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Paige N. Freeman

Eastern Kentucky University, paige_freeman3@mymail.eku.edu

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EASTERN KENTUCKY UNIVERSITY

Physical Therapy Education Revisions According to Appalachian Physical Therapists
and Physical Therapist Assistants

Honors Thesis

Submitted

In Partial Fulfillment

Of the

Requirements of HON 420

Spring 2021

By

Paige Freeman

Mentor

Dr. Michael Lane PhD

Department of Exercise Science

Table of Contents

List of Figures.....	ii
Abstract.....	iii
Introduction.....	1
Literature Review.....	5
Method.....	10
Results.....	12
Discussion.....	18
Conclusion.....	23
Reference List.....	27
Appendix.....	36

List of Figures:

- Figure 1.1: The Appalachian Region, p.36
- Figure 1.2: Share of Population 25 Years and Older With a Bachelor's Degree or Higher, p.37
- Figure 1.3: Racial Populations Within Appalachia, p.37
- Figure 1.4: Physical Therapy Education Soft Skills Ranked by Prevalence, p.40
- Figure 1.5: Physical Therapy Education Hard Skills Ranked by Prevalence, p.40
- Figure 1.6: Physical Therapy Education Gaps Ranked by Prevalence, p.41
- Figure 1.7: Physical Therapy Education Soft Skills Ranked by Prevalence-
Appalachian Only, p.42
- Figure 1.8: Physical Therapy Education Hard Skills Ranked by Prevalence-
Appalachian Only, p.42
- Figure 1.9: Physical Therapy Education Gaps Ranked by Prevalence-
Appalachian Only, p.43

Abstract

Physical Therapy Education Revisions According to Appalachian Physical Therapists and Physical Therapist Assistants

Paige Freeman

Dr. Michael Lane PhD, Department of Exercise Science

According to the American Physical Therapy Association and associated literature, the Physical Therapy profession has not changed significantly since its modern beginnings despite the obvious changes in technology and research. The lack of these changes can leave graduates underprepared for the challenges of the workplace and have an increased variability in practice, yet students continue to pay more for the same inadequate education. These issues exist overall within the Physical Therapy and Physical Therapist Assistant professions but has other unforeseen impacts on specific communities. The Appalachian region, a notoriously underprivileged area, experiences a myriad of disparities: educational, health, socioeconomic, etc., which research has shown that Physical Therapy services can potentially aid in alleviating. As a result, the Physical Therapy profession is unable to adequately respond to these needs appropriately. Therefore, this paper responds to these challenges by assessing the opinions of these providers regarding which skills were deficient and which were emphasized the most within their respective educational program. For those who work within the Appalachian area, the greatest disparities that exist were determined in conjunction with their responses regarding educational deficits. A short survey via Qualtrics was created utilizing these questions, sent out to Physical Therapy associations, programs,

individuals, and companies within Appalachia. Overall, the results indicated that physical therapy programs adequately prepared the participants to treat injuries and perform patient care, but students were underprepared in terms of stress management, time management, dealing with high-risk situations, cardiovascular, pulmonary, and endocrine systems dysfunctions. They also indicated that socioeconomic disparities were the most prevalent. Therefore, it is the duty of physical therapy programs to evaluate and change in order to progress the profession and become more educated about the Appalachian region to become a better overall provider.

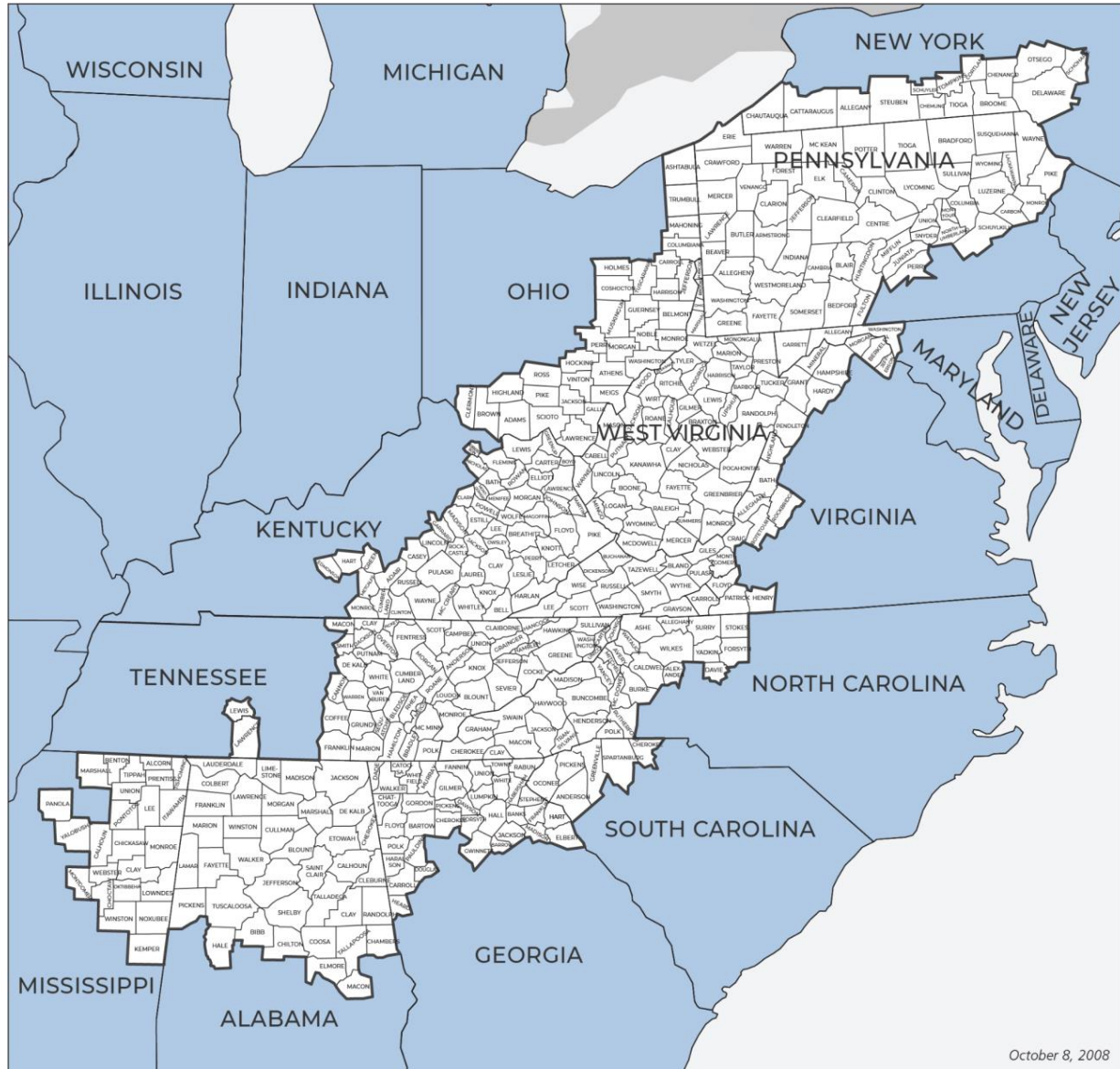
Prospective Physical Therapy Education Revisions According to Appalachian Physical Therapists and Physical Therapist Assistants

