



2020 Arizona Physical Therapy Workforce Report

ARIZONA STATE BOARD OF PHYSICAL THERAPY

In Memory of Karen Donahue, PT, DPT, *Former Executive Director*
Her vision and leadership inspired this effort

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Executive Summary

The purpose of this report is to summarize the demographic and workplace characteristics of Arizona physical therapists (PTs) and physical therapist assistants (PTAs). These data were collected on a sample of PTs and PTAs as part of the renewal for PT license and PTA certification in 2020. Physical therapy is a health profession that promotes, maintains, and restores movement and physical function for people at risk for or impacted by disease or injury. For this report, PTs and PTAs with missing zip codes or zip codes that were out of Arizona were excluded, leaving 4,631 PTs and 1,564 PTAs for analysis. On average, PTs and PTAs are in their early- to mid-40's and are overwhelmingly White. Most PTs have a Doctor of Physical Therapy (DPT) and most PTAs have an Associate degree. The proportion of PTs with a DPT will increase as those with other degrees age out of the profession. The large majority of PTs and PTAs provide clinical care as their primary job responsibility, directly impacting the health and function of the people of Arizona. Further evidence for this is that approximately an equal number of PTs state they will increase and decrease the number of hours providing care with the majority reporting their hours of care will remain the same. For PTAs, more state they will increase number of hours compared to decreasing hours. Despite some data potentially showing many PTs and PTAs providing clinical care to the Arizona population, there is tremendous variability by county in the density of both PTs and PTAs. Overall, in Arizona, there are 3.9 PTs and 1.5 PTAs per 10,000 population or 5.5/10,000 population when PTs and PTAs are considered together. Some counties (i.e., Apache, Graham, Greenlee, La Paz, Navajo, and Santa Cruz) have a very low number of PTs and PTAs relative to the population size, ranging from 0.42 PTs and PTAs/10,000 population (Santa Cruz county) to 3.1/10,000 population (Navajo county). This contrasts with Coconino county (8.2/10,000 population driven in large part by the number of PTs relative to population size) and Mohave county (5.7/10,000 population driven by the number of PTAs relative to population size). These data should continue to be monitored to ensure a sufficient workforce in physical therapy to meet the needs of Arizona residents

Introduction

A working group, consisting of physical therapy administrators, clinicians, and researchers, was convened by the Arizona State Board of Physical Therapy in February 2021. The purpose of this working group was to examine the demographic makeup and geographic distribution of Physical Therapists (PTs) and Physical Therapist Assistants (PTAs) in the state of Arizona. Over the course of 8 meetings over 12 months, the 2020 PT and PTA licensure renewal data were analyzed and interpreted. This report summarizes the findings of this working group.

In the state of Arizona, the practice of physical therapy is defined as:

“(a) Examining, evaluating and testing persons who have mechanical, physiological and developmental impairments, functional limitations and disabilities or other health and movement related conditions in order to determine a diagnosis, a prognosis and a plan of therapeutic intervention and to assess the ongoing effects of intervention.

(b) Alleviating impairments and functional limitations by managing, designing, implementing and modifying therapeutic interventions including:

- (i) Therapeutic exercise.
- (ii) Functional training in self-care and in home, community or work reintegration.
- (iii) Manual therapy techniques.
- (iv) Therapeutic massage.
- (v) Assistive and adaptive orthotic, prosthetic, protective and supportive devices and equipment.
- (vi) Pulmonary hygiene.
- (vii) Debridement and wound care.
- (viii) Physical agents or modalities.
- (ix) Mechanical and electrotherapeutic modalities.
- (x) Patient related instruction.

(c) Reducing the risk of injury, impairments, functional limitations and disability by means that include promoting and maintaining a person's fitness, health and quality of life.

(d) Engaging in administration, consultation, education and research.”¹

Physical Therapists

Physical therapists are “movement experts who improve the quality of life of individuals with functional problems through prescribed exercise, hands-on care, and patient education.”² PTs work within the entirety of the healthcare system, treating patients across the lifespan. PTs work with people in primary, secondary, and tertiary prevention to maximize participation and quality of life.

