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Association Between Rural Background and Physical Therapist Practice Location

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ASSOCIATION BETWEEN RURAL BACKGROUND AND PHYSICAL THERAPIST
PRACTICE LOCATION

By

Caitlin Parker
Jace-Anne Sharp

A doctoral project submitted in partial fulfillment
of the requirements for the

Doctor of Physical Therapy

Department of Physical Therapy
School of Integrated Health Sciences
The Graduate College

University of Nevada, Las Vegas
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Association Between Rural Background and Physical Therapist Practice Location

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Abstract

Purpose/Hypothesis

To examine the association between physical therapists' rural background and their decision to practice in a rural setting. We hypothesized that years of rural upbringing and size of hometown would be related to rural practice.

Number of Subjects

257 physical therapists who graduated from one of two physical therapy programs in the Western United States between 2000 and 2020.

Materials and Methods

A survey was emailed to 19 physical therapy schools consisting of questions regarding participants' background, demographics, and job history. We collected total number of years of practice and total years of rural practice. Length of practice varied, so we calculated a rural practice proportion (RPP) for each subject and used Pearson correlation to determine the association between years of rural upbringing and the RPP. To examine the association between size of hometown and practice in any rural setting, a Spearman correlation was conducted. Additionally, multivariate logistic regression was used to explore potential effects of several factors on the likelihood of rural practice.

Results

Alumni from two physical therapy programs housed at two institutions, the University of Nevada, Las Vegas (UNLV) (199) and the University of Colorado, Boulder (49) submitted 257 surveys. There were weak positive correlations between years of rural upbringing and RPP ($r = .374$, $n = 152$, $p < .001$) and between size of hometown and size of current practice location ($r = .332$, $N = 225$, $p < 0.001$). A weak positive correlation existed between size of hometown and practice in any rural setting ($r = .154$, $N = 234$, $p = .018$), with smaller hometown correlating with rural practice. In our unadjusted models, several factors including completion of a rural clinical experience, partner's rurality, and being from smaller towns were found to affect the likelihood of practicing in a rural setting ($p < .05$). However, in an adjusted model, only partners' rurality was found to significantly increase the likelihood of practicing in a rural setting ($p = .012$).

Conclusions

Among survey respondents, those with more years of rural upbringing were more likely to have practiced in rural settings. Physical therapists from smaller sized hometowns showed increased odds of having worked in rural settings compared to those from urban areas. Lastly, physical therapists with partners from rural areas were more likely to have worked in rural areas versus those with partners from urban areas.

Clinical Relevance

Additional research is warranted to understand the intrinsic and extrinsic factors that increase the likelihood of physical therapists practicing in rural settings. Academic physical therapy programs

can consider recruiting students from rural areas and providing opportunities for rural clinical experiences since these appear to be related to rural practice. Programs are encouraged to partner with rural communities and clinical partners to enhance their understanding of the unique health care needs of these communities that are amenable to physical therapy intervention. Academic physical therapy programs, state boards of physical therapy, and the American Physical Therapy Association (APTA) should collaborate to create new and leverage existing databases to describe physical therapist practice patterns across the professional career cycle.

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Introduction

Rural Communities in the U.S. Face Unique Challenges

Those living in rural areas of the United States face a multitude of challenges with regard to healthcare, many of which are related to limited access to services. Rural areas are defined by the U.S. Health Resources and Service Administration (HRSA) as “non-metropolitan area with a population density less than 2,500” while non-rural areas are defined as metropolitan locations with an “urban core of 50,000 or more people” (Health Resources and Service Administration [HRSA], 2020). The U.S. Census Bureau in 2010 estimated the rural population in the United States at approximately 19% or 60 million people with 86% of the land mass being classified as rural (U.S. Census Bureau, 2012). The United States Department of Agriculture (USDA) in 2017 reported the population in non-metropolitan counties at just over 46 million with rural land mass making up 72% of the United States (Cromartie, 2021). With such a significant portion of this country’s population residing in rural areas, it is vital to examine and address the factors that impact rural health care disparities such as access to health care providers.

Rural communities tend to have poorer health overall compared to more populated communities. Rural populations are generally older and experience a higher prevalence of poor lifestyle choices that may negatively impact health, such as tobacco use, poor diet, alcohol consumption, and physical inactivity (Garcia et al., 2017). As a result, rural communities have higher rates of many chronic conditions, such as uncontrolled high blood pressure, hyperlipidemia, and obesity, and experience significantly higher mortality rates from the top leading causes of death than their urban counterparts (Garcia et al., 2017; Farley et al., 2010). In

addition to the high prevalence of unhealthy behaviors, rural communities also have poorer access to healthcare providers when compared to urban communities (Farley et al., 2010).

Hospitals, clinics, as well as residential and nursing care facilities are scarce in rural areas (Douthit, Dwolatzky, & Biswas, 2015). In addition to fewer healthcare services in rural communities, individuals residing in rural areas often must overcome barriers to get to the doctor (Basu & Mobley, 2007). A study focusing on veterans living in rural areas of the United States found that distance to services was a primary barrier to receiving care. The challenge to receive healthcare presented by the long distances was compounded when the veterans also had limited health, function, or financial resources (Buzza et al., 2011). In rural Nevada, the distance between an acute care hospital and tertiary care facilities, such as those housing specialists, averages over 100 miles; the distance to the nearest incorporated town averages 43 miles (Griswold et al., 2021). These challenges highlight the need for more healthcare professionals living and working in rural areas.

Challenges to Rural Healthcare Worker Recruitment and Retention

Recruitment and retention of healthcare professionals in rural areas is a complex issue with many challenges described in the literature (Daniels et al., 2007; Kondalsamy-Chennakesevan et al., 2015; Playford et al., 2006; Roots & Li, 2013; Solomon et al., 2001). Rural healthcare is demanding by nature and requires professionals to possess a broad skill set to treat the large variety of health conditions present (Roots & Li, 2013). Providers in rural areas may be limited by fewer treatment resources and may also contend with higher patient-to-provider numbers than their urban counterparts. (Daniels et al., 2007; Roots & Li, 2013). Finally, rural locations often have to overcome negative perceptions such as limited access provided for

educational opportunities and professional support, and fewer opportunities for professional development and advancement. Additionally, it's been purported the degree to which individuals understand the context of rural practice can also be barriers to entering rural practice settings (Wielandt & Taylor, 2010; Solomon et al., 2001).

Factors Related to Rural Practice

Despite the barriers to working in rural healthcare, several factors have been suggested to increase the likelihood of practicing in a rural location. Daniels and colleagues (2007) surveyed graduates from twelve health professional programs in New Mexico, United States and sought to establish what factors influenced both recruitment and retention of health care providers. Health care providers surveyed included physicians, nurses, nurse practitioners, physical and occupational therapists, pharmacists, and others. A survey was developed to examine relationships between rural practice location and a variety of other factors such as rural upbringing, exposure to rural healthcare during professional education, and general attitudes towards rural life. A significant positive relationship was reported between rural practice and rural upbringing, rural healthcare exposure during education, and the presence of certain attitudes such as perception of community need, desire to live in a community of a certain size, and desire to return to hometown (Daniels et al., 2007).