The Physical Therapy profession within the United States was widely established in the late 19th century with the founding of the American Physical Therapy Association (APTA) in 1921 (APTA History, n.d.), making this a relatively new profession. However, recent reports from the APTA have shown that educational models have not changed significantly (McCallum, 2013) since its foundation which is problematic due to the great developments in technology and research within the last 50 years (American, 2017). As a result of the lack of change, there have been under-preparedness among graduates, increased variability in practice, intense competition for academic and clinical sites, and an economic increase for all parties involved, especially the students. With these challenges in mind, it is also imperative to indicate the direct result of underprepared providers: inadequate health care. The mission statement of the APTA is “Building a community that advances the profession of physical therapy to improve the health of society” (Vision, n.d.), which is impossible without the changes necessary to correct inadequacies. However, for special populations and regions like Appalachia, where healthcare is lacking and often unavailable, these challenges can be devastating.

The Appalachian region is a cultural region in the eastern part of the United States spanning 13 states and 420 counties from New York to Georgia, including Alabama,

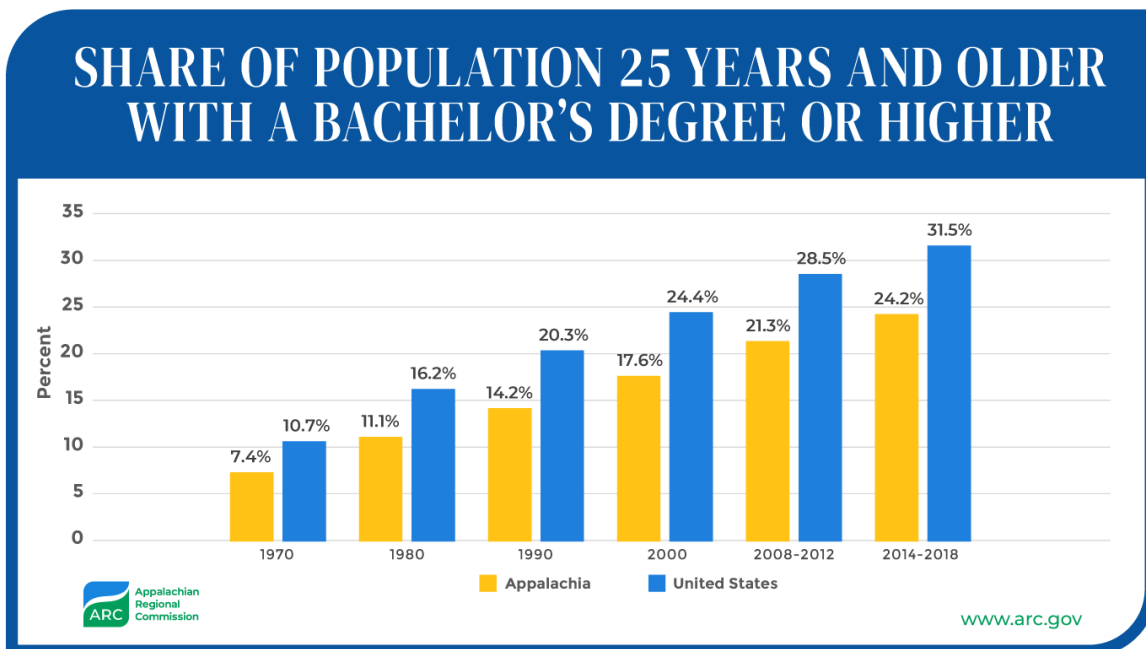
Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio,
Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia (*See Figure 1.1).

Figure 1.1: The Appalachian Region



This region notably has greater rates of poverty, poor physical and mental health, lower per capita income, and the lowest high school graduation and college rates compared to the rest of the country. Although there are urban cities that exist within the region, the region is still characterized by these notable disparities (About, 2021). The people of Appalachia tend to be strong in value, commitment, and community oriented, and there is an overall sense of heterogeneity (About, 2021) within the region. However, these issues stem from historically receiving less money for the same work, the lack of educational opportunities, the type of work available, the strong culture of self-reliance, and the exploitation of the area. According to the Appalachian Regional Commission (About, 2021), in 2018, 31.5% of the population 25 years and older had a Bachelor’s degree or higher, whereas the Appalachian region only consisted of 24.2% (*See Figure 1.2).

Figure 1.2: Share of Population 25 Years and Older With a Bachelor’s Degree or Higher



Approximately 42% of the region’s population is rural compared to the 20% of the rest of the country. 87% of the region’s 420 counties is at about 1.5 times the country’s

overall poverty rate. Also, according to the American Psychiatric Association (Working, n.d.), in terms of homogeneity, Appalachia is significantly less diverse ethnically and racially compared with the rest of the country with up to 83.6% of the region identifying as white (*See Figure 1.3).

Figure 1.3: Racial Populations Within Appalachia

2010 U.S. Census Data	% White	% Black	% Hispanic	% Other
Total U.S.	63.7	12.2	16.3	7.7
Total Appalachia	83.6	9.1	4.2	3.1
Northern Appalachia	89.6	5.1	2.4	2.9
Central Appalachia	89.8	4.8	3	2.5
Southern Appalachia	70	18.4	7.6	4

With these issues in mind, the addition of more physical therapy related health care may aid in the betterment of this special population.

With the foundation of the APTA in 1921, the organization has remained focused on uniting and bettering the Physical Therapy profession, while cultivating the best possible treatment for patients. Their tentative goals for 2021 (APTA Strategic, 2020) include: increasing member value and engagement, fostering long-term sustainability of the physical therapy profession, elevating the quality of care provided by PTs and PTAs, and maximize stakeholder awareness of the value of physical therapy. In 2017, the APTA released an annual report to reinvestigate physical therapist clinical education models and current methods (American, 2017), and accomplish this goal, two task forces were established and presented 8 recommendations for improvement to the board. The three principle challenges that were presented was 1) Inadequate clinical education models and postgraduate professional development has led to significant variation in practice; 2) Because of limited positions for students to complete clinical education, there is great competition among programs; 3) There are economic factors affecting all parties involved which increases the educational expenses as a whole. As a result, potential solutions were presented including mandatory internships and post-professional residencies, standardized curriculum, formal partnerships between sites and institutions, increase in use of data management systems, and prioritizing education research. While these solutions were prioritized, it is important to discuss the fact that “While the entry-level physical therapist degree has evolved over time to the clinical doctorate (DPT), the basic model of clinical education remains relatively unchanged from the early days of

physical therapist education” (American, 2017). Here, the APTA openly admits to the lack of change regarding clinical education standards regardless of the changes that have been to the rest of the physical therapy profession. This is overall problematic because issues have continued to be identified with little actual corrective and proactive steps to better clinical education (Conrey, 2020). DPT and PTA students cannot be properly prepared for their respective positions if the education itself is lacking.

