



Original Article

Relationships between motives to become a physical therapist, delayed graduation, and perceptions of school and internship learning among physical therapy students

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Abstract. [Purpose] The purpose of this study is to reveal the relationships between physical therapy students' motives to become physical therapists and their academic performance. This was investigated by their experience of delayed or non-delayed graduation, and their perceptions of learning in school and internship. [Subjects and Methods] Subjects were 245 physical therapists participating in a newcomer orientation by the Hiroshima Prefectural Physical Therapy Association in May, 2017. Subjects' basic attributes and their responses to specially created questionnaires were investigated. [Results] Seventeen of 193 physical therapists in their first year experienced delayed graduation. There were differences between the delayed graduation group and the non-delayed graduation group about motives for becoming a physical therapist. Moreover, there were significant relationships between motives for becoming a physical therapist and perceptions of learning in school as opposed to internship. [Conclusion] We conclude that motives for becoming a physical therapist are related to academic performance.

Key words: Physical therapists' education, Delayed graduation, Motive to admit school

(This article was submitted Sep. 27, 2017, and was accepted Oct. 24, 2017)

INTRODUCTION

In the last ten years, the number of physical therapists in Japan has increased explosively, from 52,088 in 2006 to 139,214 in 2016¹⁾. Japanese physical therapists' educational institutions include 105 universities, 6 three-year colleges, 67 four-year professional schools, and 85 three-year professional schools. The admissions capacity of all physical therapy schools in Japan is around 14,000 students as of April, 2017²⁾. In 2017, there were around 1,230,000 eighteen-year-olds who can enter universities, colleges, or professional schools, meaning that roughly one in 88 high school graduates will enter physical therapy education. Recently, the declining academic achievement of physical therapists in Japan has been regarded as a problem³⁾. One of the reasons for this decline seems to be the increase in admissions capacity; as a result, the number of students with low motivation for becoming a physical therapist is increasing.

In previous American studies, predictors of both academic and clinical performance in a physical therapy undergraduate program were preadmission cumulative grade point averages, mean Allied Health Professions Admission Test scores, and interview ratings⁴⁾. In India, too, it was found that students with better academic preparation demonstrated better academic performance⁵⁾. One study in Australia, on the other hand, demonstrated the predictive validity of an admission interview for

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Table 1. Questionnaire about the motive for becoming a physical therapist, perception of learning in school, and perception of learning in internship

Motive for becoming physical therapist	
MPT1	I can make use of my experience and ability as a physical therapist.
MPT2	I want to acquire professional knowledge and skills.
MPT3	It is a challenging task.
MPT4	Physical therapy is a job that can be used in life.
MPT5	I would like to be useful to people suffering from diseases and disabilities.
MPT6	I wanted to get a job offering direct contact with people.
Learning in school	
LS1	There were many faculty members worthy of respect.
LS2	I often heard interesting stories from faculty that can be used in clinical practice.
LS3	While listening to the faculty, I thought that I could not work in the future if I had to study seriously.
LS4	I talked diligently about physical therapy with my friends.
LS5	I gained the ability to personally investigate and resolve something that I do not understand.
Learning in internship	
LI1	I want to work as a physical therapist without a moment's delay.
LI2	There were many physical therapists who made me think, "I want to be such a physical therapist."
LI3	I felt that many physical therapists continued their lifelong learning even after graduation.
LI4	I was thanked by patients for my involvement as a student.
LI5	I felt physical therapy was practiced based on scientific evidence.

entry into a physical therapy course. Its results show that performance in this admission interview is associated with overall performance in clinical placements throughout the course, while academic admission scoring is not⁶⁾. These studies indicate that pre-admission academic performance and interviews could both be effective predictors of post-admission success.