Several studies suggested rural upbringing affects rural practice decisions. Specifically, individuals who were born in rural areas or who spent at least five years living in a rural area were more likely to return (Daniels et al., 2007; Kondalsamy-Chennakesevan et al., 2015; Playford et al., 2006). Solomon and colleagues (2001) found that proximity to family was a significant predictor of rural practice. Another factor shown to influence rural practice was

exposure to rural practice via rural clinical experiences while in school. Playford and colleagues (2006) found that students who had the opportunity to work in a rural setting during their education were more than twice as likely to choose to work rurally. Two later studies confirmed the exposure to rural education to be one of the most important factors in recruitment to rural practice (Daniels et al., 2007; Kondalsamy-Chennakesevan et al., 2015). Interestingly, the influence of these two factors was shown to be additive in that students with both a rural background and a rural clinical experience were more than five times as likely to go into rural practice as other students who did not have these experiences (Playford et al., 2006).

In addition to rural background and rural education, financial incentives have also been suggested to influence recruitment of healthcare professionals to rural areas. The results from a systematic review conducted by MacQueen et al. (2018) suggest that there is a potential association between financial incentives, such as student loan forgiveness programs, and practicing in a rural location for healthcare providers. A common financial incentive in the western United States is a program known as the Western Interstate Commission for Higher Education (WICHE), which provides financial assistance to students from one of the 16 included states as long as they attend a WICHE affiliated school. This program is available to those attending physical therapy programs with the stipulation they return to their home state upon graduation for a state-determined number of years, or promise to pay back the financial assistance. Findings from Daniels et al. (2007) indicate that financial incentive programs such as WICHE greatly influence an individual's decision to practice rurally.

Beyond initial recruitment, retention of healthcare providers is an additional challenge in rural areas (Solomon et al., 2001; Daniels et al., 2007; Roots & Li, 2013). Solomon et al. (2001) found that proximity to family and influence from a partner were both factors in recruitment and

retention but found that availability of recreational activities nearby had a positive impact only on retention. Daniels and colleagues (2007) found that two factors were significantly associated with remaining in rural healthcare work: the desire to work in a small community and the desire to work in one's hometown. Roots & Li (2013) found that adequate professional support, professional growth opportunities, and the nature of rural practice were all factors that influenced both recruitment and retention of rural healthcare workers. It was shown that a prior understanding of the nature of rural healthcare was critical to retention of those professionals (Roots & Li, 2013).

There is existing evidence regarding the factors affecting rural practice for various types of healthcare professionals, such as nurses and physicians (Grobler, et al., 2009; McGrail et al., 2011). The limited number of studies focusing on multiple disciplines of healthcare professionals from Australia (Devine, 2006; Kondalsamy-Chennakesavan et al., 2015; Laven & Wilkinson, 2003; McGrail et al., 2011; Playford et al., 2017; Playford et al., 2006) and Canada (Roots & Li, 2013; Solonzon et al., 2001; Szafran et al., 2013; Wielandt & Taylor, 2010; Winn et al., 2015) appear to be consistent with those of American medical physicians, in that rural background and personal factors such as strong family ties were strong predictors of working in rural healthcare (MacDowell et al., 2013). Similar results were found within a Canadian study looking at factors that influenced physicians' decisions to practice in a rural setting, with rural upbringing being the most significant indicator and financial incentives following closely behind (Grobler et al., 2009).

Comparatively, very little research and literature exists examining the association between a rural background and physical therapy practice location in the United States. With the limited access to healthcare services rural communities face, it is vital to gain a better

understanding of the factors that influence a physical therapist's decision to practice in rural states in the U.S. in order to enhance recruitment and retention of physical therapists and to reduce rural health care disparities. Although it is anticipated that the factors influencing physical therapists' decisions to work rurally in the United States will be similar to those in other healthcare fields, there is not enough evidence at present to support that assertion.

Thus, the purpose of this study was to provide a better understanding of the factors that may influence physical therapists' decision to practice in a rural location. Specifically, we sought to examine the association between physical therapists' rural background and their decision to practice in a rural setting. We hypothesized that: 1) the number of years spent in a rural location during childhood would be positively associated with the proportion of one's career practicing in a rural location, 2) that a smaller hometown size would be positively associated with the presence of rural practice at any point in one's career, and 3) involvement in rural practice may be influenced by several other factors such as gender, age at time of graduation, having a rural upbringing, partner's rural upbringing, size of hometown, having financial incentives to practice in a rural area, such as having received a WICHE scholarship, or by having an American Board of Physical Therapy Specialists (ABPTS) certification.

Methods

Participants

The proposed sample for this study included alumni from nineteen physical therapy programs from nine western states who graduated between January 1st, 2000 and December 31st, 2020. The majority physical therapy programs belonged to Northwest Intermountain Consortium (NIC). The NIC is a regional consortium of physical therapy programs across Washington, Oregon, Idaho, Montana, Colorado, Utah, Nevada, Arizona, and New Mexico, and is a component of the larger entity, the National Consortium of Clinical Educators (NCCE). Two to three points of contact were identified for each of the target physical therapy programs that included the program director, the director of clinical education, and when provided, a generic program contact email address. Contact information for each program director was gathered from publicly available information provided on the Commission on Accreditation in Physical Therapy Education's (CAPTE) Accredited PT & PTA Programs Directory webpage (CAPTE, 2021). Contact information for each program's director of clinical education was gathered from publicly accessible faculty contact information from each program's respective webpage. A total of 41 program-level points of contact were identified using these methods. This study was conducted at the University of Nevada, Las Vegas, so the email addresses of alumni from that program were readily accessible and additional points of contact were not necessary. An informed consent agreement was provided electronically at the beginning of the survey. All participants provided informed consent prior to participation in this study. This study was approved by the University of Nevada, Las Vegas Institutional Review Board.

Data Collection

A self-administered, anonymous survey was sent via email to 476 University of Nevada, Las Vegas Physical Therapy (UNLVPT) alumni. At the same time, an invitation email was sent to the 41 program contacts at the physical therapy programs identified above. The invitation email included a request to forward the survey invitation to all eligible alumni. The initial invitation and survey were distributed to each point of contact. The survey remained open for six weeks. Only one of the invited nineteen physical therapy programs, the University of Colorado, confirmed they forwarded the survey invitation email to their alumni. The principal investigator sent out a reminder email 3 weeks following the initial invitation to maximize the number of responses. The reminder emails were sent directly to UNLVPT alumni email addresses on file. The points of contact for the other target physical therapy programs also received a reminder email, however it is unknown if the reminder resulted in any invitation email reminders being forwarded to the respective programs' alumni. Survey data was only received from alumni from two universities: the University of Nevada, Las Vegas and the University of Colorado. Survey responses were recorded using an online survey software (Qualtrics, Provo, UT).

Variables of Interest

The survey focused on questions related to the participants' background and job demographics as well as general demographics (see Appendix). Rural background was determined using the following variables: *size of hometown*, and *years of rural upbringing*. *Size of hometown* was categorized in three ways. First, size of hometown was categorized based on the Physical Therapy Centralized Application System (PTCAS) categories listed in Table 1. Second hometown was converted to a dichotomous variable with populations of < 50,000 being

considered rural and populations with > 50,000 being not rural. Third, provided hometown zip codes were dichotomized and coded as rural or not rural by using a publicly available HRSA database that labels whether locations qualify for rural health funding by zip code (Health Resources and Service Administration [HRSA], 2020). Since the HRSA database only included information on locations within the United States, survey respondents from International locations had their hometowns categorized using only the first and second method listed above.

