

Employer Perceptions of Physical Therapists' Residency and Fellowship Training: Insights for Career Development Planning

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Introduction. Residencies and fellowships have been developed to train physical therapists (PTs) toward advanced

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The project and study protocol were reviewed, and permission to conduct the study was granted by the Institutional Review Board at The Ohio State University.

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expertise while emphasizing patient outcomes, evidence-based care, and advancing practice. Research evaluating the impact of PT residency or fellowship training, its value, and/or benefits is scarce. The purpose of this study was to evaluate if employers perceive the performance of residency- and/or fellowship-trained employees differently than non-residency-trained and/or non-fellowship-trained employees.

Methods. Participants were employers who employ PTs who have graduated from accredited physical therapy residency and fellowship programs in the United States. A survey was distributed asking perceptions of how employees, who were residency and/or fellowship trained, performed compared to employees with equivalent years of experience who were not residency or fellowship trained. Mann-Whitney *U* tests were used for comparison.

Results. A total response rate of 40% ($n = 226$) was achieved, and a total of 184 responses were included. Respondents rated residency- and/or fellowship-trained employees higher in domains of Leadership, Communication, Clinical Aptitude, Scholarship/Evidence Based Practice, and Teaching when compared to experienced-matched colleagues. Employers rated fellowship-trained employees higher than residency-trained employees in areas of Leadership, Communication, and Clinical Aptitude.

Discussion and Conclusion. These results may be important for assisting students and early- and mid-career professionals in making decisions about whether to attend residency and/or fellowship education and for understanding what employers value in making hiring decisions. Further, these considerations may influence future promotion opportunities, patient satisfaction, and payment policies.

Key Words: Postprofessional education, Patient outcomes, Leadership, Communication skills, Health services research.

INTRODUCTION

Formal postprofessional physical therapy residency education began in 1979 in the United States and has substantially expanded in the last 10–15 years.^{1–4} The goals of these postprofessional training programs are to train physical therapists (PTs) in areas of specialization and/or subspecialization to accelerate development toward advanced expertise while emphasizing patient outcomes, evidence-based care, and advancing practice.^{1,3–5} Since the early 1990s, the physical therapy profession has been evolving in postgraduate education along the lines of medical residency and fellowship training. The American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE) is currently the official accrediting body of residencies and fellowships recognized by the American Physical Therapy Association (APTA).²

Clinical physical therapy residency and fellowship programs consist of postprofessional training that occurs after graduation from physical therapy education and licensure as a PT. These programs provide planned, structured, and mentored experiences, including both didactic and clinical training. Clinical residencies train PTs in focused/specialized areas of practice (eg, Geriatrics, Orthopedics, and Pediatrics) with at least 1,800 hours of training to be completed between 10 and 60 months. Clinical fellowships train PTs in advanced/subspecialized areas of clinical practice (eg, Critical Care, Neonatology, and Orthopedic Manual Therapy) with at least 1,000 hours of training to be completed between 10 and 60 months.² At the time of the submission of this manuscript, there were 258 physical therapy residencies and 52 physical therapy fellowships accredited by ABPTRFE in nine specialty areas in

physical therapy.² Between 1999 and 2016, there were 3,232 PTs who graduated from residency programs and 1,518 clinicians who graduated from fellowship programs.²

Review of Literature

Various factors may drive a PT to pursue residency and/or fellowship education, including advancing autonomous practice, aspiration to improve patient outcomes, and promotion of professional development and leadership.^{6,7} It is evident from the rising number of graduates from physical therapy residency/fellowship programs that numerous clinicians seek training beyond their first professional degree to become more confident, skilled practitioners. The American Physical Therapy Association's (APTA) research agenda specifically invites the investigation of residency and fellowship training and workforce impact.^{1,4,6,8} In addition, ongoing discussion has occurred nationally regarding whether such training should be a mandatory part of a PT's formal education. In fact, recent recommendations by the Clinical Education Task force include such potential recommendations to enhance "best practices for physical therapist clinical education" and to "meet the evolving needs of society."⁹ However, relatively little research has been done evaluating the impact of such training, its value, and/or benefits.^{1,4,6,7} The existing literature does suggest that residency training may positively influence the perception of clinical skills, expertise, and salary in PTs who are residency trained, while fellowship-trained PTs may achieve better patient outcomes.^{1,6,7}

With current changes occurring in health care, the roles, responsibilities, and efficiencies of all providers are being scrutinized to develop strategies to address quality, cost, and the patient experience.¹⁰⁻¹⁵ Health care systems worldwide are also struggling with the complexity and cost of delivery of care, resulting in more demands on providers.¹⁶ Faced with these same rigorous cost, efficiency, and productivity demands, physical therapy education in the United States is being asked to rethink the skill set of clinicians entering practice.¹⁷ Regardless of the setting, current workplace demands require a deep understanding and partnership among employers, potential employees, and educational training to ensure that the needs in a real-world working environment are being met.^{11-13,17,18} With backdrop of unpredictable health care changes and reimbursement, it is important to examine the impact of the use of resources on advanced education for clinicians, acknowledging employers as key stakeholders.¹⁹⁻²²

However, to date, there are no published studies of how PT employers perceive the

value of residency and fellowship education and training. Several studies evaluating employer perception and expectations of PTs have been conducted regarding education (eg, degree level: Bachelors, Masters, and Doctorate) and specialization focused on knowledge, skills, communication, behaviors, and professionalism.²³⁻²⁷ Thus, it would be prudent to evaluate employers' perceptions regarding residency and fellowship training in physical therapy. Knowledge of employers' perceptions has the potential to help better understand employers' actions and choices, in particular who they may hire and the expectations of their employees. Further, results of this study may substantially impact the development of residency and fellowship training in physical therapy, as well as the potential support of such training in the workforce. Understanding how employers perceive the level of employee training as it pertains to the quality of patient care, communication, efficiency, leadership, and professionalism are important aspects to consider as students, early- and mid-career professionals make decisions about whether to participate in a residency and/or fellowship, and they make employment choices.