Other research efforts have identified similar deficits identified by the APTA. In 2018, there was a case-series study conducted to determine the quality of the relationship between PT and PTA national and grassroots organizations to determine insight into how to better related education (Howman, 2018). The results of this study indicated that there was a general lack of communication between the two parties, meaning that there was a lack of partnership between them. The grassroots objectives included: the long-standing history and stability of each committee could add vital, creative insight into the best route for future clinical education (King, 2010), even though these organizations do not have a direct relationship with student placement in programs. According to Janice Howman, “For the health professions to overcome these challenges and develop meaningful changes to meet the expectations of healthcare reform, they will need visionary leadership from professional organizations and practical implementation, which is best envisioned by those directly engaged in frontline practices.” Therefore, as a result of this study, it was determined that a better relationship between the national and regional consortia must be established to even begin to amend the issues that exist within educational models.

In terms of the change in instructional methods within physical therapy programs, there have been some challenges regarding resistance to change by the instructors themselves. In 2006, a case study (Foord-May, 2006) was released that evaluated a set of Physical Therapy graduate program instructors and their cooperation with the implementation of problem-based learning into the curriculum. Over a 12-year period, the study presented nine essential themes: perceived need for teaching change, personal knowledge of problem-based learning, process of decision making, peer support, partial adoption, values related to teaching and learning, significant response from the community, barriers to use of problem based learning, and administrative support. Therefore, the implementation of problem-based learning into Physical Therapy education can only be accomplished with personal acceptance, support from the community and others, the total change in teaching style, and support from superiors (Ferns, 2019). This identified the issue that without proper encouragement and support, individual professors and physical therapy programs cannot be in the position for change, even if there are obvious changes that need to be made (Adam, 2013).

With the lack of change that exists within the physical therapy profession, graduates of these programs continue to be underprepared for the workplace, making identifying which gaps imperative. A research study released in 2016 (Merga, 2016), investigated the gaps that exist in work readiness of graduate health professionals and the impact of these gaps that have a cross-professional relevance. This study used a qualitative survey using the GWRP survey tool to ask some of the following questions: 1) What was the most significant gap in your entry-level job readiness? If you experienced no gaps, please write n/a in this field. 2) How did this gap in your job readiness affect

your entry-level experience? If you experienced no gaps, please write n/a in this field. It was determined that the greatest gaps in entry-level experience included: caseload and time management, clinical administration skills, employability, lack of experience with high-risk patients and emergencies, insufficient practicum to transform theory into practical knowledge, conflict management, and stress management and reality shock. Although this study was not specific to physical therapy, it is reasonable to assume that DPT graduates have also experienced one or more of these gaps (Curtis, 1993).

In terms of physical therapy learning outcomes, Northern Illinois University (Collins, 2016) released a plan update in 2016 that detailed relevant DPT student outcomes and methods. These student learning outcomes included: emphasizing cultural competence, consistency with professional/legal standards, implementing evidence-based practice, implementing effective and safe treatments for patients, effectively communicating in congruent with situational demands, and enhancing the ability to perform self-evaluation (Graham, 2011). These outcomes can serve as a model for other institutions in the standardization of education to minimize variation in knowledge and practice (Anderson, 2013).

These deficits and lack of change within the profession have a direct impact on the communities that the providers treat within notably the Appalachian region. With its specific disparities identified, research may suggest that physical therapy can play a role in lessening the effects of these issues (Hageman, 1998). It is possible that “Physical therapists are well-suited to provide culturally competent care that focuses on the goal of improving health and wellness within Appalachian region,” and with a focus on reducing physical ailments that plague the region including: inactivity, diabetes, obesity, disease,

and cancer” (Utzman, 2017), this statement could be quite true. Although there is little research in this specific area, the addition of skilled healthcare professionals may be pivotal to aid in Appalachian issues. However, because of the Affordable Care Act, the lack of compensation through the NHSC, and lower pay for these therapists, the presence of physical therapists remains restricted and lacking. Research has shown that providers from Appalachia are more likely to remain in the area than others are to enter it, but even as such, physical therapists are unable to take on a greater role in these widespread issues. Also, “According to these authors, physical therapists should also be able to effectively market, carry out, and assess community-based programs thus demonstrating their various roles...” (Utzman, 2017) which implicitly places a higher responsibility on physical therapists to make great contributions to improve the health of the region because of their specific qualifications and training. Whether or not the call to action for physical therapists is effective is not a field that includes extensive knowledge, but the need for physical therapists is there and is getting attention.

In the examination of health disparities that exist within the region, a study was conducted in 2010 comparing health disparities between Appalachian and Non-Appalachian communities within Virginia (McGarvey, 2011). This study identified a connection between health perception, health status, and health care utilization, where regardless of actual health status, Appalachian residents were significantly more likely to self-report themselves with poor health. This remained consistent among most populations, but these negative reports were identified less among the black population compared to the white population. This phenomena can be explained as the term “Relative deprivation” is a sociological term that refers to a gap in what one perceives

that he or she is entitled to have, compared to what is the perceived norm.” Therefore, Appalachian residents overall have a lower perception of well-being than the rest of the country due to the environment that they are exposed to. Because of the barriers that exist to health care, health insurance, and cultural factors, this source identifies that it is more important than ever to overcome these issues and be more educated in the self-perception of Appalachian patients. Attempting to fully understand the population is a step to cultivating the best possible care.

As a result of this research, the relationship between the betterment of physical therapy education as it relates to the Appalachian region was not identified, and because of this lack, it is important to investigate this relationship to determine the best way to prepare future physical therapists to work within Appalachia. This paper aims to determine this relationship and offer advice to physical therapy programs by first asking the research question: Which skills do practicing physical therapists think should be implemented into DPT and PTA education to better prepare students to work within Appalachia? Because of the lack of research regarding physical therapy education as it relates to bettering the Appalachian population, a research study was conducted to determine this relationship by surveying physical therapists and physical therapist assistants regarding gaps in their education, focused skills, and disparities that exist within the region.

Methods

After relevant supporting literature was identified, a survey (*See Survey) was created via Qualtrics consisting of both original and questions directly from other studies. Starting with the population, it was determined that those with a DPT, MPT, or PTA

degree who practice within Appalachia should be chosen. This specific population would give the best representation of the challenges that exist for these individuals, and due to a focus on the physical therapy profession, other health care positions were excluded from the study. The participants also had to be over the age of 18 to participate to minimize any consent issues. This survey was specifically formulated to ask the relevant questions to answer the research question while also maintaining anonymity. Next, general questions regarding classification, years practiced, state practiced within, setting practiced in, institution PT education was received, and if they practice within Appalachia were determined. Based on physical therapy curricula and educational goals (Mincer, 2012), the most emphasized hard and soft skills were identified along with the relevant gaps in entry-level readiness. Lastly, if the participants indicated working with the Appalachian region, questions regarding if the provider currently lives or used to live within the region before working there and the most important disparities that exist.