Table 1
Categories of population size.

Category	Size of Population	Assigned Code
Isolated Rural	<2,500	5
Small Town	2,500-9,999	4
Large Town	10,000-49,999	3
Mid-Size City	50,000-99,999	2
Large City	100,000-1,000,000	1
Urban	>1,000,000	0

Years of rural upbringing was determined by asking the number of years the individual resided in the aforementioned zip code from ages 5 to 18, or from kindergarten through high school. Values could equal 0-13. *Years of rural upbringing* was analyzed as a continuous variable for the correlational analyses and was converted into three categories (0-5 years, 6-10 years, and > 10 years) for regression analysis to determine the odds ratio.

The data for years of rural practice was gathered in the survey. *Rural practice proportion (RPP)* was calculated by dividing years of rural practice by the participants' total years of practice. *Involvement in rural practice* was determined by asking participants if they had practiced in a rural area since graduation (see Practice Patterns question 4 in Appendix) and were

assigned variables (0 = No, 1 = Yes). To further analyze *involvement in rural practice*, participants were asked for current job location and up to 20 of past job locations. Size of job location town was categorized into rural and not rural in the same manner as *size of hometown*. Categorical variables were coded for statistical analysis.

Additional variables included in this study were: size of hometown as defined by PTCAS, size of hometown as defined by HRSA rural health grant qualification, home state, years of childhood spent in an urban community, years of childhood spent in a rural community, completion of rural clinical experience, age at time of graduation from physical therapy program, state in which physical therapy education was completed, gender, ABPTS certification, Hispanic ethnicity, race, marital status, partner rurality, and reception of WICHE scholarship.

Statistical Analysis

IBM SPSS Statistics 28.0 was used to conduct all statistical analyses in this study. Descriptive statistics were used to analyze frequencies of general demographics including current age, sex, marital status, and ethnicity as well as location of degree attainment and age at degree attainment. Respondent survey answers that were partially completed or not completed were excluded from data analysis.

Bivariate analyses were conducted to determine correlational relationships between variables. The potential relationship between *years of rural upbringing* and *RPP* was examined via Pearson correlation analysis. Bivariate Spearman correlational analysis was performed to determine the relationship between *size of hometown* and *involvement in rural practice* as well as *years of rural upbringing* and *involvement in rural practice*. Results from all correlational

analyses were interpreted via r value using the following degree of correlation: $r > 0.7$ as a strong correlation; $0.4 < r < 0.7$ as a moderate correlation; $r < 0.4$ as a weak correlation.

Multivariate analyses were conducted using a logistic regression in an adjusted and unadjusted model to assess the impact of several factors on the likelihood of respondents practicing physical therapy in any rural setting, or *involvement in rural practice*. The following independent variables were input in the unadjusted logistic regression models to estimate odds ratios in comparison to the dependent variable: size of hometown as defined by PTCAS, size of hometown as defined by HRSA rural health grant qualification, home state, years of childhood spent in an urban community, years of childhood spent in a rural community, completion of rural clinical experience, age at time of graduation from physical therapy program, state in which physical therapy education was completed, gender, ABPTS certification, Hispanic ethnicity, race, marital status, partner rurality, and reception of WICHE scholarship. The adjusted model included size of hometown, years of rural upbringing, ABPTS certification, partner rurality, reception of WICHE scholarship, and gender. Size of hometown and years of rural upbringing were included as other studies determined both variables were accurate predictors of a person in medicine practicing in a rural setting (Playford et al., 2006; Daniels et al., 2007; Grobler et al., 2009; MacDowell et al., 2013; Kondalsamy-Chennakesevan et al., 2015). Additionally, ABPTS certification was included as other studies found those practicing medicine with a specialty were less likely to practice rurally. The opposite was found in medicine for those with a partner from a rural area – a physician with a spouse from a rural area was more likely to practice in a rural area (Daniels et al., 2007). WICHE funding was included due to results from Daniels et al., 2007, which suggested financial incentives, such as WICHE, may have an impact on the decision to

practice in a rural setting. Gender was included due to interest from the research team to determine if a relationship between gender and decision to practice rurally was present.

Results

Descriptive Statistics

Of the 257 surveys started by participants, 234 (91%) were submitted. 152 (59.1%) respondents completed the survey fully and answered all questions in the way researchers intended. Of the 19 programs this study intended to survey, only two programs' alumni responded. The majority of these respondents, 199 (77.4%) graduated from the University of Nevada, Las Vegas, and 49 (19.1%) graduated from the University of Colorado. Graduation years from respondents ranged from 2000-2020, however there were more respondents that graduated in recent years with 13.5% graduating in 2020, 11.5% in 2019, and 8.6% in 2018. Eighty-six percent of the respondents graduated with a Doctor of Physical Therapy (DPT) degree. Of the 27 (11%) of respondents who graduated with an entry level Masters of Physical Therapy (MPT), 11 (40.7%) had completed a transitional DPT since graduation.

The majority of respondents, 156 (60.7%), reported having completed a clinical experience in a rural setting while in PT school, 88 (34.2%) had not, and 13 (5.1%) failed to answer the question. Of the 156 who completed a rural clinical experience, 36 (23.1%) reported that it was optional while the remaining 120 (76.9%) reported that the rural experience was compulsory. Additional demographics including gender, ethnicity, race, and marital status are reported in Table 2.

A majority of respondents indicated they were born in the United States (89.9%) with the remaining indicating they were born in Canada, China, Mexico, Poland, and Switzerland. Of those born in the United States, the largest proportion spent the majority of their childhood in Nevada (28.4%), followed by California (12.5%), Utah (11.3%), and Colorado (9.7%). Among

the respondents' hometowns, 20.6% qualified as a rural area under HRSA rural health grants. Of note, 10.1% of respondents did not respond to this question. Table 2 shows the frequency of respondent characteristics separated into those who practiced in a rural setting post-graduation and those that did not.

Table 2
General respondent characteristics (n =236)

		Rural Practice Post-Graduation		No Rural Practice Post-Graduation	
	n = 257	n = 85	n(%) = 36%	n = 151	n(%) = 64%
Total Survey Completion					
Included	236				
Not Included*	21				
State Entry Level Degree Completed In					
Colorado	43	20	23.5%	23	15.2%
Nevada	193	65	76.5%	128	84.8%
PT Program Degree Earned From					
University of Colorado	43	20	23.5%	23	15.2%
University of Nevada, Las Vegas	193	65	76.5%	128	84.8%
Year Graduated from PT School					
2000-2005	24	12	13.1%	13	8.6%
2006-2010	35	16	19%	19	12.6%
2011-2015	62	27	32.1%	35	23.2%
2016-2020	109	30	29.8%	84	55.6%
Entry Level Degree Earned					
Doctorate of Physical Therapy	211	73	85.9%	138	91.4%
Masters of Physical Therapy	25	12	14.1%	13	8.6%
Transitional Degree Earned					
Not Applicable	211	73	85.9%	138	91.4%
Yes	14	8	9.4%	6	4%
No	11	4	4.7%	7	4.6%
Rural Clinical Experience Completed					