Purpose/Hypothesis. The primary purpose of this study was to characterize employers' perceptions of employees who were residency- and/or fellowship-trained compared to non-residency-trained and non-fellowship-trained individuals with equivalent years of experience. The secondary purpose was to compare employers' perceptions of residency-trained employees versus fellowship-trained employees. The first *hypothesis* was that employers would rate residency- and fellowship-trained employees' skills higher compared to non-residency/fellowship-trained employees. The second *hypothesis* was that employers of fellowship-trained PTs would rate the skills and performance of PTs who were fellowship trained higher compared to what employers of residency-trained PTs would rate for PTs who were residency trained.

Subjects

Participants for this study were employers from a variety of clinical settings (eg, outpatient orthopedics, sports, and in-patient neurological) who employ PTs who have graduated from accredited physical therapy residency and fellowship programs in the United States. Exclusion criteria were as follows: 1. employers in nonclinical settings (eg, academic, administrative), 2. employers who could not rate or compare residency/fellowship graduate clinicians to non-residency/fellowship graduate clinicians, 3. self-employed PTs whose only employee(s) were themselves, 4. employers

who did not have employees who graduated from an accredited (or previously credentialed) program by ABPTRFE.

METHODS

Study Design

This study was an electronic nonexperimental exploratory survey study of employers of PTs in the United States conducted from September 2015 through September 2016. The project and study protocol were reviewed, and permission to conduct the study was granted by the Institutional Review Board at The Ohio State University. Subjects were provided a consent letter and consented electronically prior to participating in the study.

Instrumentation/Methods of Measurement.

Data for this study were gathered with the use of two electronic surveys: 1. survey to employers of residency graduates (Appendix A, Supplemental Digital Content 1, <http://links.lww.com/JOPTE/A38>) and 2. survey to employers of fellowship graduates (Appendix B, Supplemental Digital Content 2, <http://links.lww.com/JOPTE/A39>). The surveys were identical except for terms "resident/residency" and "fellow/fellowship."

Survey Development. Two electronic "Employer Surveys" were initially developed by the authors. To evaluate the scope and validity of the "Employer Surveys," a focus group of 12 potential stakeholders was formed. These individuals represented the following areas: 1. residency and fellowship program directors and faculty with ranges of specialty and subspecialty areas; 2. academic faculty with expertise in survey research; and 3. physical therapist employers from military, for profit and non-profit settings. The initial drafted surveys were developed from: 1. extrapolations from previous literature surveying employers of PTs, 2. results and concepts from literature examining residency and fellowship training, and 3. concepts the authors deemed important to evaluate (eg, knowledge, skills, communication, behaviors, and professionalism).^{1,6,7,23-25,27} These draft surveys were then provided to the focus group members who were asked to complete the surveys and provide comments on the clarity, organization, relevance, included content, and potential respondent burden of the surveys. Structured discussion was conducted over teleconferences, and written feedback from the focus group participants was also obtained. The focus group participants provided specific feedback regarding key elements to include or those to discard especially in light of potential burden to the respondent. The initial drafted surveys were revised, based on both focus group's verbal and written feedback, and

then sent to two external experts in survey research for further feedback and final revision prior to data collection (Appendices A and B, Supplemental Digital Content 1 and 2, <http://links.lww.com/JOPT/A38> and <http://links.lww.com/JOPT/A39>, respectively). Specific questions regarding the number of employees who were residency/fellowship trained, number of employees who were board specialty certified, demographics of employees, and whether respondents were able to make a comparison between residency/fellowship-trained PTs and non-residency/fellowship-trained PTs were added based on focus group and expert review feedback to reduce or identify potential response bias.

Description of Primary Survey Elements and Scoring. Ultimately, 15 primary data elements of performance were derived by the authors after consultation with the focus group participants and survey experts/consultants (Appendices A and B, Supplemental Digital Content 1 and 2, <http://links.lww.com/JOPT/A38> and <http://links.lww.com/JOPT/A39>, respectively). These elements were then grouped into the following themes: Leadership, Communication, Clinical Aptitude, Scholarship/Evidence-Based Practice, and Teaching (Table 1). General descriptive information about the employer, clinical site,

and residency/fellowship graduates was also collected. In the survey, employers were asked to rate their perceptions of performance of the residency-trained and/or fellowship-trained employee compared to a non-residency-trained or non-fellowship-trained employee with equivalent years of experience. The rating was based on a 5-point Likert scale (1 = “substantially less,” 2 = “less,” 3 = “same,” 4 = “exceeds,” and 5 = “substantially exceeds”).