As a member of the healthcare team, a PT will examine each individual and, in concert with the individual, develop a treatment plan to reach their health and movement goals. In Arizona, an individual is permitted to receive care from a PT without a referral or prescription from a physician.¹ All PTs licensed by the Arizona State Board of Physical Therapy must graduate from an accredited program in Physical Therapy (Commission on Accreditation in Physical Therapy Education³) or have their education credentialed for equivalency.¹ All PTs with an Arizona license are required to maintain contemporary expertise through continuing education required for renewal of the PT license. Some PTs also continue their education and training with residencies and fellowships,⁴ or board certification⁵ in one of 10 specialty areas (e.g., pediatrics, oncology). The laws and rules of the state of Arizona define the PT scope of practice.¹

Physical Therapist Assistants

Physical therapist assistants “implement components of patient care, obtain data related to the treatments provided, and collaborate with the PT to modify care as necessary.”⁶ All PTAs certified by the Arizona State Board of Physical Therapy¹ must graduate from an accredited program.³ All PTAs certified in Arizona are required to maintain contemporary expertise through continuing education required for renewal of the PTA certificate. The laws and rules of the state of Arizona define the PTA scope of work.¹

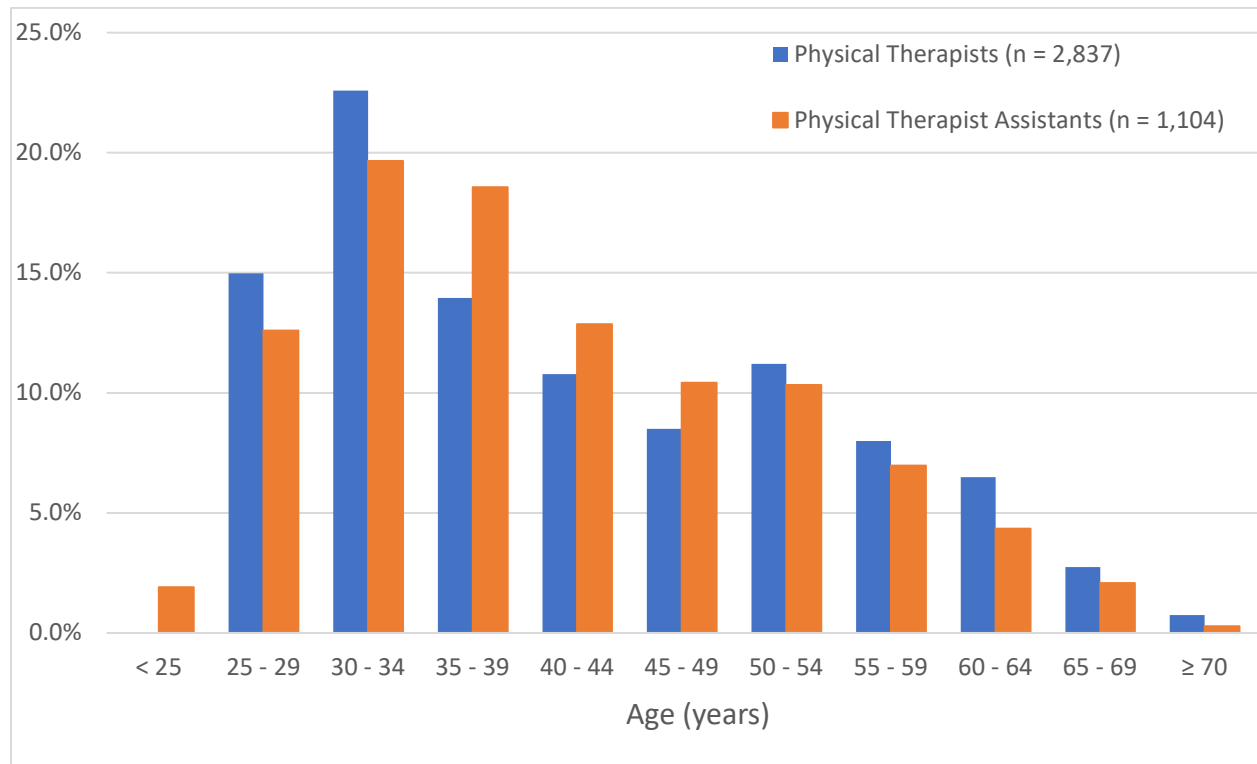
Data and collection

In April 2020, all individuals with a physical therapist license or a physical therapist assistant certificate were sent renewal notification for the period of September 1, 2020 – August 31, 2022. In addition to licensing renewal information, individuals were asked about demographic information as part of an Arizona workforce statute.⁷ PTs and PTAs were added to this data collection starting in 2019. A copy of the questions asked of all PTs and PTAs for renewal is included in Appendix A. For the renewal period stating September 1, 2020, 5,428 PTs and 1,772 PTAs completed the required information. For the purpose of this report, those with missing zip codes or zip codes that were out of Arizona were excluded, leaving 4,631 PTs and 1,564 PTAs for analysis. Further details about the methods and analysis are included in Appendix B.