Yes	150	69	81.2%	81	53.6%
No	86	16	18.8%	70	46.4%
ABPTS Certification Earned					
Yes	27	11	12.9%	16	10.6%
No	209	74	87.1%	135	89.4%
Gender					
Not Included*	1	1	1.2%	-	-
Cisgender Male	89	31	36.5%	58	38.4%
Cisgender Female	143	53	62.4%	90	59.6%
Other	3			3	2%
Ethnicity					
Hispanic	14	4	4.7%	10	6.6%
Not Hispanic	222	81	95.3%	141	93.4%
Race					
Not Included*	6	4	4.7%	2	1.3%
Two or more races	9	3	3.5%	6	4%
Not two or more races	221	78	95.3%	143	94.7%
Marital Status					
Domestic Partnership	6	4	4.7%	2	1.3%
Married	164	60	70.6%	104	68.9%
Single	62	18	21.2%	44	29.1%
Other	4	3	3.5%	1	0.7%
Partner Rurality					
Not Included*	5	3	3.5%	2	1.3%
Not Applicable	42	13	15.3%	29	19.2%
Rural	55	29	34.1%	26	17.2%
Suburban	88	28	32.9%	60	39.7%
Urban	46	12	14.1%	34	22.5%
WICHE Scholarship Reception					
Not Applicable	126	52	61.2%	74	49%
Yes	15	6	7.1%	9	6%
No	95	27	21.8%	68	45%
Hometown Qualification for HRSA Rural Health Grants					
Not Included*	5	2	2.4%	3	2%
Not Applicable (International Students)	3	-	-	3	2%
Yes	53	27	31.8%	26	17.2%
No	175	56	65.9%	119	78.8%
Size of Hometown					

Not Included*	2	2	2.4%	-	-
Urban (>1,000,000)	26	5	5.9%	21	13.9%
Large City (100,000-1,000,000)	25	17	20%	12	9.3%
Mid-Size City (50,000-99,999)	37	17	20%	20	13.2%
Large Town (10,000-49,999)	55	16	18.8%	39	25.8%
Small Town (2,500-9,999)	64	19	22.4%	45	29.8%
Isolated Rural (<2,500)	21	9	10.6%	12	7.9%

*Answers indicated as “not included” were not calculated into the final logistic regression model as the question was either not answered by the respondent, or the respondent did not provide an answer in a way that could not be accurately interpreted or coded by the research team.

Bivariate Analyses

Years of rural upbringing and *RPP* demonstrated a significant, but weak positive correlation between the two variables ($r = .374$, $n = 152$, $p < .001$) with more years of rural upbringing being associated with more proportional career years of physical therapy practice in a rural area. There were 81 (35%) responses that were not included in the final correlation due to respondents’ misinterpretation of the question resulting in incomplete responses. Additionally, data from the 1.2% of respondents that were International were not included in any correlational or logistic statistical analyses run on these variables.

Size of hometown and *involvement in rural practice* also demonstrated a significant, but weak positive correlation ($r = .154$, $N = 234$, $p = .018$) with smaller size of hometown associated with rural practice. The *RPP* also was weakly correlated with *size of hometown* ($r = .196$, $N = 233$, $p = .003$) with smaller size of hometown being related to a higher number of years of proportional rural practice. There were 29 responses not calculated into the final correlation due to respondents’ misinterpretation of the question resulting in incomplete responses.

In the unadjusted logistic regression model (Table 3), variables that were found to be significantly associated with *involvement in rural practice* included hometown size of small town (OR = 5.1, CI = 1.5-17.0, p = .033) and mid-size city (OR = 3.57, CI = 1.1-11.5, p = .008), completion of a rural clinical experience (OR = 3.7, CI = 1.98-7.0, p < .001), years of rural upbringing greater than 10 (OR = 3.7, CI = 1.8-7.5, p < .001), partner rurality as rural (OR = 3.16, CI = 1.4-7.4, p = .008), and hometown qualified under HRSA rural health grant as rural (OR = 2.3, CI = 1.2-4.2, p = .01). Years of urban upbringing greater than 10 was associated with decreased likelihood of working in a rural setting (OR = .26, CI = .13-.52, p < .001).

Multivariate Analysis

The full model containing all predictors was not statistically significant, X^2 (15, N = 67) = 24.17, p = 0.062, indicating the model was not able to distinguish between respondents who practiced physical therapy in any rural setting. The model as a whole was able to explain between 30.3% (Cox and Snell R square) and 41.6% (Nagelkerke R square) of the variance in rural practice, and correctly classified 80.6% of cases. As shown in Table 3, only one independent variable made a unique statistically significant contribution to the model: partner's rurality as rural (OR = 7.9, CI = 1.4-45.3, p = .021). Compared to a physical therapist with a partner from rural area, a physical therapist with a partner from an urban area is 80% less likely to work in a rural setting.

Table 3

Unadjusted and adjusted odds ratios for multiple factors that could affect rural practice

	Unadjusted Exp(B) (CI)	Adjusted Exp(B) (CI)
Size of Hometown		
Urban (>1,000,000)	Reference	Reference
Large City (100,000-1,000,000)	1.8 (.58-5.4)	.258 (.03-2.4)
Mid-Size City (50,000-99,999)	3.57 (1.1-11.5)	.81 (.06-10.3)
Large Town (10,000-49,999)	1.7 (.55-5.4)	.52 (.04-6.9)
Small Town (2,500-9,999)	5.1 (1.5-17.0)	.35 (.01-10.6)
Isolated Rural (<2,500)	3.2 (.86-11.6)	1.02 (.03-37.7)
Completion of Rural Clinical Experience	3.7 (1.98-7.0)	-
Home State of NV	.61 (.34-1.1)	-
Age > 35 years at time of Graduation	1.4 (.5-3.89)	.3 (.03-3.2)
Years of Urban Upbringing		
0-5 Years	Reference	-
6-10 Years	1.03 (.2-4.99)	-
> 10 Years	.257 (.13-.52)	-
Years of Rural Upbringing		
0-5 Years	Reference	Reference
6-10 Years	3.4 (.84-13.7)	5.4 (.09-313.8)
> 10 Years	3.7 (1.8-7.5)	8.7 (.73-102.9)
Size of Hometown		
> 50k	Reference	-
< 50k	1.36 (.79-2.3)	-
State of PT School		
Nevada	Reference	
Colorado	.584 (.3-1.1)	
Completion ABPTS Certification	1.3 (.6-2.8)	.79 (.1-6.9)
Hispanic Ethnicity	.7 (.2-2.3)	-
Multiracial	.9 (.22-3.8)	-
Marital Status		
Single	Reference	-
Married	1.4 (.75-2.7)	-
Partners Rurality		
Urban	Reference	Reference
Suburban	1.3 (.6-2.9)	4.86 (.72-32.9)
Rural	3.16 (1.4-7.4)	7.9 (1.4-45.3)

Reception of WICHE Scholarship	1.7 (.55-5.2)	2.8 (.3-27.1)
Hometown HRSA Rural Health Grant Qualified	2.3 (1.2-4.2)	-
Gender		
Male	Reference	
Female	1.1 (.63-1.9)	1.005 (.25-4.1)
Other	.00	.00

Comparison of unadjusted and adjusted logistic regression model for all independent variables where Exp(B) is the odds ratio for each independent variable with the confidence interval included. Those highlighted in red indicate statistically significant variables.