Employers were also asked to provide three characteristics that distinguished their employees who were residency or fellowship trained from their peers. If they did not perceive a difference, then employers were asked to respond “N/A” to the questions. In addition, employers were also asked to provide any general comments and/or narrative pertaining to residency or fellowship training related to their other employees and organization (e.g., general, positive, or negative). Finally, employers were asked three additional questions regarding their support for residency and fellowship training.

Procedures. Contact information for all accredited residency and fellowship programs in the United States was gathered from a public Web site (<http://www.abptrfe.org>) in September 2015 (Figure 1).² Each residency/fellowship Program Director was sent an

email inviting them to share their graduates’ contact information. Based on the policies and procedures of their organization, Program Directors sent graduate contact information or notified their graduates of the study and encouraged them to send contact information to the study team. Once graduate contact was obtained, an email was sent to the graduates inviting them to share the contact information of a representative of their place of employment who makes hiring decisions and who would be able to evaluate performance and qualifications of their employees (eg, supervisor, director, and administrator) Finally, an email invitation was sent to the designated employer requesting them to complete the online survey. If graduates had more than one employer, all employers were asked to complete the survey. To encourage maximum participation, following the initial email to all groups (Program Directors, Alumni, and Employers) a maximum of five email reminders were sent (each approximately 2 weeks apart) with a reminder phone call after the third reminder email.

Data Analysis

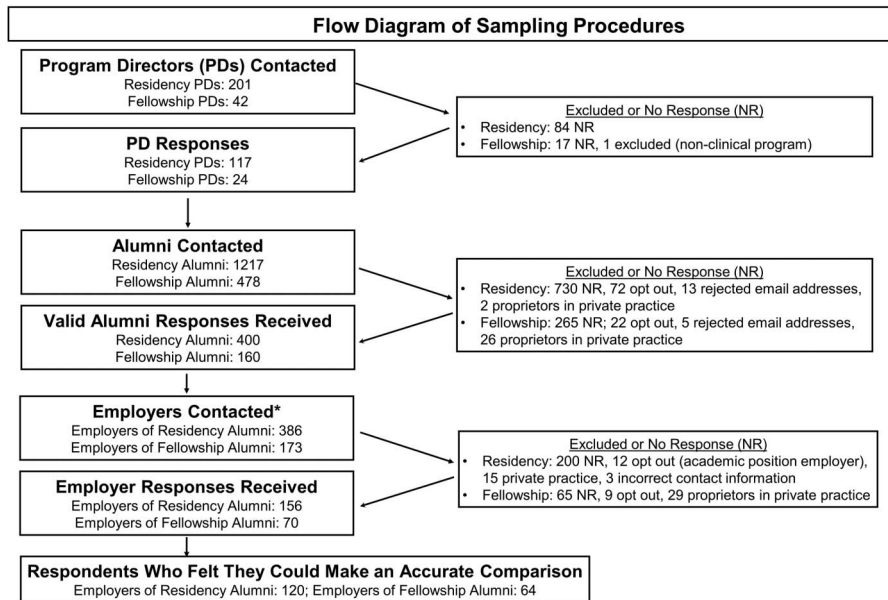
Using an online sample size calculator,²⁸ 95% confidence interval, 5% margin of error, and a population size of 3,947 residency and

Table 1. Performance Elements and Themes That Employers Rated Their Residency- and/or Fellowship-Trained Employees Compared to Non-Residency-Trained and/or Fellowship-Trained Employees

Leadership	Leadership within the organization
	Leadership in the community
	Leadership in the profession
Communication	Communication skills with other health care providers (eg, Physicians, nurses, athletic trainers)
	Communication skills with peers (physical therapists)
	Communication with patients
	Marketing to multidisciplinary colleagues or the public
Clinical aptitude	Quality of patient care examination, intervention
	Efficiency in obtaining positive patient outcomes
	Ability to contribute to performance improvement activities of the practice setting, including innovative practice models, service initiatives, and regulatory issues
	Ability to meet the productivity and accessibility (timeliness and convenience of appointments) needs of the department?
Scholarship/evidence-based practice	Application of evidence-based practice to care delivery (eg, use of current research, incorporation of patient needs/expectations into management decisions)
	Involvement in scholarly work including clinical research, preparation of case studies, or other publications
Teaching	Teaching within the clinical work place (e.g., Supervision of students, in-service education)
	Teaching within the community including teaching at conferences or community courses

Employers were asked to rate their perceptions of performance of the residency-trained and/or fellowship-trained employee compared to a non-residency-trained or fellowship-trained employee with equivalent years of experience. The rating was based on a 5-point Likert scale (1 = “substantially less,” 2 = “less,” 3 = “same,” 4 = “exceeds,” and 5 = “substantially exceeds”).