With the conclusion of the creation of the survey, the supporting materials including the participant recruitment letter, the organization recruitment letter, and the official consent documents were created. The study was then submitted for IRB approval and accepted on March 26, 2021. These documents were then emailed to the APTA chapters within every state within the region, and calls were specifically made to the APTA itself regarding sending the survey to PTs and PTAs within the region. Unfortunately, the APTA currently does not have a protocol to accept and distribute research from individuals who are not a part of the organization, and the research proposal was denied by every state except two who offered to post it on a public social media site. The methods of distribution then had to be reevaluated and reapproved to send the survey to

individuals, companies, and physical therapy programs. Therefore, the survey was sent to individuals that the researchers were affiliated with, physical therapy corporations within the area, and the chairs of DPT and PTA of some programs within each state of the region. The survey was sent out to quite a few programs and individual yielding a small response rate, rejections, or no responses.

Results

The total response rate was n=21 with PTs and PTAs from 6 different states: Alabama- 19.05%, Kansas- 10%, Kentucky- 52.4%, New Mexico- 5%, and New York- 5%. Overall, the population was DPT- 52.38%, MPT- 4.76%, and PTA- 42.86%. The mean of years practiced was 11.07 ± 7.02 years with great variability. In terms of institution (*See List of Institutions) rating in preparing students for the profession, the average score was an 8.86/10. Out of the participants, 38.1% attended a university and 61.9% attended a community college for their professional education. For DPT and MPT providers, study skills were considered the most inadequate with the conclusion of their undergraduate degree (Shannon, 2019). Overall, 42.9% of the providers practice within Appalachia (*See Appalachian Counties) and 57.1% do not. Out of the Appalachian providers, 80% said to have lived there before working and currently live there.

For all participants, via weighted total, relevant soft skills, hard skills, and gaps in education were identified and ranked by highest weighted total and prevalence via Excel. The skills were numbered and then the counts for each choice chosen for first, second, third choice, etc. Then these choices were assigned weights based upon the ranking of the choice; for example, 4 individuals chose skills A as their first choice which would be weighted at +5 points. This would insinuate that 20 points would go towards the

weighted total ($4 \times 5 = 20$ points) for skill A. In terms of soft skills (*See Figure 1.4), clinical reasoning, evidence-based practice was identified as the most emphasized skill within their professional education, but stress management, reality shock, self-care was emphasized the least.

Figure 1.4: Physical Therapy Education Soft Skills Ranked by Prevalence

Soft Skill	Number That Chose Skill As First Choice (5)	Number That Chose Skill As Second Choice (4)	Number That Chose Skill As Third Choice (3)	Number That Chose Skill As Fourth Choice (2)	Number That Chose Skill As Fifth Choice (1)	Weighted Total
A	4	3	12	1	0	70
B	12	6	2	0	0	90
C	0	0	2	17	1	41
D	0	0	0	2	18	22
E	4	11	4	0	1	77

The hard skills (*See Figure 1.5) were identified that biology, anatomy, physiology was emphasized the most, and cardiovascular, pulmonary, and endocrine systems were emphasized the least. The same weighted system was used.

Figure 1.5: Physical Therapy Education Hard Skills Ranked by Prevalence

Hard Skill	Number That Chose Skill As First Choice (4)	Number That Chose Skill As Second Choice (3)	Number That Chose Skill As Third Choice (2)	Number That Chose Skill As Forth Choice (1)	Weighted Total
A	14	5	2	0	75
B	6	11	2	2	63
C	1	4	11	4	42
D	0	1	6	15	30

For gaps in education (*See Figure 1.6) as it relates to entry-level readiness, lack of experience handling high-risk situations was identified to be the greatest gap whereas other, non-specified gaps were considered the least prevalent gap. The same weighted system was used. The same weighted system was used. In terms of soft skills (*See Figure 1.7), clinical reasoning, evidence-based practice was emphasized the most, but stress management, reality shock, self-care was emphasized the least.

Figure 1.7: Physical Therapy Education Soft Skills Ranked by Prevalence- Appalachian Only

Soft Skill	Number That Chose Skill As First Choice (5)	Number That Chose Skill As Second Choice (4)	Number That Chose Skill As Third Choice (3)	Number That Chose Skill As Fourth Choice (2)	Number That Chose Skill As Fifth Choice (1)	Weighted Total
A	2	3	3	3	0	31
B	5	1	2	0	0	35
C	0	0	0	7	1	15
D	0	0	0	1	7	9
E	1	4	3	0	0	30

For hard skills (*See Figure 1.8), biology, anatomy, physiology was emphasized the most whereas cardiovascular, pulmonary, endocrine systems were emphasized the least. The same weighted system was used.

Figure 1.8: Physical Therapy Education Hard Skills Ranked by Prevalence- Appalachian Only

Hard Skill	Number That Chose Skill As First Choice (4)	Number That Chose Skill As Second Choice (3)	Number That Chose Skill As Third Choice (2)	Number That Chose Skill As Forth Choice (1)	Weighted Total
A	7	2	0	0	34
B	2	5	2	0	27

C	0	2	5	2	18
D	0	0	2	7	11

For gaps in education (*See Figure 1.9) as it related to entry-level readiness, clinical administration skills were shown to be the greatest gap, but other, non-specified gaps were considered the least prevalent gap. The same weighted system was used.

Figure 1.9: Physical Therapy Education Gaps Ranked by Prevalence- Appalachian Only

Gap s	Number That Chose Skill As First Choice (8)	Number That Chose Skill As Second Choice (7)	Number That Chose Skill As Third Choice (6)	Number That Chose Skill As Fourth Choice (5)	Number That Chose As Fifth Choice (4)	Number That Chose Skill As Sixth Choice (3)	Number That Chose Skill As Seventh Choice (2)	Number That Chose Skill As Eighth Choice (1)	Weighted Total
A	0	1	1	1	0	0	0	0	18
B	2	0	0	1	0	0	0	0	21
C	1	0	1	0	0	1	0	0	17
D	0	0	0	0	2	0	0	1	9
E	0	1	0	0	0	1	1	0	12
F	0	1	0	1	0	1	0	0	15

G	0	0	1	0	0	0	2	0	10
H	0	0	0	0	1	0	0	2	6

In terms of Appalachian disparities, Appalachian providers determined that socioeconomic disparities were the most prevalent with cultural disparities the least prevalent. Along with multiple choice and ranking questions, participants were also given an opportunity to write in any additional disparities not included in the options, and one individual identified the significant drug use issue that exists within Appalachia and that treatment should be given with this issue in mind.