Academic performance among physical therapy students needs to be investigated in several countries because their physical therapy education systems are different. Further, reports from elsewhere that pre-admission interviews are related to later academic performance mean that the relationship between motives for becoming a physical therapist and academic performance requires investigation. Therefore, the purpose of this study is to illustrate the relationship between motives for becoming a physical therapist and academic performance by investigating students' experience of delayed graduation and their perceptions of learning in school and internship.

SUBJECTS AND METHODS

Subjects were 245 physical therapists who participated in a newcomer orientation of Hiroshima Prefectural Physical Therapy Association. The questionnaires were distributed, and 221 answers were collected (survey collection rate: 90.2%), with 204 responses completely answered. In the completely answered responses, 11 respondents were not first-year physical therapists, and 193 respondents were first-year physical therapists. In this study, these 193 respondents were analyzed.

Subjects' basic attributes included gender, school type (university, three-year college, four-year professional school, three-year professional school), and experience of delayed graduation at school, if applicable. Some factors of delayed graduation might be related to the motive for learning. It was thought that the motive for learning were related to not only perception of learning in school and perception of learning in internship, but also the motive for becoming a physical therapist. Thus, questionnaires were created specially for this study, and comprised 16 questions, addressing the motive for becoming a physical therapist, perception of learning in school, and perception of learning in internship (Table 1). Answers were ranged on a five-point Likert Scale (strongly agree, agree, undecided, disagree, strongly disagree).

In the statistical analysis, relationships between the motive for becoming a physical therapist and perception of learning in school and in internship were analyzed by Spearman's Rank-Order Correlation Test. Then differences between delayed graduation and non-delayed graduation, motive for becoming a physical therapist, and perception of learning in school or internship were analyzed by using a χ^2 Test and Wilcoxon Rank Sum Test. All statistical analyses were performed with R 3.4.0 for Mac, with the significance level set at 5%.

This research was conducted with the approval of the Research Ethics Committee of the Hiroshima Prefectural Physical Therapy Association (approval number 29-0023). All subjects were informed of what they were participating in, and only subjects who agreed to share their information were administered the questionnaire.

RESULTS

Subjects included 123 males and 70 females. There were 124 physical therapists who had graduated from universities, 41 who had graduated from four-year professional schools, and 28 who had graduated from three-year professional schools. There were no physical therapists who had graduated from three-year colleges. Seventeen of these 193 people underwent

Table 2. Relationship between the motive for becoming a physical therapist and perception of learning in school and internship

	MPT1	MPT2	MPT3	MPT4	MPT 5	MPT 6
LS1	0.119	0.005	0.061	0.057	0.123	0.139
LS2	0.081	0.014	0.132	0.084	0.097	0.158
LS3	0.009	0.098	0.087	0.100	0.106	0.075
LS4	0.297***	0.035	0.341***	0.053	0.315***	0.244**
LS5	0.227**	0.139	0.285***	0.099	0.151*	0.162*
LI1	0.319***	0.233**	0.390***	0.204**	0.319***	0.337***
LI2	0.153*	0.221**	0.389***	0.165*	0.314***	0.268***
LI3	0.156*	0.183*	0.337***	0.154*	0.263***	0.298***
LI4	0.135	0.058	0.331***	0.071	0.277***	0.330***
LI5	0.217**	0.168*	0.256***	0.150*	0.218**	0.161*

MPT: Motive for becoming a Physical Therapist; LS: Learning in School; LI: Learning in Internship.

*p<0.05, **p<0.01, ***p<0.001.