Discussion

The results from this study indicate that there is a weak positive relationship between a physical therapist's rural background and their decision to practice in a rural setting.

Respondents that spent more years in a rural area during their upbringing spent a greater proportion of their career practicing in a rural location as a physical therapist. The results of this study indicate similar results to those reported by McGrail et al. (2011). McGrail and colleagues found only 47% of general practitioners (GP's) with 6-10 years of childhood in a rural area ultimately practiced in a rural area post-graduation, and 48% of GP's who spent 11-18 years of their childhood in a rural area practiced in a rural setting. Additionally, in an earlier meta-analysis completed by Laven & Wilkinson (2003) 10 of 12 studies found that physicians' rural background was associated with practicing in a rural area with an average odds ratio of 2-2.5, although years of rural background was not defined for that analysis. These results support our initial hypothesis that within our studied population, the number of years a physical therapist spent in a rural location during childhood was positively associated with rural practice after graduation. This suggests that rural upbringing among physical therapists may contribute similarly to rural practice decisions when compared with other health care professions.

Size of hometown was also found to have a weak but significant relationship with the *involvement in rural practice*. In addition to this, the smaller the individual's hometown size, the greater the proportion of one's career was spent practicing in a rural setting. Interestingly, other studies did not find this factor significant. McGrail and colleagues (2011) found that hometown size was not a significant predictor in rural health practice; individuals were equally likely to practice in rural health if they were from the smallest or largest of rural communities. One

difference existed between our study and this study's sample: their primary participant pool of medical doctors was located in Australia. Rural background was categorized similarly as this study including years of rural upbringing and size of hometown following the same format. The contrasting findings could potentially be due to respondent characteristics from this study leaning towards childhood being spent in larger rural communities and urban communities, thus garnering less response from those with childhood spent in smaller rural areas. Other factors include differences between the healthcare fields reported in each study, or differences between countries and cultures.

In Nevada and Colorado, where respondents indicated they attended physical therapy school, the programs were considered WICHE affiliate schools. Of the respondents, 15 indicated they received WICHE-PSEP funding, and 10 (66%) indicated the reception of a WICHE-PSEP scholarship influenced their choice in practice location. Although most of the students who received a WICHE scholarship returned to their home state to practice as a physical therapist post-graduation, the scholarship did not seem to influence their decision to practice in a rural or urban area within that state. Findings by Daniels et al. (2007) supports the influence of financial incentives as a recruitment tactic to rural areas; researchers found that medical providers practicing in a rural area were far greater to factor in financial aid obligations than those practicing in an urban area. Further focused research on the impact of WICHE and other financial incentives on rural health is necessary to draw conclusions as to the effect on physical therapist decision to practice in a rural setting in the United States.

In contrast to Daniels et al. (2007) who found age > 40 years was a significant factor contributing to an individual's decision to practice in a rural area, this study found age > 35 years did not have any significance. Additionally, McGrail et al. (2011) found males had 2 to 2.5 times

greater odds than females to practice in a rural setting regardless of rural background. This study did not find any significant difference between male and female respondents rural practice patterns. The study completed by McGrail had a larger number of male respondents than females, compared to this study which had a larger number of female respondents than male. This could explain the differences between previously completed studies and this study when analyzing the significance of sex and practicing in a rural area.

Despite what was hypothesized, partner rurality was the only variable to be found of significance in the multivariate analysis. This study found that those who were married and had a partner from an urban background had a negative influence on practicing in a rural setting. In other words, a physical therapist with a partner from an urban area was less likely to practice in a rural setting. Three out of four studies in Laven & Wilkinson's (2003) meta-analysis concluded that partners' rurality had an effect on rural practice where they reported the odds of a physician working in a rural area were three times greater if the participant's spouse was from a rural area. Kondalsamy- Chennakesavan et al. (2015) found similar results with the odds of practicing in a rural area being three times greater if the physician's spouse was from a rural area. Additionally, in a study completed by Solomon et al. (2001), when asked to identify important factors that contributed to the decision to practice in a rural setting, partners rurality was important to 25% of those surveyed. Similar findings between past studies completed in medicine and this study of physical therapists from two Western U.S. states suggests that partner's rurality may influence physical therapist practice patterns similarly to other studied health care professions.

Study Limitations

One of the limitations of this study was low participation rate of other physical therapy programs which makes the results less generalizable. Graduates from only two programs responded and the majority of respondents attended the physical therapy program at the University of Nevada, Las Vegas. Contacting alumni from UNLVPT was able to be done so directly, but for other programs, alumni participation was limited by administrative gatekeeping. Though the number of participants was adequate to perform the necessary statistical analyses, the participant population was not as diverse geographically as other similar studies. Due to this limited variability, the external validity of this study may be limited and the results may represent something uniquely related to students who may be more likely to attend one of these programs. Future studies may avoid similar limitations by exploring other methods of contacting practicing physical therapists such as contacting potential respondents through APTA member emails to broaden the sample population and deliver surveys to respondents directly rather than having a point of contact to depend on for the distribution of surveys. Additionally, if future study efforts are to be aimed at a target group of physical therapy programs, the principal investigator may employ more proactive and effective communication strategies to garner support and intention for participation in the study prior to launching the survey.

When analyzing the responses, researchers recognized that some of the questions were misinterpreted by many respondents. Question 7 and 8 under Location (Childhood Residency) (see Appendix) asked about years of rural and urban upbringing. While researchers intended “urban” to mean anything but rural, 82 of the respondents indicated that they had spent zero years in an urban location and zero years in a rural location throughout their childhood. Because of this misinterpretation, those responses were excluded from the statistical analyses. To avoid

this in the future, researchers should more clearly define these variables. Additionally, the survey should be sent to a greater number of individuals for review prior to sending it out to respondents to maximize clarity.

Finally, the survey that was developed for this study was not validated before being sent out to participants. Modifications, such as those previously discussed, should be made to the survey in order to improve clarity of questions and quality of the resulting data. Future work needs to assess the content, construct, and criterion validity of the survey to maximize effectiveness.

Conclusion

The results of this study suggest that among graduates from two Nevada and Colorado Doctor of Physical Therapy programs, a physical therapist's rural background is related to their decision to practice in a rural location. The more years of rural upbringing, the more likely physical therapists were to choose a rural practice location after graduation. In addition, the smaller an individual's hometown, the more likely they were to work in a rural location post-graduation. Other factors that were significant predictors of rural practice were hometowns with less than 50,000 residents, partner being from a rural area, having more than 10 years of rural upbringing, and completion of a rural clinical experience. Conversely, those physical therapists who spent more than 10 years of their upbringing in an urban area and those with a partner from an urban area were less likely to work in a rural setting.

While these findings contribute to a growing body of evidence to inform how a physical therapist's background may impact future practice location, there remains considerable work with regards to understanding how to increase recruitment and retainment efforts for physical therapists practicing in rural areas. This study supports endeavors to increase accessibility for in-person physical therapy services in rural areas by recruiting aspiring physical therapists from rural areas. It may be beneficial to develop additional outreach programs to rural high schools and colleges in order to bring light to the need of physical therapy and/or reduce barriers to attend physical therapy programs such as providing additional scholarships for individuals from rural areas to pursue a physical therapy education. It is the hope that with more research and appropriate action, individuals who live in rural locations will have improved quality of life and equitable access to healthcare services.