Figure 1. Flow Diagram of Sampling Procedures. *Data in “Valid Alumni Responses Received” text box and the “Employers Contacted” boxes do not directly match because some employers had more than one residency- and/or fellowship-trained employee and some residency/fellowship graduates had more than one employer. Additionally, we estimate that 150+ emails to alumni and employees were lost to spam, blocked by firewall, or did not reach the intended recipient due to other technical difficulties



fellowship graduates (at the initiation of this study), it was determined that a total of 351 total (combined residency and fellowship employers) surveys would need to be completed by the employers. Descriptive and frequency analyses were performed on the survey responses. Results were further subdivided into residency-trained and fellowship-trained specialty and subspecialty areas of practice respectively. The Shapiro–Wilk test was performed on all variables of interest to evaluate for normality. These variables demonstrated a non-normal distribution; thus, Mann–Whitney *U* tests were used for comparison between employers of residency-trained versus fellowship-trained PTs. Both mean (SD) and median (range) values were reported. Significance was set a priori to $P < .05$. Statistical analysis was performed with IBM SPSS Statistics Version 21 (SPSS, Inc, Chicago, IL). A qualitative analysis of the respondents’ comments and narratives pertaining to how residency or fellowship training related to their other employees and organization was also performed. Responses were analyzed by two of the authors (K.R.G. and J.M.W.) who independently categorized the comments into the previously established themes (Leadership, Communication, Clinical Aptitude, Scholarship/Evidence Based Practice, and Teaching). Any disagreement between themes was resolved by the inclusion of a third author (M.S.B.) until full consensus

was established. These results were distinguished between responses from employers of residency-trained versus fellowship-trained PTs.

RESULTS

The survey was sent to 559 employers and 226 responses were received, equating to a response rate of 40.4% (Figure 1). After elimination of respondents who indicated that they were not able to make an accurate comparison between residency-trained and non-residency-trained PT staff or fellowship-trained and non-fellowship-trained PT staff, a total of 184 survey responses were analyzed (32.9% response rate). Of the 184 responses, 120 were from employers of residency-trained PTs and 64 from employers of fellowship-trained PTs (Figure 1). Most employers who completed the survey were PTs (94.3%) practicing in hospital outpatient settings (46.8%) (Table 2), with approximately 50% having completed a doctorate as their highest PT degree and 54% with board specialty certification by the American Board of Physical Therapy Specialties (Table 2). Most employers (86.7%) had five or fewer employees who had completed an accredited residency or fellowship. Orthopedics (64.2%) and Orthopedic Manual Physical Therapy (85.9%) constituted the greatest areas of specialty and subspecialty practice (Table 2).

Regarding the first study hypothesis, results demonstrated that employers perceived those who graduated from either an accredited residency or a fellowship performed at a higher level than those who were not residency or fellowship trained with equivalent years of experience (Table 3 and Appendix Table C1, Supplemental Digital Content 3, <http://links.lww.com/JOPTE/A40>). As shown in Table 3, all point estimates for mean ratings of residency-trained and/or fellowship-trained PTs compared to experienced matched colleagues ranged from 3.47 to 4.39 on the 5-point Likert scale. Appendix Table C1 provides frequencies for Likert scale responses for each question related to the employers’ perceived performance across the 15 interest areas. Qualitative comments and analysis further support the first hypothesis. Figure 2 illustrates the thematic breakdown of the open-ended comments from employers of both residency- and fellowship-trained PTs. There were 512 comments from the employers of residency trained and 256 comments from the employers of fellowship trained. Ninety-two percent and 99% of the comments were positive for employees who were residency trained or fellowship trained, respectively. The highest percentage of positive comments from these employers focused on the theme of Clinical Aptitude (38% and 44%, respectively), citing “increased clinical competence.” This is further elucidated by comments such as “ability to work in a unique/autonomous care setting (orthopedic acute injury clinic)” and “enhanced use of evidenced based practice.” The second highest percentage of comments focused on Leadership (16% and 29% respectively), citing “increased professionalism and maturity of outlook” and “raises the bar for the group.” Comments with a negative perception were dissociated from the rest of the comments and reported separately (Figure 2). Four percent of the comments were considered negative for the residency-trained PTs and 1% of the comments were negative for the fellowship-trained PTs (Figure 2). Comments revolved around a theme of “elitism.” An “Other” category was also created for comments that did not fall into one of the five primary complimentary themes or negative comments. Examples included: “no fears of mistakes” and “creativity.”

Regarding the second hypothesis, employer perceptions for fellowship-trained employees were higher than residency-trained employees for the following items (Table 3) (mean [SD]): “Efficiency In Achieving Positive Outcomes” (4.05 [0.80] vs 3.83 [0.65]; $P = .02$), “Process Improvement at Work” (3.94 [0.83] vs 3.69 [0.75]; $P = .03$), “Communication with Other Health Care Providers” (3.95 [0.80] vs 3.56 [0.71]; $P = .002$), “Communication with Peers” (3.78 [0.79] vs 3.47 [0.75]; $P = .02$), “Teaching