Demographic characteristics of Physical Therapists (PTs) and Physical Therapist Assistants (PTAs)

Age

Figure 1. Age distribution of PTs (n = 2,837) and PTAs (n = 1,104) providing direct clinical care†, Arizona, 2020*



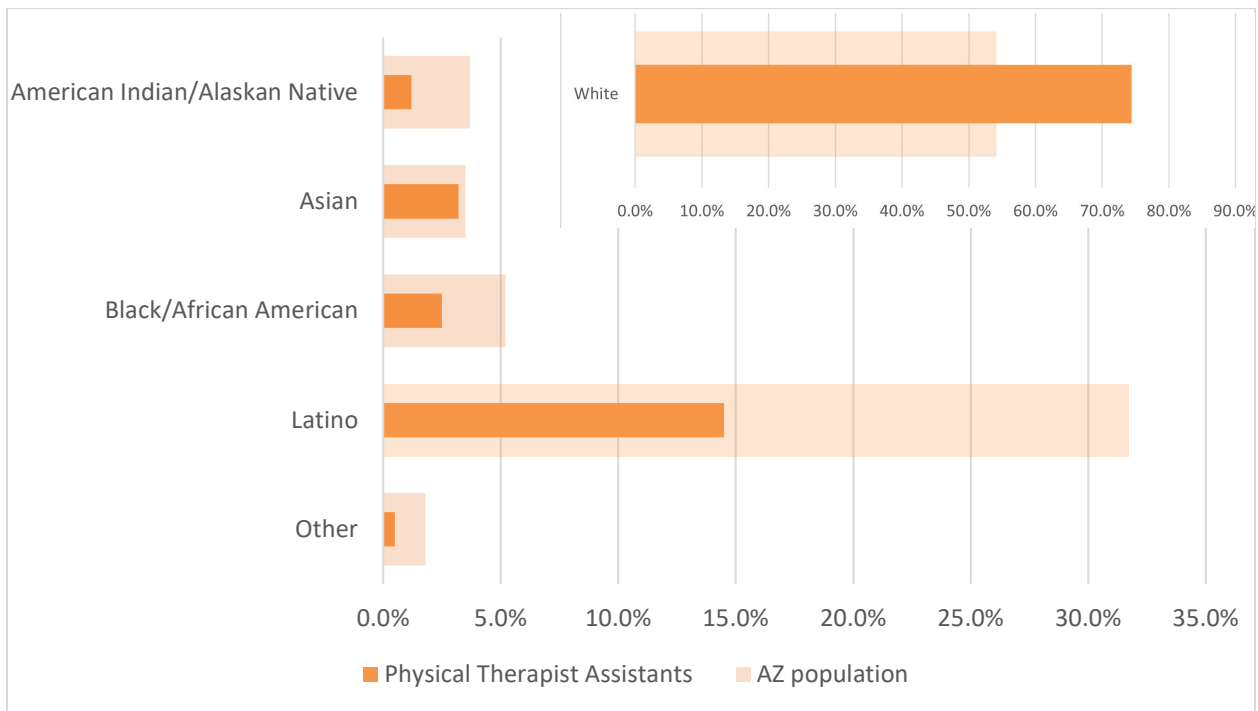
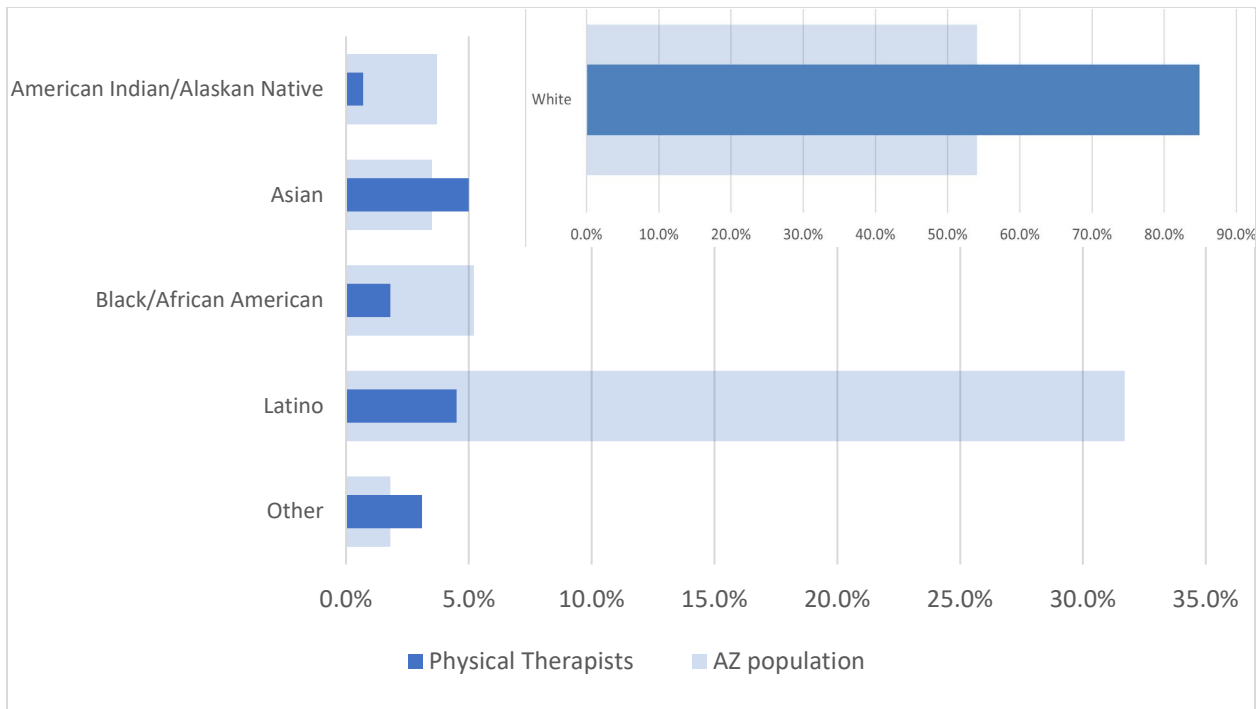
* = 521 PTs and 186 PTAs missing