Table 3. Differences between the delayed and non-delayed graduation groups

	Delayed graduation (n=17)	Non-delayed graduation (n=176)	ES
University (n), PS4, PS3†	11, 4, 2	113, 37, 26	0.027
MPT 1‡	3 (2, 3)	3 (2, 4)	0.144*
MPT 2‡	3 (3, 4)	4 (3, 4)	0.046
MPT 3‡	4 (3, 4)	4 (4, 5)	0.181*
MPT 4‡	4 (3, 5)	4 (3, 4)	0.014
MPT 5‡	4 (3, 5)	4 (4, 5)	0.069
MPT 6‡	3 (2, 4)	4 (4, 5)	0.170*
LS 1‡	4 (3, 4)	4 (4, 5)	0.059
LS 2‡	4 (4, 4)	4 (4, 4)	0.010
LS 3‡	4 (4, 5)	4 (4, 5)	0.073
LS 4‡	3 (3, 4)	4 (4, 4)	0.045
LS 5‡	4 (3, 4)	4 (4, 4)	0.021
LI 1‡	4 (3, 5)	4 (4, 5)	0.075
LI 2‡	4 (4, 4)	4 (4, 5)	0.034
LI 3‡	4 (4, 4)	5 (5, 5)	0.159*
LI 4‡	4 (4, 4)	4 (4, 5)	0.108
LI 5‡	4 (3, 4)	4 (4, 4)	0.011

PS3: Three-year Professional School; PS4: Four-year Professional School; MPT: Motive for becoming Physical Therapist; LS: Learning in School; LI: Learning in Internship; ES: Effect Size, *p<0.05, † χ^2 Test; ES (Cramer's V), ‡Wilcoxon rank sum tests; ES (r).

delayed graduation while at school (delayed graduation rate was 8.8%, 95% CI; 5.2, 13.7). The reasons for delayed graduation of the 17 were internship for 5 and academic examinations for 12.

In the relationships between items on the motive for becoming a physical therapist, significant correlations were found in all combinations (correlation coefficients r were from 0.270 to 0.559; Cronbach's alpha was 0.76).

Next, correlation between the motive for becoming a physical therapist and perception of learning in school or in internship is presented in Table 2. Finally, differences between those who experienced delayed graduation and those who did not, about their motives for becoming physical therapists, and perceptions of learning in school and in internship are shown in Table 3.

DISCUSSION

It is estimated that each year, there are approximately 300 first-year physical therapists in Hiroshima Prefecture. In this study, we obtained 193 valid responses to our questionnaire, that is, two thirds of the total. We believe this is a sufficient sample size for generalized consideration about physical therapists working in this prefecture.

In the relationships between the motive for becoming a physical therapist and perception of learning in school, there are not significant relationships between the motive and LS1, LS2, or LS3. These questions included respondents' attitudes toward school faculty. Therefore, it becomes clear that faculty did not influence respondents' motives before entrance. In contrast, the items about mutual empowerment with friends (LS4) and about problem-solving ability (LS5) were significantly correlated to motive. These items are characterized as active learning behavior at school. Previous research has found that

student-centered rather than faculty-centered learning motivates physical therapy students, and that they regard self-directed learning as important^{7, 8)}. The result of this study indicates that self-directed learning may be influenced by the motive to become a physical therapist before admission.

In the relationship between the motive for becoming a physical therapist and perception of learning in internship, we find a small-to-medium effect size for many items. From this result, it appears that the strength of a respondent's motive for becoming a physical therapist influences their positive perception of internship and physical therapists. Furthermore, the importance to students of gaining clinical competency during internship has already been pointed out in various studies^{9–11)}. In addition to this competency, professionalism^{12–14)} as a physical therapist, including the motive for becoming one, should be carefully considered for effective internship.

In the differences between the delayed and non-delayed graduation groups, the delayed graduates showed small points of difference in some items on motive for becoming a physical therapist (MPT1, MPT3, MPT6). These items include vocational aptitude and altruistic motivation contexts. Among the items for which no significant difference was observed, MPT5 indicated a larger relative effect size, and included the context of altruistic motivation. Previous studies^{4, 6)} demonstrate that admission examination interview scores, including questions about motivation, are related to both academic and clinical performance. In this study, it was found that the motive for becoming a physical therapist is related to delayed graduation. This is shown in the difference for item LI3, which is the result of observing others' attitudes on lifelong learning, and is presumed to be caused by the strength of a respondents' motive. Interestingly, though there were significant relationships between the motive for becoming a physical therapist and perception of learning in internship (Table 2), delayed graduation was related to only one item of learning in internship in contrast to being related to three items of the motive for becoming a physical therapist. Delayed graduation for the reason of internship were only 5 students, therefore depth discussions were limited. In the future work, the reasons for delayed graduation were analyzed separately in terms of internship and academic examinations. In the future work, the reasons for delayed graduation will be analyzed separately in terms of internship and academic examinations.