Table 2. Demographics of Physical Therapist Employer Respondents

	Employers of Residency-Trained PTs (N = 120), n (%)	Employers of Fellowship-Trained PTs (N = 64), n (%)
Occupation of employer completing survey		
Physical therapist	112 (93.3)	61 (95.3)
Occupational therapist	5 (4.2)	2 (3.1)
Nurse	1 (0.8)	0 (0)
Other	2 (1.7)	1 (1.6)
Employer is program director or faculty for residency or fellowship	42 (35.0)	10 (15.6)
Employer's highest PT degree		
Certificate	1 (0.8)	0 (0)
Bachelors	20 (16.7)	12 (18.8)
Masters	33 (27.5)	16 (25.0)
Doctorate	58 (48.3)	33 (51.6)
Practice setting		
Hospital, inpatient	6 (5.0)	1 (1.6)
Hospital, outpatient	56 (46.7)	30 (46.9)
Clinical practice in an academic institution	4 (3.3)	6 (9.4)
Home health agency	1 (0.8)	0 (0)
Rehabilitation center	4 (3.3)	0 (0)
Extended care facility/Skill nursing facility	2 (1.7)	0 (0)
Physical therapist owned practice	40 (33.3)	19 (29.7)
Physician owned practice	2 (1.7)	0 (0)
School (public or nonpublic)	0 (0)	0 (0)
Health maintenance organization	1 (0.8)	5 (7.8)
Other	4 (3.3)	3 (4.7)
No. of employers who have board specialty certification	69 (57.5)	32 (50.0)
No. of employers who provide patient care	98 (81.7)	50 (78.1)
No. of full-time physical therapist employees in organization		
≤10	44 (36.7)	19 (29.7)
11–20	30 (25.0)	20 (31.2)
21–50	33 (27.5)	14 (21.9)
51–100	13 (10.8)	11 (17.2)
No. of full-time physical therapist employees who are residency/fellowship trained		
≤5	100 (83.3)	58 (90.1)
6–10	10 (8.3)	4 (6.3)
11–20	6 (5.0)	1 (1.6)
21–100	4 (3.3)	1 (1.6)

Skills at Work” (4.37 [0.74] vs 4.00 [0.81]; $P = .003$), and “Leadership in the Profession” (4.13 [0.79] vs 3.76 [0.85]; $P = .006$).

Employer support for residency and/or fellowship training was generally strong (Table 4). Overall, approximately 25% of the employers reported that their residency-trained and/or fellowship-trained employees received a promotion and/or increased compensation as a result of their training. Further, employers reported that they supported residency and/or fellowship training in employees if the employee worked for them prior to entering their advanced training by way of financial support (24% overall), flexible scheduling (30% overall), and “other” (not specified) types of support (50% overall). Finally, overall 77% of the employers noted that they would provide current or future employees financial or other support to pursue residency and/or fellowship training.

DISCUSSION AND CONCLUSION

This is the first study to evaluate employers’ perception of physical therapy residency and fellowship training as it pertains to aspects of Leadership, Communication, Clinical Aptitude, Scholarship/Evidence Based Practice, and Teaching and provides preliminary data regarding employer perception of residency and fellowship training across different specialty and subspecialty areas. The three most common areas of employee residency training were Orthopedics (64.2%), Neurologic (16.7%), and Sports (13%) (Table 2), whereas the top three areas of employee fellowship training included Orthopedic Manual Physical Therapy (85.9%), Upper Extremity Athlete (4.7%), and Movement Science (4.7%) (Table 2). The distributions of these practice areas seem to correspond with the distribution of the most common accredited residency/fellowship program types at the writing of this manuscript (Orthopedics: 41.5%, Neurologic: 17.8%, Sports: 16.2%, Orthopedic Manual Physical Therapy: 64.6%, and Upper Extremity Athlete: 6.3%).² The low numbers of respondents from employers in Geriatrics (4.2%), Pediatrics (4.2%), Movement Science (4.7%), and Hand Therapy (1.6%) practice areas also represent the smaller proportion of residencies and fellowships accredited by ABPTRFE (6.6%, 9.1%, 2.1%, and 4.2%, respectively). However, other residency types (Acute Care and Cardiovascular and Pulmonary, Clinical Electrophysiology, Faculty, and Women’s Health) and fellowship types (Critical Care, Higher Education and Leadership, Neonatology, Spine, and Sports Division 1) were not represented in our sample. However, because the type of residency/fellowship programs not represented in our

Table 2. Demographics of Physical Therapist Employer Respondents *continued*

	Employers of Residency-Trained PTs (N = 120), n (%)	Employers of Fellowship-Trained PTs (N = 64), n (%)
Specialty/subspecialty areas of practice		
Geriatrics	5 (4.2)	N/A
Hand therapy	N/A	1 (1.6)
Movement science	N/A	3 (4.7)
Neurology	20 (16.7)	2 (3.1)
Orthopedics	77 (64.2)	N/A
Orthopedic manual physical therapy	N/A	55 (85.9)
Pediatrics	5 (4.2)	N/A
Sports	13 (10.8)	N/A
Upper extremity athlete	N/A	3 (4.7)

N/A = not applicable; PT = physical therapist.

sample comprise only a small proportion of available current programs, the distribution of our survey respondents remain generally representative of the distribution of current accredited programs.²

Many items that employers ranked as high performance areas of residency/fellowship-trained PTs, such as communication and leadership skills, would be considered “soft

skills” and “professional maturation” that health care employers have indicated as being highly desirable in employees.^{11-13,18,29,30} Further, the overwhelmingly positive narrative employer comments demonstrate the high regard and value employers in this study have of residency-trained and/or fellowship-trained PTs. Even those comments that were categorized as “negative” illustrate a perception of

high performance. These comments seem related to perceptions of potential “intimidation” and/or “inferiority” of employees who are not residency or fellowship trained. Finally, there seems to be strong employer support for current and future employees to pursue residency and/or fellowship training.