† = include only those who reported the primary job responsibility was clinical care

On average, PTs were 44.1 years old (standard deviation [SD] = 12.3 years) and PTAs were slightly younger at 41.6 (11.1) years old. When limiting to the PTs and PTAs who were providing direct patient care (Figure 1), 63% of the PTs and PTAs were between 25 and 44 years old.

Race and Ethnicity

Figure 2. Race/ethnicity distribution of PTs (top panel [blue]; n = 4,631) and PTAs (bottom panel [orange]; n = 1,549) and Arizona state population, Arizona, 2020*



* = 15 PTAs did not answer this question

The overwhelming majority of PTs (Figure 2 top panel) and PTAs (Figure 2 bottom panel) in Arizona are White. The proportion is far larger than the White population in Arizona, especially for PTs. Race and ethnic groups with higher representation in Arizona (notably Latino and American Indian/Alaskan

Native) are severely underrepresented in both PT and PTA, but especially PT. Less than 5% of PTs reported Latino ethnicity and less than 1% of PTs reported American Indian/Alaskan Native race despite 31.7% and 3.7%, respectively, in Arizona’s population. It is important to note that race and ethnicity were collected with one question, and only one response was allowed.

Educational degree

Table 1. Highest educational degree of PTs and PTAs, Arizona, 2020

	PTs; n = 4,641*	PTAs; n = 1,564
	n (%)	n (%)
Associate	3 (0.1%)	1,207 (77.2%)
Bachelor	730 (15.7%)	318 (20.3%)
Master	919 (19.8%)	23 (1.5%)
Doctor of Physical Therapy	2,890 (62.3%)	3(0.2%)
Doctor of Science/Doctor of Philosophy (PhD)	70 (1.5%)	1 (0.06%)
Other	29 (0.6%)	12 (0.8%)