Appendix

Survey Questions:

Background and Demographics

1. In what state did you complete your entry-level PT degree?
 - a. Arizona
 - b. Colorado
 - c. Idaho
 - d. Montana
 - e. Nevada
 - f. New Mexico
 - g. Oregon
 - h. Utah
 - i. Washington

2. What Physical Therapy Program did you earn your entry-level degree from?
 - a. AT Still University
 - b. Franklin Pierce University
 - c. Midwestern University – Glendale
 - d. Northern Arizona University
 - e. Regis University
 - f. University of Colorado
 - g. Idaho State University
 - h. University of Montana
 - i. University of Nevada, Las Vegas

- j. Touro University Nevada
 - k. University of New Mexico
 - l. George Fox University
 - m. Pacific University
 - n. Rocky Mountain University of Health Professions
 - o. University of Utah
 - p. Eastern Washington University
 - q. University of Washington
 - r. University of Puget Sound
3. What was your entry-level degree?
- a. Masters of Physical Therapy
 - b. Doctor of Physical Therapy
 - c. *If Masters of Physical Therapy was selected: Have you received a transitional DPT?
 - i. *If Yes was selected: What year did you receive your transitional DPT degree?
4. During which calendar year did you graduate from Physical Therapy school?
- a. 2000
 - b. 2001
 - c. 2002
 - d. 2003
 - e. 2004
 - f. 2005

- g. 2006
- h. 2007
- i. 2008
- j. 2009
- k. 2010
- l. 2011
- m. 2012
- n. 2013
- o. 2014
- p. 2015
- q. 2016
- r. 2017
- s. 2018
- t. 2019
- u. 2020

5. Did you complete a clinical experience at a rural setting while in Physical Therapy school?

- a. Yes
- b. No
- c. *If Yes was selected: Was this rural clinical experience optional or compulsory?
 - i. Optional
 - ii. Compulsory

6. How old were you in years when you graduated from PT school with your entry-level Physical Therapy degree?
7. Are you an ABPTS certified clinical specialist?
 - a. *If Yes was selected: Please select area of clinical specialty
 - i. Cardiovascular and Pulmonary
 - ii. Clinical Electrophysiology
 - iii. Geriatrics
 - iv. Neurology
 - v. Oncology
 - vi. Orthopaedics
 - vii. Pediatrics
 - viii. Sports
 - ix. Women's Health
 - x. Wound Management
 - b. *If Yes was selected: How old were you when you gained your clinical specialty certification?
8. What is your current age?
9. What is your gender?
 - a. Cisgender male
 - b. Cisgender female
 - c. Transgender male
 - d. Transgender female
 - e. Non-binary

f. Other: free response

10. Do you consider yourself to be of Hispanic/Latino origin?

a. *If Yes was selected: Please select all that apply

i. Cuban

ii. Mexican, Mexican American, Chicano/Chicana

iii. Puerto Rican

iv. South or Central American

v. Other Spanish Culture or Origin: free response

11. Please select your race(s). Leave the item blank if you do not wish to report this information.

a. American Indian or Alaska Native

b. Asian

c. Black or African American

d. Native Hawaiian or Other Pacific Islander

e. White

f. *If Asian was selected: Please select all that apply

i. Asian Indian

ii. Cambodian

iii. Chinese

iv. Filipino

v. Japanese

vi. Korean

vii. Malaysian

- viii. Pakistani
 - ix. Vietnamese
 - x. Other Asian: free response
- g. *If American Indian or Alaska Native was selected: Please specify the name of your enrolled or principal tribe
- h. *If Native Hawaiian or Other Pacific Islander was selected: Please select all the apply
- i. Guamanian or Chamorro
 - ii. Native Hawaiian
 - iii. Samoan
 - iv. Other Pacific Islander

12. What is your marital status?

- a. Single
- b. Married
- c. Domestic Partnership
- d. Other: free response

13. If you have a partner, which of the following best describes the location in which they were raised?

- a. Rural
- b. Urban
- c. Suburban
- d. Does not apply

14. Was the state you consider your “home state” a WICHE state?

- a. Yes
- b. No
- c. *If Yes was selected: Did you attend a WICHE affiliate school for your Physical Therapy education?
 - i. Yes
 - ii. No
 - iii. *If Yes was selected: Did you receive a WICHE scholarship to support your Physical Therapy education?
 - 1. Yes
 - 2. No
 - 3. *If Yes was selected: Did this have an influence on your practice location following PT school?

Location (Childhood Residency)

- 1. In what COUNTRY did you spend the majority of your life from birth to age eighteen?
- 2. If United States, in what STATE or TERRITORY did you spend the majority of your life from birth to age eighteen?
 - 1. Alabama
 - 2. Alaska
 - 3. Arizona
 - 4. Arkansas
 - 5. California
 - 6. Colorado

7. Connecticut
8. Delaware
9. District of Columbia
10. Florida
11. Georgia
12. Hawaii
13. Idaho
14. Illinois
15. Indiana
16. Iowa
17. Kansas
18. Kentucky
19. Louisiana
20. Maine
21. Maryland
22. Massachusetts
23. Michigan
24. Minnesota
25. Mississippi
26. Missouri
27. Montana
28. Nebraska
29. Nevada

30. New Hampshire
31. New Jersey
32. New Mexico
33. New York
34. North Carolina
35. North Dakota
36. Ohio
37. Oklahoma
38. Oregon
39. Pennsylvania
40. Rhoda Island
41. South Carolina
42. South Dakota
43. Tennessee
44. Texas
45. Utah
46. Vermont
47. Virginia
48. Washington
49. West Virginia
50. Wisconsin
51. Wyoming
52. American Samoa

- 53. Guam
 - 54. Northern Mariana Islands
 - 55. Puerto Rico
 - 56. Virgin Islands
3. In what COUNTY did you spend the majority of your life from birth to age eighteen?
 4. In what CITY did you spend the majority of your life from birth to age eighteen?
 5. What was the zip code of this city?
 6. What was the size of this city?
 - a. Isolate Rural (population <2,500)
 - b. Small Town (population 2,500 to 9,999)
 - c. Large town (population 10,000 to 49,999)
 - d. Mid-Size City (population 50,000 to 99,999)
 - e. Large City (population 100,000 to 1,000,000)
 - f. Urban (population >1,000,000)
 7. How many years, if any, of your childhood (K through year 12) did you live in a RURAL community?
 - a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4
 - f. 5
 - g. 6

- h. 7
- i. 8
- j. 9
- k. 10
- l. 11
- m. 12
- n. 13

8. How many years, if any, of your childhood (K through year 12) did you live in an URBAN community?

- a. 0
- b. 1
- c. 2
- d. 3
- e. 4
- f. 5
- g. 6
- h. 7
- i. 8
- j. 9
- k. 10
- l. 11
- m. 12
- n. 13