Currently, only three studies exist, which have evaluated outcomes related to residency and/or fellowship training in physical therapy.^{1,6,7} First, Smith et al¹ conducted a study of orthopedic residency graduates and evaluated their perception and value of that training. The results indicated that orthopedic residency training positively influenced clinical skills and expertise. In addition, graduates perceived that their abilities to logically reason, thoroughly examine, treat effectively and efficiently, and diagnose were greatly enhanced by residency training. More recently, Rodeghero et al⁶ evaluated the impact of residency and fellowship training in an orthopedic setting on patient outcomes. Results from this study indicated that fellowship-trained PTs achieved greater functional status changes and were more efficient (greater improvement per number of treatment sessions) compared to the other groups. Residency training did not seem to contribute to improved patient functional status or efficiency. However, this study again focused on

Table 3. Employer Perception of Performance of Physical Therapists who are Residency Trained Compared to Fellowship Trained

	Employers of Residency-Trained PTs (N = 120)	Employers of Fellowship-Trained PTs (N = 64)	P-value
Leadership in the profession	3.76 (0.85); 4.00 [1-5]	4.13 (0.79); 4.00 [2-5]	.006 ^a
Leadership in the community	3.55 (0.72); 3.00 [2-5]	3.61 (0.74); 3.00 [2-5]	.54
Leadership in the organization	3.89 (0.77); 4.00 [2-5]	3.83 (0.83); 4.00 [2-5]	.62
Communication with other healthcare providers	3.56 (0.71); 3.00 [2-5]	3.95 (0.80); 4.00 [3-5]	.002 ^a
Communication with peers	3.47 (0.75); 3.00 [1-5]	3.78 (0.79); 4.00 [3-5]	.02 ^a
Communication with patients	3.56 (0.69); 3.00 [2-5]	3.75 (0.81); 4.00 [3-5]	.17
Marketing	3.44 (0.74); 3.00 [1-5]	3.89 (0.73); 4.00 [2-5]	.24
Quality care	3.98 (0.63); 4.00 [2-5]	4.15 (0.65); 4.00 [3-5]	.11
Efficiency in achieving positive outcomes	3.83 (0.65); 4.00 [2-5]	4.05 (0.80); 4.00 [1-5]	.02 ^a
Process improvement at work	3.69 (0.75); 4.00 [1-5]	3.94 (0.83); 4.00 [1-5]	.03 ^a
Work productivity	3.41 (0.76); 3.00 [1-5]	3.55 (0.86); 3.50 [2-5]	.25
Application of evidence-based practice	4.27 (0.78); 4.00 [1-5]	4.39 (0.66); 4.00 [3-5]	.42
Scholarly work	3.95 (0.77); 4.00 [2-5]	4.12 (0.85); 4.00 [2-5]	.12
Teaching skills at work	4.00 (0.81); 4.00 [1-5]	4.37 (0.74); 5.00 [2-5]	.003 ^a
Teaching—community and conferences	3.87 (0.79); 4.00 [2-5]	4.07 (0.84); 4.00 [2-5]	.10

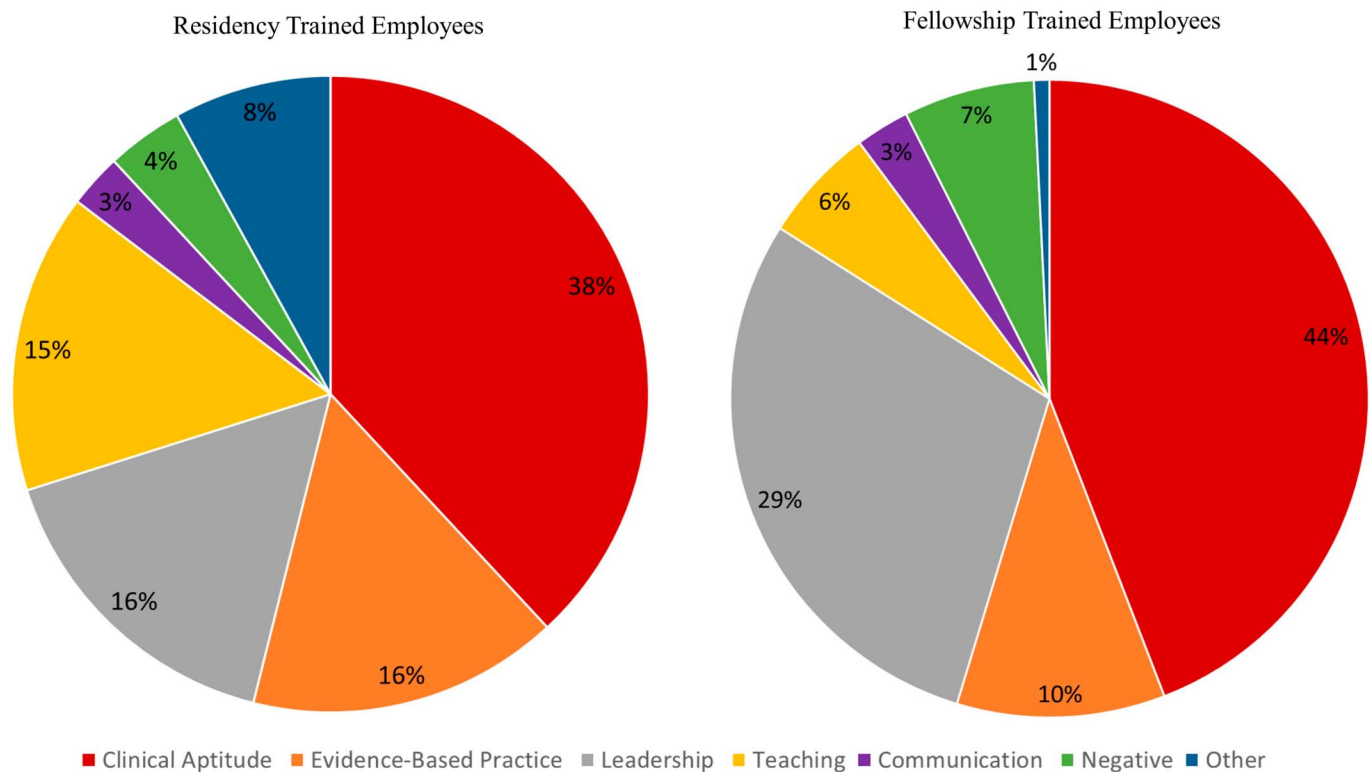
Values are represented as mean (SD); median [range].

