of experience ($p < 0.05$).

In the first evaluation, no difference in basic attitude was observed among the experience-year groups, while significant differences (both $p < 0.05$) were observed with therapist technique and clinical reasoning and competence. According to the results of multiple comparison tests, therapists with 2–3 years of clinical experience had significantly higher scores than those with 1 year of clinical experience.

In the second evaluation, scores for the clinical reasoning and competence section differed significantly among experience-year groups ($p < 0.05$). In multiple comparison tests, a significantly higher score was observed for therapists with 3 years of clinical experience as compared to those with 1 year of clinical experience. Regarding the changes in different experience-year groups, the total score for therapists with 1 year of clinical experience differed significantly between the first and second evaluations ($p < 0.05$), whereas for therapists with 2–3 years of experience, no significant differences were observed between the first and second evaluations. For therapists with 1 year of clinical experience, significant differences between the first and second evaluations were observed in all 3 sections as follows: basic attitude, $p = 0.008$; therapist technique, $p = 0.024$; and clinical reasoning and competence, $p = 0.007$. Conversely, no significant differences were observed for any section among therapists with 2–3 years of clinical experience. Regarding the change in total score between the first and second evaluations, all therapists with 1 year of clinical experience demonstrated increased scores, whereas scores decreased by approximately 50% for therapists with 2–3 years of clinical experience.