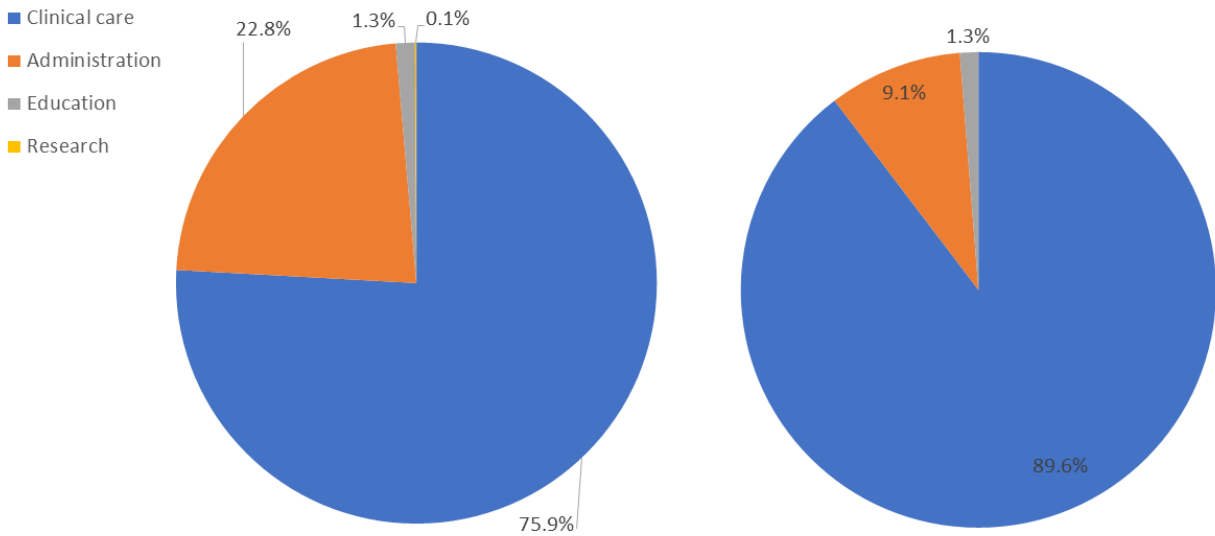
* = respondents were able to select more than one option

The minimum entry-level degree for PTs is currently a Doctor of Physical Therapy (DPT); and for PTAs the degree is an Associate degree. As expected, the highest proportion of PTs had a DPT and PTAs had an Associate degree (Table 1). It is reasonable to assume that the relative proportion of PTs with a DPT will continue to increase as this is the mandatory entry-level degree as of January 2016,⁸ and those with undergraduate degrees will start to retire out of the profession.

Employment characteristics of PTs and PTAs

Primary employment responsibilities

Figure 3. Primary job responsibility for all PTs (left panel; n = 4,426) and PTAs (right panel; n = 1,439), Arizona, 2020*



* = 215 PTs and 125 PTAs did not answer this question

Most PTs and PTAs spent most of their time working in direct clinical care (Figure 3), an expected finding. This was true for those who worked both full- and part-time. More than 70% of PTs (75.7%) and PTAs (70.5%) reported working at least 32 hours per week with 39.0% and 19.9% of PTs and PTAs reporting working more than 40 hours per week, respectively. PTs were also involved in administration at a fairly high proportion, with very few PTs (n = 4) and no PTAs with primary responsibility in research. A higher proportion of those PTs working part-time (i.e., 20 or fewer hours per week) were in education or teaching (data not shown).

Future employment hours planned

Table 2. Future plans for hours worked for PTs and PTAs providing clinical care, Arizona, 2020

	PTs; n = 2,913 n (%)	PTAs; n = 1,290 n (%)
Continue same number of clinical care hours	2,651 (91.0%)	1,054 (81.7%)
Decrease numbers of clinical care hours	135 (4.6%)	69 (5.3%)
Increase numbers of clinical care hours	127 (4.4%)	167 (12.9%)