Scores represent points on a 5-point Likert scale comparing the residency- or fellowship-trained PT, respectively, to experience matched PTs (1 = “substantially less,” 2 = “less,” 3 = “same,” 4 = “exceeds,” and 5 = “substantially exceeds”).

^aSignificance $P < .05$.

Figure 2. Qualitative Analysis of Responses From Employers of Residency-Trained Physical Therapists and Fellowship-Trained Physical Therapists. Examples of comments regarding Clinical Aptitude included: "great implementation of tests and measures," "increased clinical competence," "ability to assess/reassess to determine effect of treatment," and "ability to work in a unique/autonomous care setting (orthopedic acute injury clinic)." Examples of comments regarding Leadership included: "innovative," "involvement with APTA," "keeps professional growth as a focus for our staff," "increased professionalism and maturity of outlook," "inspiring others, challenging others," and "raises the bar for the group." Examples of comments regarding Evidence-Based Practice included: "shares evidence [with] other staff members who may not look at research," "enhanced use of evidence-based practice," "... was able to establish a journal club with the fellow therapists at the clinic, which was a positive impact on the fellow staff in regards to reinforcing evidence-based medicine," "encouraged for current evidence," and "more avenues to discuss and practice EBP." Examples of comments regarding Teaching included: "creates an environment of learning," "wanting to share knowledge with others," "shares information/evidence learned through the program," "help to train newer staff on manual therapy in location where con ed is hard to get," "great instructor for orthopedic and manual skills," and "willingness and ability to teach/transfer information." Examples of comments regarding Communication included: "articulate," "excellent communication skills," "ability to communicate their intention and explain interventions," and "better communicators with patients." Examples of "Negative" comments included: "a little bit of an 'elitist' issue with one person," "lacks openness to non-evidence based treatment approaches," "can be a little over confident and too narrow for years of experience," "intimidating," and "other colleagues appreciate their knowledge, but at times can feel 'lesser' than them - also sometimes the newer fellowship trained forget that experience means a lot too." Examples of "Other" comments included: "no fears of mistakes," "creativity," and "better able to handle change," "older therapists have more respect for those who are younger and residency trained," "positive," "motivates them to improve," "time and stress management," "mindfulness," "proactive," and "seeks independence sooner" Full color figure is available online in the online version of the article.

Breakdown of Open-Ended Comments from Employers of Residency and Fellowship Trained Physical Therapists



orthopedic settings and specialty areas, was limited to only PTs who used the Focus on Therapeutic Outcomes (FOTO) outcome tool, and did not examine other factors such as professionalism, leadership, or communication skills. Finally, Jones et al⁷ conducted a survey study of PT graduates of orthopedic residency programs in Southern California and compared their responses to PTs who did not complete an orthopedic residency program. Results indicated that a greater number of those who graduated from an orthopedic

residency program participated in a fellowship program, attained a specialty board certification, and had more teaching experiences compared to those who did not participate in an orthopedic residency program. Further, those who participated in a residency program indicated having a higher annual salary compared to those who did not participate in an orthopedic residency program.

Our preliminary results support the above studies and demonstrate that 6 of the 15 data elements were scored higher by employers of

fellowship-trained PTs compared to residency-trained PTs, suggesting that higher levels of advanced training may result in the perception of greater performance and skill level in the areas of achieving Patient Outcomes, Leadership, and Communication. These areas are hallmark topics of curriculum focus in fellowship training. These results support work by Rodeghero et al,⁶ which showed that fellowship-trained PTs achieved better patient outcomes compared to residency-trained PTs, and support the findings from Jones et al,⁷ who

Table 4. Employer Support of Employee's Pursuing Residency and/or Fellowship Training