Along with multiple choice and ranking questions, participants were given the opportunity to write in additional gaps and how these gaps affected entry-job readiness. It was identified that because of the gaps that existed for one individual, mentoring was recommended to assist them and increase their preparedness. Others believed that the most beneficial aspect of learning was fieldwork and that more should be required to make providers more comfortable as well as fully understand the profession. Also, there seems to be a disconnect between individual companies with using different types of note-taking services that use different terms. Some also had issues regarding not knowing what to do in complicated situations, such as: multiple comorbidities, malingering, obstinate objection to request, and end of life care. There is an overwhelming response that there needs to be a greater focus on time management, stress, anxiety, and managing caseload.

Discussion

With the lack of change in clinical education models, a need for physical therapists in Appalachia, and with a resistance to change from institutions and professors, determining the opinions of providers to identify issues within education as it relates to the quality of care within Appalachia is vital. Although this survey had a low response rate, it did offer important insight into the deficits that exist within physical therapy education. However, during the research process, because of the overwhelming lack in literature available with the association between physical therapy education and the Appalachian region, it was quite difficult to find research that supported or oppose this idea. Therefore, connections had to be made between a general lack of entry-level readiness among graduate students, disparities that exist within Appalachia and attempts to solve them, educational models and reports, and research surrounding specific PT education topics unrelated to the research question. Because of the difficulty of finding supporting literature, the need for a research study investigating the effects and relationship between Appalachia and physical therapy education was pertinent.

Throughout the data collection process, quite a few difficulties arose in terms of the distribution of the survey and some of the original wording. Within the original distribution plan, the survey was sent out to the APTA chapters (Pariser, 2010) of each individual state within the Appalachian region as well as the APTA itself. Out of these chapters, two offered to post it via a public social media site, one wanted the researchers to buy and create an account, and the APTA itself informed the researchers that there are currently no available research protocols to distribute research from those outside of the organization. The APTA also offered to sell the names and mailing addresses of PTs and PTAs affiliated with the organization, but this proposition was expensive and did not

make sense because the survey was online. This was both difficult and interesting because information and the availability to research the physical therapy profession via the APTA was impossible without paying for information or having the study posted on a website where it could be accessed by everyone. As a result, the researchers decided that the only possible way to recruit participants would be to send the survey to individuals, local companies (O'Neil, 2007), and DPT and PTA programs within the Appalachian region. However, because of this, this study has a definite convenience bias and suffers from the lack of participants, meaning that the results of the research study may not be representative of all physical therapy programs and therapists within Appalachia. There were also issues regarding the title of the research because it came to attention that the term Physical Therapy Assistant is considered incorrect and potentially offensive to those individuals; therefore, it was corrected to Physical Therapist Assistant. This allowed for the researchers to be more correct in addressing the participants. Lastly, like most research studies, this study suffered from the fact that some participants started taking the survey but did not finish, leaving the researchers with unusable data. There were originally 29 responses, but 8 of the participants did not finish, and realistically, if there were a greater response rate, more representative data could have been collected.

In terms of the results of the research study, about half of the participants work within Kentucky with the other half working within 6 other states. Also, the majority of participants identified as DPT with a little under half PTA. Overall, the participants scored their professional program's ability to prepare them for the challenges of the workforce an 8.86/10, which is high indicating that the institutions adequately prepared their students for the workforce with minimal deficits. For the overall population, it was

determined that the soft skill emphasized within their education was clinical reasoning, evidence-based practice, with stress management, reality shock emphasized the least. With an obvious deficit in stress management, students are not prepared for the stress related to the job, the caseload, and interpersonal issues. Because of the nature of the position, it makes sense that stress management is emphasized the least, but if there is an overall lack of education built into the curricula of these programs, providers are overall underprepared. In terms of hard skills, it was determined that biology, anatomy, physiology was emphasized the most, and cardiovascular, pulmonary, endocrine systems were emphasized the least. Because of the manner of the profession, biology, anatomy, physiology is focused on the most due to the treatment of musculoskeletal and neural injuries. However, for specific types of therapists, there should be a focus on cardiovascular, pulmonary, endocrine systems because the understanding of these systems is vital to the development of relevant treatment plans. Greater than baseline understanding might be necessary to be more well-rounded as a therapist. For gaps in entry-level readiness, it was determined that lack of experience handling high-risk situations was the highest gap with other, non-identified gaps as the least important gap. Overall, for any healthcare provider it is vitally important to have education and experience handling high-risk situations, but this study indicated that the participants were overall underprepared for these situations and might have had to rely on other providers for help.

In contrast to the entire population, the soft skills, hard skills, and gaps were identified solely for those who were said to work within the Appalachian to observe any potential differences. Like the data from all the participants, clinical reasoning, evidence-

based practice was emphasized the most with stress management, reality shock, self-care emphasized the least. Although these were consistent with the rest, the Appalachian region faces unique struggles that could contribute to the stress within the workforce, such as: the education, health, mental health, cultural, and socioeconomic disparities that exist within the region. Providers must be even more cognizant of these due to their impact on the type of care necessary and that these patients are unique to the area. In terms of hard skills, biology, anatomy, physiology was emphasized the most with cardiovascular, pulmonary, endocrine systems emphasized the least. Because of the health disparities that exist, Appalachian residents face lung disorders, diabetes, obesity, and different cancers at higher rates compared with the rest of the country. Therefore, physical therapists must be more knowledgeable about these conditions and the related body systems to treat injuries along with comorbidities. However, gaps related to Appalachian providers presented a different result than the general population. Clinical administration skills were the greatest gap with other, non-identified gaps as the least important gap. Along with dealing with extra patient related issues because of the disparities, therapists are also underprepared when it comes to planning, directing, and coordinating quality health services, which is problematic because specific planning is necessary to meet the needs of this special population. Although it is difficult for institutions, a greater focus on cultural competence (Hayward, 2012) may be necessary to prepare students for treating as many unique populations as possible. According to a study conducted regarding the assessment of global citizenship, “With the implementation of service learning, a doctor of physical therapy program has the ability to teach professional behaviors to students, while allowing the students to practice what

they have learned in the classroom” (Dnrach, 1016).The implementation and focus on these concepts within DPT and PTA programs could help to equip the students with the skills to deal with both difficult situations and special populations. Data was also collected regarding the presence of these disparities, where Appalachian therapists ranked socioeconomic disparities as the most prevalent with culture as the least prevalent. The Appalachian region does indeed have some of the highest poverty rates in the country, and with poverty comes specific issues, such as: the lack of healthcare availability, and the lack of quality healthcare in rural areas. Therefore, it may be important to focus on the effects of the socioeconomic disparities as it relates to treatment for Appalachian patients.