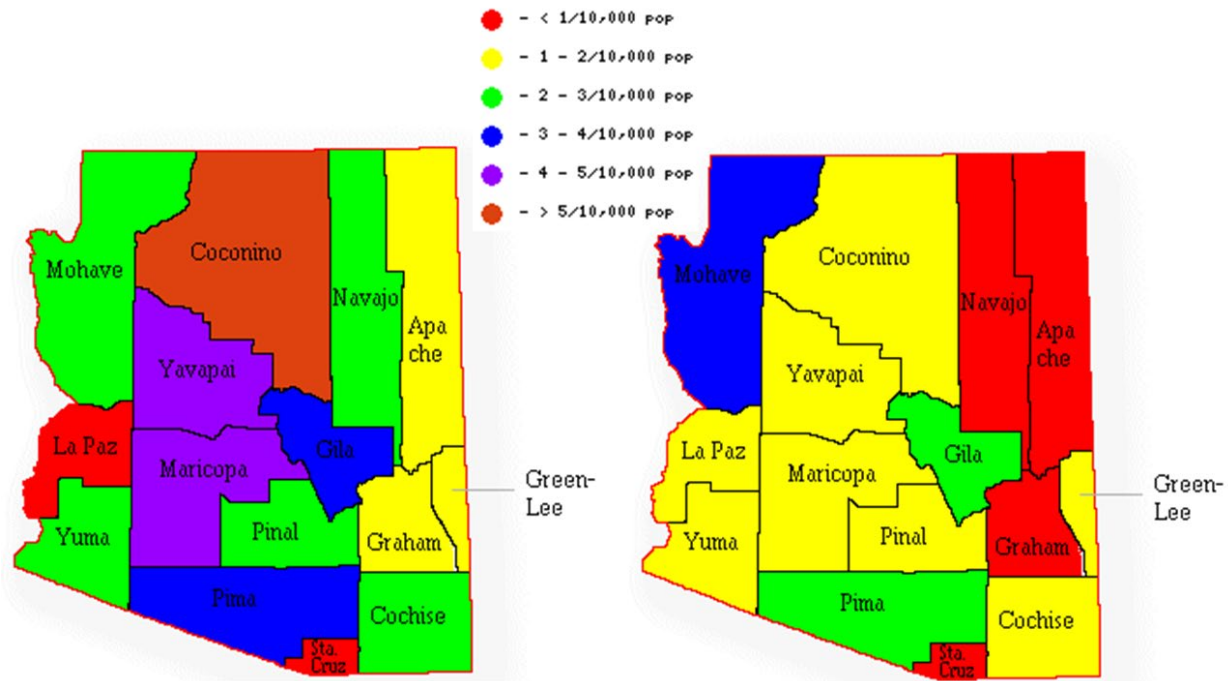
* = 445 PTs did not answer this question

Most PTs and PTAs reported that they would continue working the same number of hours in the future (Table 2). The number of PTs who reported increasing and decreasing the number of hours work was about the same, potentially creating no large changes in number of PTs (although these data were unable to state that definitively). For PTAs, more stated that they were planning to increase hours,

which may signal more availability for PTA services, although again, caution must be exercised with this interpretation.

Number and human resource for health ratios of Physical Therapists (PTs) and Physical Therapist Assistants (PTAs) by County, Arizona, 2020

Figure 4. Number of PTs (left panel; n = 2,818) and PTAs (right panel; n = 1,097) per 10,000 population by county, Arizona, 2020



Source: diymaps.net [c]

Table 3. Number and density of PTs and PTAs by County, Arizona, 2020

County	Number of PTs*	Number of PTAs*	Population	PTs/10,000 population	PTAs/10,000 population	PT&PTA/10,000 population
Apache	11	1	66,021	1.67	0.15	1.82
Cochise	33	20	125,447	2.63	1.59	4.22
Coconino	99	20	145,101	6.82	1.38	8.20
Gila	17	12	53,272	3.19	2.25	5.44
Graham	4	0	38,533	1.04	0	1.04
Greenlee	1	1	9,583	1.04	1.04	2.09
La Paz	1	2	16,557	0.60	1.21	1.81
Maricopa	1,913	633	4,420,568	4.33	1.43	5.76
Mohave	58	64	213,267	2.72	3.00	5.72
Navajo	24	9	106,717	2.25	0.84	3.09

Pima	414	215	1,043,443	3.97	2.06	6.03
Pinal	88	54	425,264	2.07	1.27	3.34
Santa Cruz	1	1	47,669	0.21	0.21	0.42
Yavapai	103	44	236,206	4.36	1.86	6.22
Yuma	51	21	203,881	2.50	1.03	3.53
Arizona	2,818	1,097	7,151,132	3.94	1.53	5.47

* = 1,813 PTs and 467 PTAs did not include zip code

For the state of Arizona, there were 3.94 PTs and 1.53 PTAs per 10,000 population. There was tremendous variety in density of PTs and PTAs by county (Figure 4, Table 3). For PTs, the density ranges from 0.21 PTs per 10,000 population (i.e., approximately 2 PTs for every 100,000 residents in Santa Cruz County to almost 7 PTs (6.82) per 10,000 population in Coconino County. For PTAs, the numbers were smaller, but still a substantial range from no PTAs in Graham County to 3.0 PTAs per 10,000 population in Mohave County. As expected, Maricopa County reflected the state averages befitting the population size in this county.