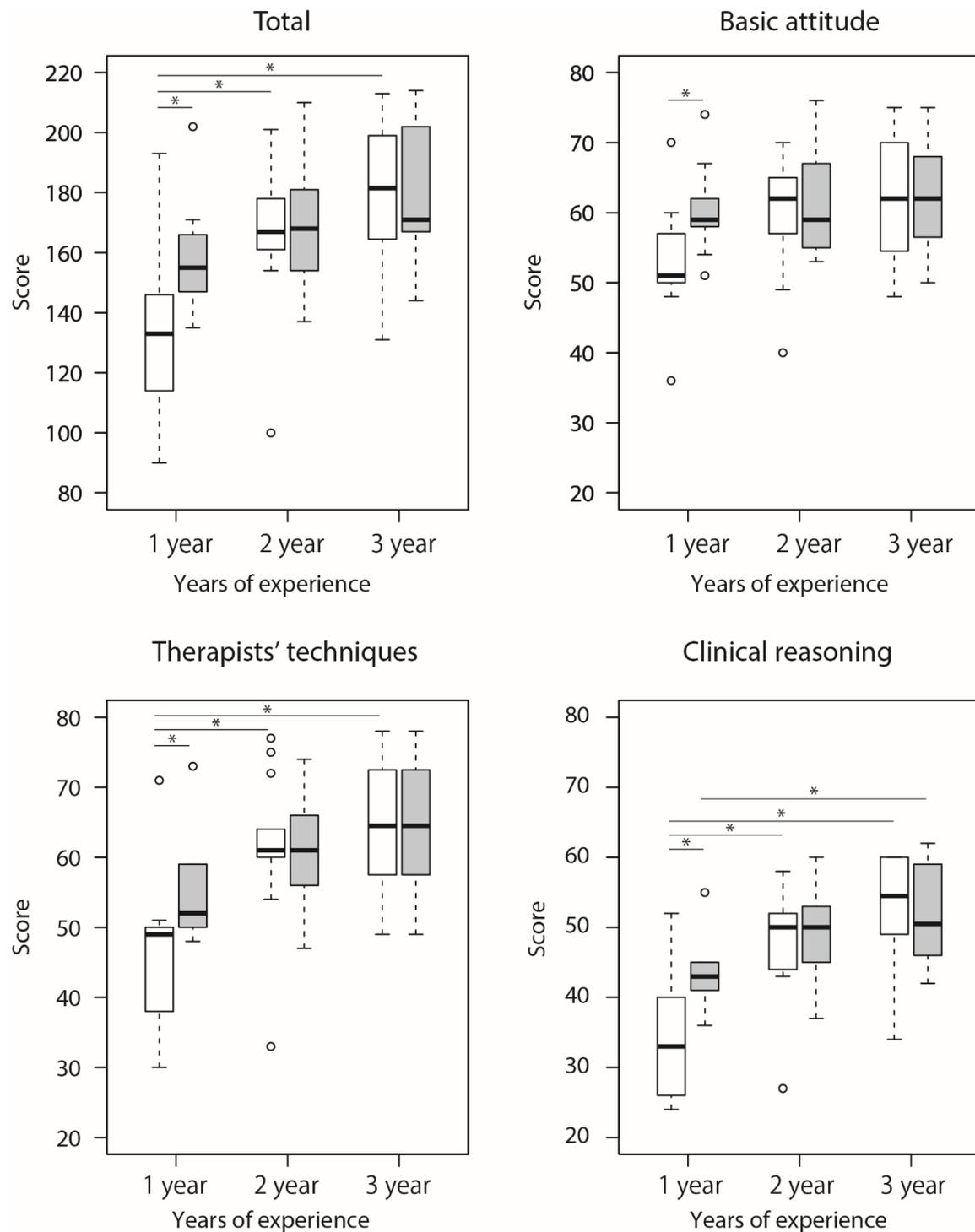


Figure 1. Comparison of Clinical Competence Scale scores between experience-year groups. The horizontal axis shows the participants' years of clinical experience. The vertical axis shows participants' scores on the Clinical Competence Evaluation Scale. The white square indicates the results of the first evaluation, and the gray square indicates the results of the second evaluation. Panel A shows the total score, and Panel B shows the results of the basic attitude section alone. Panel C shows the therapist technique scores, and Panel D shows clinical reasoning scores. The centerlines of the boxplots represent medians; the box limits represent the inter-quartile range from 25% to 75%. The boxplot whiskers extend 1.5 times the interquartile range from the first to third quartiles. The asterisks (*) indicate a significant difference.

DISCUSSION

In this study, the clinical competence of novice physical and occupational therapists in Japan was analyzed, and changes in clinical competence were evaluated according to different experience-year groups. The findings showed that the clinical competence of novice therapists differed depending on their years of experience. Additionally, regarding the changes in clinical competence in different experience-year groups, a significant increase in the scores of the 2 evaluations (July 2018 and March 2019) was observed in therapists with 1 year of clinical experience; however, this was not observed in therapists with 2–3 years of experience.

In the first evaluation, the total score for the clinical competence evaluation scale was significantly lower for therapists with 1 year of clinical experience as compared to those with 3 years of clinical experience. No significant difference was observed at the second evaluation. In 2010, the achievement target for undergraduate education was set at the level at which basic physical/occupational therapy can be provided with some degree of advice and instruction.⁵ The first evaluation was conducted with therapists who had recently graduated from training school; therefore, their knowledge and experience during that period were still insufficient. The second evaluation showed that clinical competence increased in therapists with 1 year of clinical experience. Moreover, a previous study stated that most hospitals in Japan provide individual instruction.⁴ Other research suggests that when teaching novice therapists, it is necessary to consider their personalities.¹⁴ Therefore, an individualized instructional system should be implemented based on a variety of factors.

In contrast to the changes observed in the 1-year group, no changes in any of the sections were observed in therapists with 2–3 years of clinical experience, considering that approximately 50% of each subgroup (2 and 3 years of clinical experience after graduation, respectively) showed increased and decreased scores. We argue that this finding is possibly associated with the unclear achievement target criteria for postgraduate education. Previous studies reported that the current achievement specifications for postgraduate education are significantly unclear and that priorities for clinical competence have not been clearly specified.^{4,5} For these reasons, the achievement targets of therapists with 2–3 years of clinical experience should be different from those of therapists with 1 year of experience, and the necessity of increasing the frequency of evaluation of clinical competence must be further investigated.

Regarding the sections of the questionnaire, in the first evaluation, therapist techniques and clinical reasoning and competence scores were lower for therapists with 1 year of clinical experience as compared to those with 2–3 years of experience. In the second evaluation, the score for clinical reasoning and competence was lower for therapists with 1 year of clinical experience than for therapists with 3 years of clinical experience. No differences in basic attitude were observed in either the first or second evaluations among the experience-year groups. It is suggested that this finding resulted from novice therapists' basic attitudes being sufficiently enhanced during their undergraduate education. This also suggests that novice therapists' scores for clinical reasoning and competence can be increased by clinical experience.

Limitations

There are some limitations to this study. First, this was a single-center study, which may affect the generalizability of the results. Future studies should consider multiple study locations to improve the generalizability. Second, the potential heterogeneity among participants' conditions could not be considered as the number of participants was small because the study was a single-center one. To consider potential heterogeneity, future studies should increase the number of participants from multiple-centers. Third, a sample size calculation was not performed because this study was conducted in a single center. To avoid statistical errors, future studies need to calculate the requisite sample size using accepted norms. Fourth, verification of intra-rater and inter-rater reliability and validity of this evaluation scale was insufficient. To carry out an objective evaluation of clinical competence using this evaluation scale, future studies need to verify the intra-rater and inter-rater reliability and validity of this evaluation scale. Finally, future studies should also focus on experiences that veteran therapists could contribute toward the development of an educational system for therapists with 2–3 years of clinical experience.

Conclusion

In conclusion, this study investigated the clinical competence of novice therapists using a Clinical Competence Scale. The comparison between participant groups with varying years of clinical experience showed that therapists with 3 years of clinical experience had significantly higher clinical competence than those with 1 year of clinical experience, indicating that therapists' clinical competence differs based on their years of experience. Moreover, all therapists with 1 year of clinical experience demonstrated increased scores, whereas scores decreased for therapists with 2–3 years of clinical experience. This suggests that achievement targets between therapists with 1 year and 2–3 years of experience should differ.

DISCLOSURES

Conflict of interest: none.

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