In conjunction to the multiple-choice survey questions, participants were also given opportunities to write in additional gaps within physical therapy education and additional disparities prevalent within the Appalachian region. Although there were a variety of answers written in, the gaps had an overall focus on the addition of stress management curriculum, creative thinking, mentoring, dealing with high-risk situations, and knowledge regarding different system and clinical note taking options encountered within the field. According to the answers related to the study, it was determined that the greatest deficits lie within the teaching of soft skills for students and not technical/hard skills, meaning that physical therapy programs are competent in preparing students to identify and treat injury but not to deal with patients and unique issues that may arise. Also, although clinical experience is required for both program types, the participants overall indicated that additional experience in all available areas would have been greatly beneficial to understanding and treating within them. Because of the lack of standardized

clinical educational plans, there is great variability in practice between providers, which leaves students underprepared and confused by the non-cohesive nature of the field. In terms of additional Appalachian disparities, one individual determined that there should be a greater focus on the issues related to drug use within the area. According to the Appalachian Regional Commission, “The nation’s substance abuse crisis disproportionately impacts Appalachia, where in 2018 overdose mortality rates for people ages 25-54 was 43 percent higher in the Region than the rest of the country” (Addressing, 2021). Because of this sobering fact, it is more important than ever for physical therapists to become aware of how history of drug use can affect the patient as well as environmental situations regarding drug use.

Conclusion

Because of the lack of research regarding the relationship between physical therapy education and the Appalachian region, physical therapy programs are leaving their students unprepared to meet the special challenges of the Appalachian region as a provider. In a 2016 report, the APTA indicated that standards and methods for clinical education have not changed in 50 years, creating an under-preparedness for students, an increased variability in practice, intense competition for academic and clinical sites, and an economic increase for all parties involved, especially students. The Appalachian region is a cultural region in the eastern United States that spans from New York to Georgia, including 13 states and 420 counties. It is characterized by strong individualism, value, and community-oriented individuals who unfortunately suffer from a myriad of disparities at a high rate. This region notably has greater rates of poverty, poor physical and mental health, lower per capita income, and the lowest high school graduation and

college rates compared to the rest of the country. Research has shown that there is an overall poor relationship between national and grassroots physical therapy organizations, especially as it relates to bettering physical therapy education. There have also been studies conducted indicating that there are some challenges regarding resistance to change to the instructors themselves. Without proper encouragement and support, individual professors and physical therapy programs cannot be in the position for change, even if there are obvious changes that need to be made.

In terms of entry-level readiness, it was determined that the greatest gaps in entry-level experience included: caseload and time management, clinical administration skills, employability, lack of experience with high-risk patients and emergencies, insufficient practicum to transform theory into practical knowledge, conflict management, and stress management and reality shock. Specific physical therapy programs have identified physical therapy student outcomes and methods including emphasizing cultural competence, consistency with professional/legal standards, implementing evidence-based practice, implementing effective and safe treatments for patients, effectively communicating in congruent with situational demands, and enhancing the ability to perform self-evaluation. In terms of specifically the Appalachian region, because of the disparities that exist, physical therapists may play a role in lessening the effects of them as well as ensuring good physical health. Whether or not the call to action for physical therapists is effective is not a field that includes extensive knowledge, but the need for physical therapists is there and is getting attention. Studies have also been conducted indicating that compared with non-Appalachians, Appalachian residents were

significantly more likely to self-report themselves as unhealthy regardless of if there was a presence of health conditions or not.

Because of the lack of research there is regarding the preparation to prepare physical therapy students to work within the Appalachian region, a study was conducted to determine which skills practicing physical therapists think should be implemented into DPT and PTA to better prepare students to work within the region. A survey was created via Qualtrics asking questions regarding classification, years practiced, state practiced within, setting practiced in, institution PT education was received, if they practice within Appalachia were determined and relevant Appalachian disparities. Based on physical therapy curricula and educational goals, the most emphasized hard and soft skills were identified along with the relevant gaps in entry-level readiness. In distribution, the survey was overall rejected by the APTA due to a lack of protocol to process research from those outside of the organization and only offered solutions that cost money or to post the survey on public social media sites. Therefore, the survey was inevitably sent to individual providers, companies, and physical therapy programs. However, because of this, this study has a definite convenience bias and suffers from the lack of participants, meaning that the results of the research study may not be representative of all physical therapy programs and therapists within Appalachia.

Overall, the results indicated that physical therapy programs adequately prepared the participants to treat injuries and perform patient care, but students were underprepared in terms of stress management, time management, dealing with high-risk situations, and cardiovascular, pulmonary, endocrine systems. Contrasted with the rest of the participants, Appalachian participants indicated that clinical administration skills

were considered the most prevalent gap. Socioeconomic disparities were also considered to be the most important within the region and that there should be a focus on the effects of the socioeconomic disparities as it relates to treatment for Appalachian patients.

Participants also indicated via write in responses that showed that gaps had an overall focus on the addition of stress management curriculum, creative thinking, mentoring, dealing with high-risk situations, knowledge regarding different system and clinical note taking options encountered within the field, and a greater focus on the Appalachian drug epidemic. Because of these gaps in education and relevant issues that Appalachia faces, it is incredibly important that physical therapists be as prepared as possible to treat special populations, specifically the Appalachian region. Although there is no clear research supporting the need for more physical therapists within Appalachia, “Physical therapists are well-suited to provide culturally competent care that focuses on the goal of improving health and wellness within the Appalachian region” (Utzman, 2017). Without a clear evaluation and change in physical therapy education, no improvements can be made to progress the physical therapy profession to become the best it can be for both the provider and the patient. Therefore, there has to be a conscious collaboration between major organizations, physical therapy programs, providers, students, and community organizations to develop and modernize the way that students will treat as a provider.