	Residency-Trained Employees (n = 120)	Fellowship-Trained Employees (n = 64)
Promotion or increased compensation as a result of training	Yes = 23 (19.2%)	Yes = 19 (29.7%)
	No = 28 (23.3%)	No = 22 (34.4%)
	No response = 69 (57.5%)	No response = 23 (35.9%)
Support provided to the employee to support postprofessional education (if the employee worked for the employer prior to entering training)	Financial = 23 (19.2%)	Financial = 21 (32.8%)
	Flexible scheduling = 27 (22.5%)	Flexible scheduling = 29 (45.3%)
	Other support = 68 (56.7%)	Other support = 24 (37.5%)
Would the employer financially or otherwise support current or future employee(s) in pursuit of fellowship training?	Yes, will support = 86 (71.7%)	Yes, will support = 56 (87.5%)
	No, will not support = 30 (25%)	No, will not support = 6 (9.4%)
	No response = 4 (3.3%)	No response = 2 (3.1%)

demonstrated that orthopedic residency graduates served in more leadership positions compared to PTs who did not participate in an orthopedic residency program. Finally, this study adds valuable information to the discussion regarding residency education as potentially part of the standard education model for PTs as recently recommended in the Best Practices for Physical Therapist Clinical Education Task Force Report to the APTA House of Delegates.⁹

Limitations

There were several limitations to this study and potential sources of bias to consider. First, employers were intentionally targeted who employed residency- and fellowship-trained PTs versus a random sample of employers who may or may not employ residency/fellowship graduates. This may have created a selection bias as there is the possibility that these employers may actively recruit these types of clinicians, which has the potential to impact their responses. Further, as the purpose of the project was to evaluate perceptions, an element of personal bias is inherent and thus survey responses are subject to interpretation. Further, 35% of employers of residency-trained PTs and almost 16% of employers of fellowship-trained PTs were also program directors or faculty members of a residency or fellowship program, which may influence responses. To limit potential sources of bias, specific survey questions were created to identify whether the employer was able to make an appropriate comparison between residency/fellowship-trained employees versus non-residency/fellowship trained. To eliminate/reduce this potential bias, employers who were not able to make appropriate comparisons were excluded from the study (7.5% of the original respondents). In addition, employers were asked to make a subjective evaluation of their employees rather

than asking them to provide objective data regarding employee productivity, performance evaluations, etc. Using feedback during survey, development data regarding productivity and annual performance evaluations were excluded because of concerns regarding time demands on employers to complete the survey, leading to a potential decrease in response rate. Further, despite numerous email and follow-up phone calls, the response rate was low and the sample size initially calculated was not achieved. Thus, the study sample was underpowered based on initial calculations. The power analysis was not based on comparing residency-trained employees to fellowship-trained employees. However, it is noteworthy that our results demonstrated several significant and potentially important differences despite the low response rate. Responses from employers who had fellowship-trained employees who also were residency trained were not delineated, as employers were asked to compare their employees on their highest level of training. This limits the ability to interpret how the combination of both residency and fellowship training may impact employer perception and employee performance. Finally, those who pursue residency and fellowship training are a unique subset of PT professionals with likely enhanced intrinsic motivation to excel and succeed. It is unknown as to whether the characteristics that drove these specific employees to pursue residency and/or fellowship training is what makes them “better” employees or if the advanced training obtained shaped the characteristics valued by employers. However, this question is beyond the scope of this study.

Implications for Future Research and Clinical Practice

Results from this study may support the development of larger research projects

related to residency/fellowship training and the potential impact on patients, employers, employees (including non-residency/fellowship trained), students, and clinicians in early- and mid-career. Studies evaluating potential differences in career trajectories, salaries, and leadership positions of residency/fellowship compared to non-residency/fellowship-trained PTs may help to better delineate the value of such training to employers, employees, residency/fellowship applicants, and students evaluating potential differences in care efficiency, patient outcomes, and costs across specialty areas, and settings between residency-trained and/or fellowship-trained PTs compared to non-residency-trained and/or fellowship-trained PTs may further support the value of such training to patients, payers, and employers. Furthermore, understanding how additional education and/or advanced certifications obtained by non-residency/fellowship-trained employees may affect employers' perceptions is important to evaluate in future projects. In addition, evaluating other potential barriers, such as cost and time, as well as facilitators to participating in residency or fellowship training is important in the examination of the future of residency and fellowship training. Finally, further research is needed to determine whether these highly desired qualities of residency- or fellowship-trained PTs are a result of their advanced education or if those qualities are inherent in this subset of highly driven and successful individuals.

Results from this study may impact how entry-level and postprofessional PT programs prepare their learners for different workplace settings and specialty/subspecialty areas of practice. These results may also affect students' and/or residency/fellowship applicants' perception of whether residency or fellowship training may benefit their future career and value as an employee. Finally, results from

this study may also impact the decision making of PT employers in recruitment, hiring, onboarding and training, retention, promotion, and organizational policies and procedures. Overall, the results from this study are expected to help inform students, early- and mid-career residency/fellowship applicants, residency/fellowship programs, and employers regarding how residency/fellowship training may influence career, employment, and organization decision making.

Although, the results of this study should be considered under the premises of a low response rate, potential selection bias, and subjectivity of responses to the survey, they are relevant nonetheless. Overall, employers rated PT employees who are residency and/or fellowship trained higher than experience matched PT employees who are not residency and/or fellowship trained. Further, employers perceived that fellowship-trained PTs perform at higher levels than residency-trained PTs. These results may be valuable for stakeholders making decisions regarding residency/fellowship education, employment opportunities, and hiring decisions. Finally, these results may be relevant when concerning patient satisfaction and patient outcomes.

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