Some of the counties ‘balance’ low density of 1 provider with a higher density in the other provider category (Table 3). For example, Mohave County had a high density of PTAs to perhaps help ‘balance’ the relatively low density of PTs (2.72 PTs per 10,000 population). Conversely, Maricopa County had a greater than average density of PTs (4.33 PTs per 10,000 population), but lower than average density of PTAs (1.43/10,000 population). *Even with the combined density of PTs and PTAs, there was still substantial variability in the number of professionals to address the physical therapy needs in Arizona.*

Discussion

The purpose of this report was to summarize the demographic and employment characteristics of PTs and PTAs working in Arizona and explore the PT and PTA distribution in Arizona. Overall, the data showed that the PTs and PTAs in Arizona are working full-time with potentially more years to continue working. The PTs and PTAs do not reflect the race and ethnic diversity of Arizona. There is substantial variation in coverage for physical therapy services with highest penetration in counties with college and universities with associated education programs: for PT, Coconino and Maricopa counties and for PTA, Mohave and Pima counties.

Workforce projections

Although not the primary purpose of the data collected during license/certificate renewal or this report, the workgroup’s discussions about the concepts of this report included a discussion about workforce

projections and whether the supply and composition of PTs and PTAs in Arizona will meet the healthcare needs of the Arizona population. Unfortunately, there are no data to draw preliminary findings for PTAs, so this section of the report will address only PTs.

In 2010, Zimbleman, et al.⁹ used data from the Bureau of Labor Statistics (BLS) (PT jobs and not individuals) and Census Bureau from 2000, 2004, and 2008 to estimate supply, and data from the Centers for Medicare and Medicaid Services (CMS) and Census Bureau estimates to estimate demand. This model projected severe shortages of 140,345 PTs in 2030 for the United States. The demand outpacing the supply was particularly pronounced in the American South and West, with Arizona having a projected shortage of approximately 8,067 PT jobs by 2030. It is important to recognize that this is about jobs rather than individuals. This is also reflected in the BLS website that states that employment for PTs is “projected to grow 21 percent from 2020 to 2030, much faster than the average for all occupations.”¹⁰

More recently, the American Physical Therapy Association (APTA) published a workforce analysis report¹¹ in an attempt to determine if the supply of PTs is keeping pace with increased demand from population growth from 2020 to 2030. For supply, PTs represented by full-time equivalents (FTE) was based on the number of new entrants to the workforce minus attrition from the profession, including part-time workers. Demand was estimated using Census Bureau data for the US population with health insurance. Based on current graduation, licensing, and attrition trends, the model predicted an estimated surplus of 25,235 PTs by 2030. This model did not account for potential changes to service delivery or population demographics served by physical therapy.

The APTA analysis,¹¹ with a surplus of approximately 25,000 PTs by 2030, conflicts with the findings of Zimbleman, et al.⁹ who predicted a demand of over 140,000 PTs by 2030. Although differences in methodology may account for some of the discrepant findings, the inability to make a conclusion about workforce projections highlights the need for better data collection on how many PTs are working in the US and specific states. There may also be opportunities to evaluate existing imbalances in the geographic distribution of PTs and meet the healthcare needs due to changing population characteristics. The impact of the COVID-19 pandemic was not included in either of these workforce models and obviously may impact the PT supply and demand.

Comparison with other states

In the US, there were 223,751 licensed physical therapists and 105,892 licensed physical therapist assistants in the United States (2019) reported in the APTA Workforce analysis.¹¹ This equates to human ratios for health (HRH) of 68 PTs per 100,000 people (6.8 per 10,000 population) and 32 PTAs per 100,000 people (3.2 PTAs per 10,000 people). These data show that Arizona ranks near the bottom for HRH for PTs (4.8 per 10,000 population), with only Nevada, Georgia, Alabama, and Hawaii lagging. This number is slightly higher than reported with the 2020 data of those working in Arizona (3.9 per 10,000 population) and may reflect the differences between those with Arizona licenses (APTA report) vs. those working in Arizona (this report) and missing data in the current report. For PTAs, APTA reported 2.0 PTAs per 10,000 population, which is close to 1.5 PTAs per 10,000 population reported herein. Again, Arizona is near the bottom for the number of PTAs relative to the population, with North and South Dakota, Nevada, California, Georgia, Pennsylvania, New Jersey, Alaska, and Hawaii trailing. Taken together, it appears that only Nevada, Georgia, and Hawaii have fewer PTs and PTAs relative to the population than Arizona.