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Appendix

Figure 1.1: The Appalachian Region

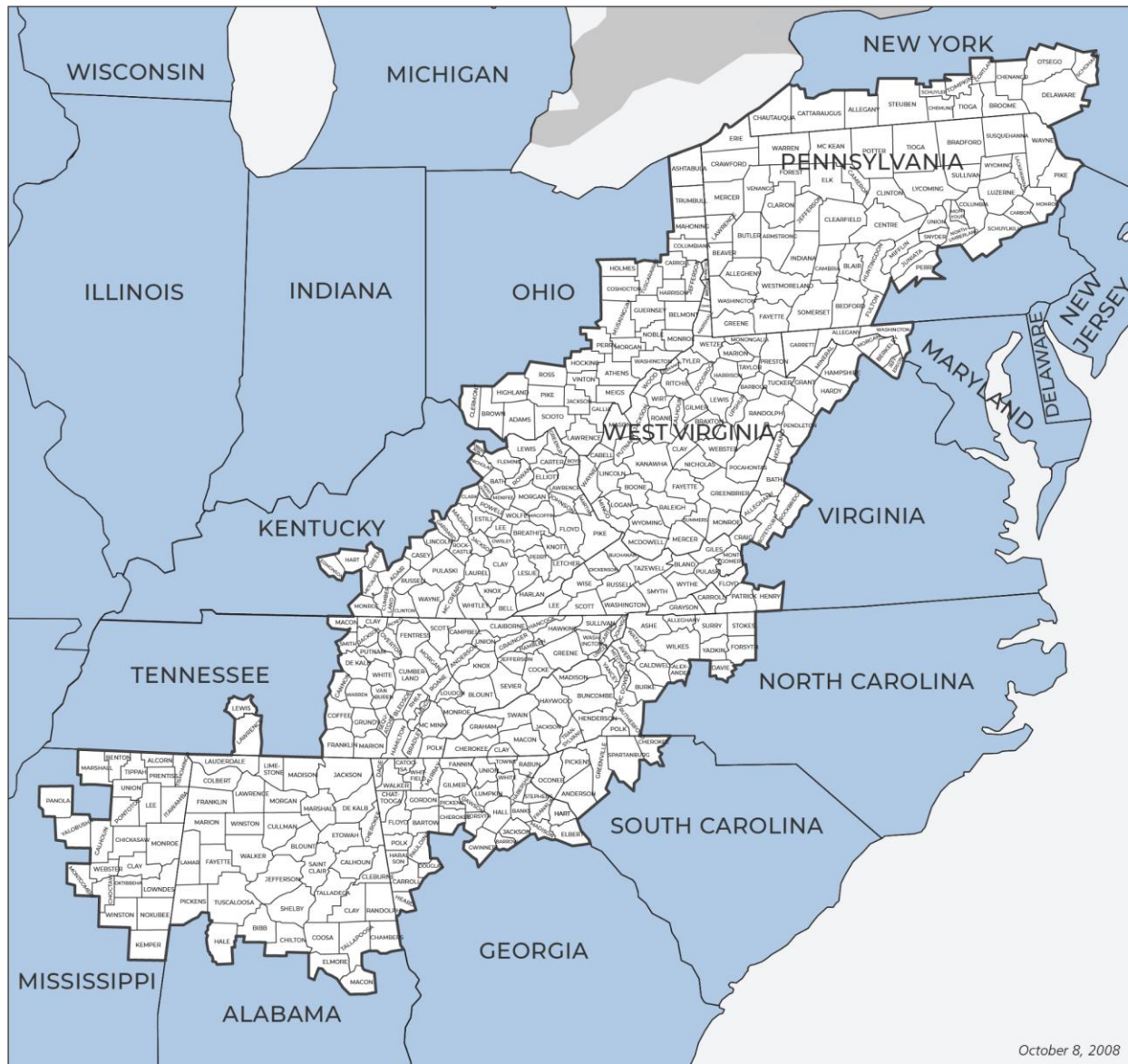


Figure 1.2: Share of Population 25 Years and Older With a Bachelor’s Degree or Higher

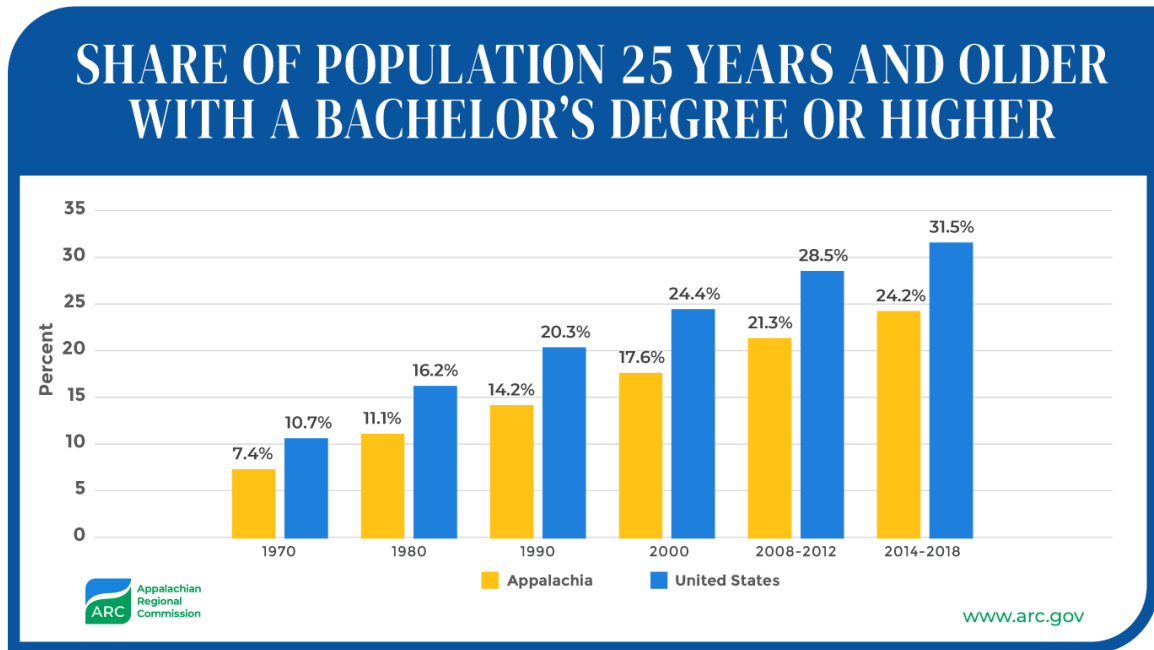


Figure 1.3: Racial Populations Within Appalachia

2010 U.S. Census Data	% White	% Black	% Hispanic	% Other
Total U.S.	63.7	12.2	16.3	7.7
Total Appalachia	83.6	9.1	4.2	3.1
Northern Appalachia	89.6	5.1	2.4	2.9
Central Appalachia	89.8	4.8	3	2.5
Southern Appalachia	70	18.4	7.6	4

List of Institutions

- Alabama State University
- Somerset Community College
- Bellarmine University
- University of Kentucky
- University of Kentucky
- St. Louis University
- Paducah Community College
- University of Tennessee- Chattanooga
- University of Findlay
- Wallacest University
- Western Kentucky Community College
- Kansas University
- Rockhurst University
- Marquette University
- University of South Alabama

Appalachian Counties

- Alabama: Jefferson, Madison, Etowah
- Kentucky: Whitley, Laurel, Pulaski

Hard Skills

- A. Biology, anatomy, physiology
- B. Biomechanics, kinesiology

- C. Neuroscience, pharmacology, pathology
- D. Cardiovascular, pulmonary, endocrine systems

Soft Skills

- A. Ethics/values, communication, management sciences
- B. Clinical reasoning, evidence-based practice
- C. Caseload, time management
- D. Stress Management, reality shock, self care
- E. Clinical experience, patient treatment

Gaps

- A. Caseload/time management
- B. Clinical administration skills
- C. Lack of experience handling high-risk situations
- D. Lack of clinical experience
- E. Insufficient practicum to transform theory to practical knowledge
- F. Stress management/reality shock, culture shock
- G. Problem solving
- H. Other