In conclusion, we surveyed subjects who had just joined the Hiroshima Prefectural Physical Therapy Association, but this survey was conducted only on a one-year cohort, and only in one prefecture. Hence, it is unknown whether the results of this research would be the same in different years or in different prefectures. Notably, almost of all statistical effect sizes were small or medium; therefore, we infer that there is a third factor which was not included in our questionnaire for this research. Further studies are thus necessary to explore beyond these limitations.

REFERENCES

- 1) Japanese Physical Therapy Association: Statistics. <http://www.japanpt.or.jp/about/data/statistics/> (Accessed Aug. 25, 2017)
- 2) Japanese Physical Therapy Association: Training School. <http://www.japanpt.or.jp/general/aim/training/> (Accessed Aug. 25, 2017)
- 3) The House of Representatives: Japan. http://www.shugiin.go.jp/internet/itdb_shitsumon.nsf/html/shitsumon/190319.htm (Accessed Aug. 25, 2017)
- 4) Balogun JA: Predictors of academic and clinical performance in a baccalaureate physical therapy program. *Phys Ther*, 1988, 68: 238–242. [Medline] [CrossRef]
- 5) Gordon CD, Williams SK, Hudson GA, et al.: Factors associated with academic performance of physical therapy students. *West Indian Med J*, 2010, 59: 203–208. [Medline]
- 6) Edgar S, Mercer A, Hamer P: Admission interview scores are associated with clinical performance in an undergraduate physiotherapy course: an observational study. *Physiotherapy*, 2014, 100: 331–335. [Medline] [CrossRef]
- 7) Saarinen-Rahiika H, Binkley JM: Problem-based learning in physical therapy: a review of the literature and overview of the McMaster University experience. *Phys Ther*, 1998, 78: 195–207, discussion 207–211. [Medline] [CrossRef]
- 8) Nakagawa K, Yamada K, Asakawa Y, et al.: What kinds of impressions did physical therapy students receive through participation in off-campus classes? — An analysis using text-mining. *J Phys Ther Sci*, 2012, 24: 1063–1068. [CrossRef]
- 9) Kanada Y, Sakurai H, Sugiura Y: Difficulty levels of OSCE items related to examination and measurement skills. *J Phys Ther Sci*, 2015, 27: 715–718. [Medline] [CrossRef]
- 10) Sakurai H, Kanada Y, Sugiura Y, et al.: Contents of supervision needed by physical and occupational therapists for ability development: focusing on their clinical experience. *J Phys Ther Sci*, 2016, 28: 134–141. [Medline] [CrossRef]
- 11) Kanada Y, Sakurai H, Sugiura Y, et al.: Development of clinical competence assessment tool for novice physical and occupational therapists—a mixed Delphi study. *J Phys Ther Sci*, 2016, 28: 971–975. [Medline] [CrossRef]
- 12) Jette DU, Portney LG: Construct validation of a model for professional behavior in physical therapist students. *Phys Ther*, 2003, 83: 432–443. [Medline]
- 13) Davis DS: Teaching professionalism: a survey of physical therapy educators. *J Allied Health*, 2009, 38: 74–80. [Medline]
- 14) Davies R, Ellerton C, Evans C: Reaching consensus on measuring professional behaviour in physical therapy objective structured clinical examinations. *Physiother Can*, 2017, 69: 65–72. [Medline] [CrossRef]