Practice Patterns

1. How many years have you practiced as a physical therapist since graduation?
2. How many jobs have you had as a physical therapist?
3. How many different cities/communities have you practiced in as a physical therapist?
4. Have you practiced as a physical therapist in any rural areas since graduation?
 - a. Yes
 - b. No
 - c. *If Yes was selected: How many total years of your career thus far have you practiced in a rural area?
5. In what *state* is your current job location?
 1. Alabama
 2. Alaska
 3. Arizona
 4. Arkansas
 5. California
 6. Colorado
 7. Connecticut
 8. Delaware
 9. District of Columbia
 10. Florida
 11. Georgia
 12. Hawaii

13. Idaho
14. Illinois
15. Indiana
16. Iowa
17. Kansas
18. Kentucky
19. Louisiana
20. Maine
21. Maryland
22. Massachusetts
23. Michigan
24. Minnesota
25. Mississippi
26. Missouri
27. Montana
28. Nebraska
29. Nevada
30. New Hampshire
31. New Jersey
32. New Mexico
33. New York
34. North Carolina
35. North Dakota

36. Ohio
 37. Oklahoma
 38. Oregon
 39. Pennsylvania
 40. Rhoda Island
 41. South Carolina
 42. South Dakota
 43. Tennessee
 44. Texas
 45. Utah
 46. Vermont
 47. Virginia
 48. Washington
 49. West Virginia
 50. Wisconsin
 51. Wyoming
 52. American Samoa
 53. Guam
 54. Northern Mariana Islands
 55. Puerto Rico
 56. Virgin Islands
6. In what *city* is your current job location?
 7. Which of the following best describes this city?

- a. Isolate Rural (population <2,500)
 - b. Small Town (population 2,500 to 9,999)
 - c. Large town (population 10,000 to 49,999)
 - d. Mid-Size City (population 50,000 to 99,999)
 - e. Large City (population 100,000 to 1,000,000)
 - f. Urban (population >1,000,000)
8. Is this a full-time position?
- a. Yes
 - b. No
9. How many years have you worked at this location?
10. What is the zip code of your current job location?
11. The following section will collect location details (state, city, community size, and zip code) for up to 20 additional locations where you have practiced since graduation. You will also indicate whether each position was *full-time* or *part-time* and how long you practiced at each location. Please complete this section in reverse order *starting with the most recently held position since your current position.*
- a. Have you had any additional jobs as a physical therapist since graduation?
 - i. Yes
 - ii. No
 - iii. *If No was selected: end survey
 - iv. *If Yes was selected: In what *state* was this located?
 1. Alabama
 2. Alaska

3. Arizona
4. Arkansas
5. California
6. Colorado
7. Connecticut
8. Delaware
9. District of Columbia
10. Florida
11. Georgia
12. Hawaii
13. Idaho
14. Illinois
15. Indiana
16. Iowa
17. Kansas
18. Kentucky
19. Louisiana
20. Maine
21. Maryland
22. Massachusetts
23. Michigan
24. Minnesota
25. Mississippi

26. Missouri
27. Montana
28. Nebraska
29. Nevada
30. New Hampshire
31. New Jersey
32. New Mexico
33. New York
34. North Carolina
35. North Dakota
36. Ohio
37. Oklahoma
38. Oregon
39. Pennsylvania
40. Rhoda Island
41. South Carolina
42. South Dakota
43. Tennessee
44. Texas
45. Utah
46. Vermont
47. Virginia
48. Washington

- 49. West Virginia
- 50. Wisconsin
- 51. Wyoming
- 52. American Samoa
- 53. Guam
- 54. Northern Mariana Islands
- 55. Puerto Rico
- 56. Virgin Islands

- v. *If Yes was selected: In what *city* was this located?
- vi. *If Yes was selected: Which of the following best describes this city?
 - 1. Isolate Rural (population <2,500)
 - 2. Small Town (population 2,500 to 9,999)
 - 3. Large town (population 10,000 to 49,999)
 - 4. Mid-Size City (population 50,000 to 99,999)
 - 5. Large City (population 100,000 to 1,000,000)
 - 6. Urban (population >1,000,000)
- vii. *If Yes was selected: Was this a full-time position?
 - 1. Yes
 - 2. No
- viii. *If Yes was selected: How many years did you work at this location?
- ix. *If Yes was selected: What was the zip code of this location?

* indicates a follow-up question

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Curriculum Vitae

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- Evaluated and treated patients in an outpatient hospital setting. Developed individualized treatment plans for patients with a variety of musculoskeletal and neurological conditions.

Northern Nevada Medical Center, Student Physical Therapist Internship | Sep. 2022-Dec. 2022

- Evaluated and treated patients in the acute inpatient setting. Developed appropriate treatment and discharge plans that were individualized to each patient. Demonstrated empathy and integrity in all patient interactions.

Advanced Healthcare of Reno, Student Physical Therapist Internship | Jul. 2022-Sep. 2022

- Evaluated and treated patients with a variety of musculoskeletal and neurological conditions. Developed individualized treatment plans based on patients' unique needs and goals.

Concentra Medical Center – Reno, Student Physical Therapist Internship | Jun. 2021-Jul. 2021

- Evaluated and treated patients with acute injuries that were acquired in the workplace. Developed individualized treatment plans for a variety of patients with acute musculoskeletal injuries. Developed positive professional relationships with patients rooted in trust.

University of Nevada, Las Vegas, Teaching Assistant | Jul. 2021-Jul. 2022

- Developed and led review sessions for first year physical therapy students and undergraduate students. Conducted one-on-one tutoring sessions with first year students. Assisted with development and proctoring of exams and quizzes.

Reno Sport and Spine Institute, Physical Therapy Technician | Jul. 2019-Mar. 2020

- Assisted physical therapists with patient care. Worked closely with patients to ensure their safety and provide care via modalities such as ultrasound and electrical stimulation. Performed administrative tasks as needed.

Truckee Meadows Community College Tutoring and Learning Center | Jan. 2015-May 2020

- Lead tutor
- Subjects tutored: writing and anatomy & physiology
- Worked closely with individuals ranging in age from 16 to 82. Worked closely with individuals with physical and mental disabilities. Adapted tutoring style to the learning style of each individual student. Trained new tutors and instructed them on best practices. Assisted in planning and leadership of staff meetings. Assessed quality of tutoring sessions by conducting observations semesterly.

Galena Sport Physical Therapy, Physical Therapy Technician | Apr. 2016-Aug. 2016

- Learned proper execution of common exercises used in physical therapy. Worked closely with patients to lead them through exercises and ensure their safety.

Extracurricular Activities & Volunteer Work

Challenger Little League, Coach | April-June 2009-2019

- Worked closely with individuals with disabilities ranging in age from 7 to 40. Provided encouragement and positive feedback to each player. Ensured the safety of the players.

University of Nevada, Reno, NevadaFIT Mentor | August 2018

- Mentored incoming freshmen to the University of Nevada, Reno. Underwent training to support individuals going through a significantly emotional experience. Worked closely with young individuals to ensure a successful transition from high school to college.

University of Nevada, Reno, Dissection Assistant | August 2017-May 2018

- Dissected four different cadavers over the course of two semesters. Assisted in teaching the anatomy & physiology labs. Dissected, identified, and taught various anatomical structures on the cadavers to anatomy & physiology students.

Nevada Physical Therapy Club President | May 2016 - May 2018

- Organized events, guest lecturers, and outreach opportunities. Prepared presentations for each meeting. Led discussions and coordinated efforts among the other club officers.