Figure 1.4: Physical Therapy Education Soft Skills Ranked by Prevalence

Soft Skill	Number That Chose Skill As First Choice (5)	Number That Chose Skill As Second Choice (4)	Number That Chose Skill As Third Choice (3)	Number That Chose Skill As Fourth Choice (2)	Number That Chose Skill As Fifth Choice (1)	Weighted Total
A	4	3	12	1	0	70
B	12	6	2	0	0	90
C	0	0	2	17	1	41
D	0	0	0	2	18	22
E	4	11	4	0	1	77

Figure 1.5: Physical Therapy Education Hard Skills Ranked by Prevalence

Hard Skill	Number That Chose Skill As First Choice (4)	Number That Chose Skill As Second Choice (3)	Number That Chose Skill As Third Choice (2)	Number That Chose Skill As Forth Choice (1)	Weighted Total
A	14	5	2	0	75
B	6	11	2	2	63
C	1	4	11	4	42
D	0	1	6	15	30

Figure 1.6: Physical Therapy Education Gaps Ranked by Prevalence

Gap s	Number That Chose Skill As First Choice (8)	Number That Chose Skill As Second Choice (7)	Number That Chose Skill As Third Choice (6)	Number That Chose Skill As Fourth Choice (5)	Number That Chose As Fifth Choice (4)	Number That Chose Skill As Sixth Choice (3)	Number That Chose Skill As Seventh Choice (2)	Number That Chose Skill As Eighth Choice (1)	Weighted Total
A	2	5	2	3	1	1	1	0	87
B	5	1	4	2	2	0	1	0	91
C	4	4	2	2	1	2	0	0	92
D	1	0	2	3	4	2	1	2	61
E	0	2	3	0	4	4	2	0	64
F	2	3	1	2	1	4	2	0	73
G	0	0	1	3	0	2	8	1	44
H	1	0	0	0	2	0	0	12	28

Figure 1.7: Physical Therapy Education Soft Skills Ranked by Prevalence- Appalachian Only

Soft Skill	Number That Chose Skill As First Choice (5)	Number That Chose Skill As Second Choice (4)	Number That Chose Skill As Third Choice (3)	Number That Chose Skill As Fourth Choice (2)	Number That Chose Skill As Fifth Choice (1)	Weighted Total
A	2	3	3	3	0	31
B	5	1	2	0	0	35
C	0	0	0	7	1	15
D	0	0	0	1	7	9
E	1	4	3	0	0	30

Figure 1.8: Physical Therapy Education Hard Skills Ranked by Prevalence- Appalachian Only

Hard Skill	Number That Chose Skill As First Choice (4)	Number That Chose Skill As Second Choice (3)	Number That Chose Skill As Third Choice (2)	Number That Chose Skill As Forth Choice (1)	Weighted Total
A	7	2	0	0	34
B	2	5	2	0	27

C	0	2	5	2	18
D	0	0	2	7	11

Figure 1.9: Physical Therapy Education Gaps Ranked by Prevalence- Appalachian Only

Gap s	Number That Chose Skill As First Choice (8)	Number That Chose Skill As Second Choice (7)	Number That Chose Skill As Third Choice (6)	Number That Chose Skill As Fourth Choice (5)	Number That Chose As Fifth Choice (4)	Number That Chose Skill As Sixth Choice (3)	Number That Chose Skill As Seventh Choice (2)	Number That Chose Skill As Eighth Choice (1)	Weighted Total
A	0	1	1	1	0	0	0	0	18
B	2	0	0	1	0	0	0	0	21
C	1	0	1	0	0	1	0	0	17
D	0	0	0	0	2	0	0	1	9
E	0	1	0	0	0	1	1	0	12
F	0	1	0	1	0	1	0	0	15
G	0	0	1	0	0	0	2	0	10
H	0	0	0	0	1	0	0	2	6

Survey

1. Your participation is completely voluntary, and you can withdraw at any time.

This survey is anonymous. To take this survey, you must be:

- 18 years or older
 - Licensed Physical Therapist or Physical Therapy Assistant
- a. I hereby state that my participation is voluntary and that I meet the requirements above.
 - b. I do not wish to participate in this study.
2. What is the primary state you practice in?
 3. Which setting(s) do you practice within?
 - a. Outpatient/ rehabilitation clinic
 - b. Inpatient
 - c. Homehealth
 - d. Nursing facilities
 - e. Schools
 4. Would you consider the establishment you work within to reside within the Appalachian region?
 - a. No
 - b. Yes
 - c. I'm not sure.
 5. Which county do you primarily treat within? *shows only with Appalachian question
 6. What is your classification?

- a. DPT
 - b. MPT
 - c. PTA
7. How long have you been practicing? Please record in years.
8. Which institution did you receive your Physical Therapy degree from?
9. How would you rate your Physical Therapy education in its ability to accurately prepare you for the workforce?
- a. Sliding scale, 1-10
10. Which hard skills were stressed the most within your education? Please rank them from 1- emphasized the most, 4- emphasized the least.
- a. Biology, anatomy, physiology
 - b. Biomechanics, kinesiology
 - c. Neuroscience, pharmacology, pathology
 - d. Cardiovascular, pulmonary, endocrine systems
11. Which soft skills were emphasized the most within your education? Please rank them from 1- emphasized the most, 5- emphasized the least.
- a. Ethics/values, communication, management sciences
 - b. Clinical reasoning, evidence-based practice
 - c. Caseload, time management
 - d. Stress management, reality shock, self care
 - e. Clinical experience, patient treatment

12. If DPT or MPT, after graduating with an undergraduate degree, which skills were potentially inadequate in preparing you for your Physical Therapy program? More than one answer can be chosen.

- a. Problem solving
- b. Mathematics
- c. Anatomy, physiology
- d. Writing skills, comprehension
- e. Study skills

13. What was the most significant gap(s) that you experienced in your entry-job readiness? Please rank from 1- significant gap, 8- no gap.

- a. Caseload/time management
- b. Clinical administration skills
- c. Lack of experience handling high-risk situations
- d. Lack of clinical experience
- e. Insufficient practicum to transform theory to practical knowledge
- f. Stress management/reality shock/culture shock
- g. Problem solving
- h. Other

14. How did this gap in your job readiness affect your entry-level experience? If no significant gaps were experienced, write N/A in the field.

Additional Questions Shown to Appalachian Participants

15. Did you live within the Appalachian region before you were employed with your current position?

- a. No
- b. Yes
- c. I am not sure

16. Do you currently live within the Appalachian region?

- a. No
- b. Yes
- c. I am not sure.

17. In your opinion, which disparities are the greatest among Appalachian patients?

Please rank them from 1- greatest disparity, 4- lesser disparity.

- a. Health, health perception, mental health
- b. Socioeconomic
- c. Education, lack of opportunities
- d. Cultural, lack of understanding of others

18. List any other disparities specific to Appalachian patients that is not listed above.

If there are none, write N/A in the field.

19. Were there any other gaps not addressed in previous questions that could be

addressed in educational training that could have improved your work readiness?

Please explain.