Professional Memberships

American Physical Therapy Association Member | June 2020-Present

Certifications

American Heart Association, BLS for Healthcare Providers | April 2022

The OTAGO Exercise Program: Falls Prevention Training | November 2021

STEADI: Empowering Healthcare Providers to Reduce Fall Risk | August 2021

Collaborative Institutional Training Initiative (CITI) | August 2021

Current Research Activity

Parker, C. & Sharp, J. Association between rural background and physical therapist practice location.

Jace-Anne Sharp

jacesharp29@gmail.com

Education

DPT	University of Nevada, Las Vegas – Physical Therapy Las Vegas, NV	2020 – present
BS	University of Wyoming – Laramie, WY Kinesiology	2016 – 2020

Licensure

Wyoming Board of Physical Therapy – License Pending Graduation May 2023

Certifications

American Heart Associated, BLS for Healthcare Providers (April 2021 – April 2023)
OTAGO Certified (November 2021)
STEADI Toolkit Certified (September 2021)
HIPPA Training Certified (2021)
Blood-borne Pathogens Training Certified (2021)

Employment / Clinical Experience

Jan 2023 – March 2023	Rural Outpatient Orthopedic Clinical Experience – Advantage Rehab – Cody, WY Completed initial examinations, discharge planning, re-evaluations, progress notes, and daily treatment sessions for patients with a variety of pathologies and diagnoses including post-op, general de-conditioning, cardiac rehabilitation, and vestibular conditions. Administered treatments including blood flow restriction, soft tissue techniques, mobilizations and manipulations, and exercise prescription.
Sept 2022 – Dec 2022 Flagstaff, AZ	Acute Care Clinical Experience – Flagstaff Medical Center – Initiated care for patients admitted to the ICU, Surgical ICU, Cardiovascular ICU, Progressive Care Unit, and MedSurg Unit including evaluations, follow-up visits, and discharges. Performed transfers on CGA-maxA patients. Monitored patient vitals and adjusted treatment accordingly. Educated patients on precautions, discharge planning recommendations and DME recommendations. Collaborated with an interdisciplinary team to include physicians, nurses, respiratory therapists, occupational therapists, and pharmacists.
July 2022 – Sept 2022 Antioch, TN	Inpatient Clinical Experience – Life Care Center of America – Completed initial evaluations, participated in discharge planning and care planning, completed progress reports and re-certifications,

administered daily exercises regimens to patients, assisted patients in bed mobility, transfers, gait training, and motor control techniques with the goal of discharging to a location fit for their level of functioning.

Aug 2021 – May 2022
Las Vegas, NV

Teaching Assistant – University of Nevada, Las Vegas –

Created and organized schedules for events such as Fall Prevention Screening, Integrated Clinical Experiences for the Class of 2023. Conducted literature reviews on multitude of topics. Edited videos and PowerPoint presentations. Assisted in administering lab tasks and held open labs for class of 2024.

June 2021 – July 2021

Rural Outpatient Clinical Experience – Banner Physical Therapy – Kingman, AZ

Conducted initial evaluations, administered interventions such as manual therapies, modalities, therapeutic exercises, and education to patients with pathologies ranging from AV fistula to low back pain to total knee arthroscopies.

May 2018 – May 2020
Center – Laramie, WY

Physical Therapy Technician – Premier Bone and Joint

Supervised patients when completing therapeutic exercises, assisted physical therapists with cleaning up and sanitizing, restocking items in the clinic, completing front desk activities such as answering phones and scheduling patients.

Membership in Professional Organizations

Member of American Physical Therapy Association (2020 to present) #902653

Member of Wyoming Physical Therapy Association (2021 to present)

Service / Volunteer Activity

Fall Risk Screening Henderson Downtown Senior Center (9/23/2022)

I answered Physical Therapy related questions from participants who underwent fall screening. Address concerns of participants in relation to their fall risk and reducing or preventing fall risk.

Political Action – CMS Proposed Medicare Cuts (2020, 2021, 2022)

I sent an email to my state senators in opposition to CMS proposed Medicare cuts. I also educated my friends and family on the importance of this not occurring. Through this advocacy, I received confirmation that many filled out the pre-populated email form and sent to their state senators.

IPEP (2/18/2022)

Interacted with and completed case studies with students from the Medical school, Dental school, Nursing program, and Occupational Therapy program to better understand each discipline's role in the healthcare setting.

Las Vegas High Rollers Wheelchair Rugby (11/2021 – 1/2022)

Assisted in counting and reporting penalties for wheelchair rugby games.

UNLVPT Class of 2025 Interviews (1/20/2022 – 1/21/2022)

Coordinated and organized food set-up and take-down. Mingled with applicants and fielded questions from interviewees. Directed applicants to appropriate interview room.

Rock Steady Boxing (9/2021-12/2021)

Interacted with participants with each exercise, assisted participants with setting up, coaching participants through exercises, and helped with set-up and break down of equipment for the class.

Shelby Estocado Charity Golf Tournament (10/24/2021)

I recruited and organized volunteers to assist in pinning holes, selling raffle tickets, and other items to raise money. Along with organizing this event, I volunteered to pin holes, sell raffle tickets, and assist during the reception in organizing guests and raffle prizes.

PT Day of Service (10/9/2021)

Created inspiration posters for children with disabilities receiving customized bicycles in partner with AMBUCS and wrote letters to seniors in isolation around the world in partner with APTA Indiana and Letters Against Isolation.

Rural Clinical Open House (9/9/2021)

Answered questions related to rural clinical experience for the class of 2024 cohort. Gave insight into my specific clinical site and experience as well as general experience working in a rural area in a physical therapy setting.

Baseline Concussion Testing – Bishop-Gorman High School (7/30/2021)

Administered baseline concussion screening tools such as dynamic visual acuity and a balance test to high school freshman and junior football players.

Current Research Activity

Kins K, **Sharp J**, Parker C. (2023) The association between rural background and physical therapist practice location.

Continuing Education Attended

Journal Club (3/1/2023)

Discussion of *“Evidence of ACL healing on MRI following ACL rupture treated with rehabilitation alone may be associated with better patient-reported outcomes: A secondary analysis from the KANON trial”*

Therapeutic Pain Neuroscience Education (3/25/2022)

Dr. Adriaan Louw

Nevada Physical Therapy Board Meeting (11/12/2021, 1/14/2022, 3/28/2022)

Combined Sections Meeting (February 2022)

Distinguished Lecture Series (11/18/2021-11/19/2021)

Dr. Julie Fritz, *“Pain Management in a Time of Dueling Pandemics”*, *“Evidence-Based Physical Therapy for Patients with Low Back Pain: Past, Present and Future”*

Therapeutic Pain Neuroscience Education (4/30/2021)

Dr. Adriaan Louw

Brown Bag Lecture (2/19/2021)

Dr. Garcia and Dr. Garcia, *“How Two UNLVPT Alums Paid Off \$300,000 in Student Loans In Under 3 years”*

Distinguished Lecture Series (11/5/2020-11/6/2020)

Dr. Catherine Lang, *“Wearable sensors are changing how we think about movement and rehabilitation”*, *“Attempting to improve stroke rehabilitation across the translational pathway”*