For a historical comparison, Landry, et al.¹² calculated HRH for PTs only (PTAs not included) by state using the APTA data (i.e., licenses rather than people employed in Arizona). Arizona experienced an increase in the HRH for PTs from 1995 to 2005 of 41.3% (from 3.96 to 5.56 PTs per 10,000 population). This closely reflected the population change in Arizona during the same timeframe (40.3%). Unfortunately, this analysis has not been replicated for future years to know if the number of PTs continued to keep pace with the 11.5% population increase in Arizona from 2010 to 2020.¹³

The Arizona Workforce is not reflective of racial and ethnic diversity in the state of Arizona, with almost 85% of PTs and 75% of PTAs reporting White race compared with 54% of the Arizona population. One other state (North Dakota) has reported race characteristics of the PTs and PTAs.¹⁴ The proportion of PTs who report race as White (82%) was very similar to Arizona, but there was a very low proportion of White PTAs (13.7%). The number of PTs and PTAs reporting ethnicity in Arizona is also very low (4.5% and 14.5%, respectively) relative to the overall population (31.7%).

Continuing to assess data for PTs and PTAs living and working in Arizona should be a priority to ensure adequate workforce diversity to meet the needs of the growing Arizona population.

Limitations of this Report

This report gives an initial examination of the demographic and employment characteristics of PTs and PTAs working in Arizona. It is important to note that these data were collected during the COVID pandemic. Additionally, there are PTs and PTAs who work in Arizona but are not represented in this report as they do not have an Arizona license (PT) or certificate (PTA). This includes temporary workers (e.g., those employed by established athletic teams, organizations, or performing arts), professionals working in the United States Armed Forces, United States Public Health Service or Veterans Administration, and those who are working in Arizona under the PT Compact (an agreement between member states to improve access to physical therapy services for the public by increasing the mobility of eligible physical therapy providers to work in multiple states).¹⁵ This report does not include other potentially important variables that can help better describe the PTs and PTAs and allow comparison with other states as well as nationally. Sex and/or gender identity was not part of the renewal questions. National estimates of sex report between 65% - 70% female for PTs and 63% - 71% male,¹¹ but information for Arizona is currently not known. It is also important to note that race and ethnicity were collected with one question, and only one response was allowed. Future data collection efforts should consider querying about race separately from ethnicity and allowing more than one response to potentially allow a more complete description of the demographics of PTs and PTAs. PTs and PTAs work in a variety of settings, including acute hospitals, Inpatient Rehabilitation Facilities, Skilled Nursing Facilities, Home Care agencies, Outpatient clinics (both those affiliated with hospital or other clinical care settings or privately run), school systems, etc. For workforce planning, knowing this information for Arizona would be invaluable. Unfortunately, questions about settings were not asked as part of the renewal application. Finally, many of the questions had significant missing data. Efforts to not allow missing or out of range values (i.e., zip codes that are 4 digits) would help increase the validity of the collected data.

The APTA and the National Center for Health Workforce Analysis have created a Physical Therapy Minimum Data Set (PTMDS) to facilitate enhanced data collection to describe the PT and PTA workforce.¹¹ Future data collection should consider adoption of these questions to provide additional information about PTs and PTAs and to allow comparative evaluation with other states and the nation, as well as used for more precise workforce planning.

Conclusion

This report used data from license and certificate renewal to describe the demographic and work characteristics of PTs and PTAs in 2020 in Arizona. Additionally, similar data in different states and nationwide were provided to allow for contextual information. PTs and PTAs are White, have many years left for working age, and work in areas with educational institutions for PT and PTA degrees. Differences in methodology and missing data in the current report make comparisons to other states and nationwide difficult, but PTs and PTAs in Arizona reflect race and ethnic representation less well perhaps than in other states. Overall, Arizona also has fewer PTs and PTAs relative to the population than most other states in the US. Continued data collection efforts can help with Arizona workforce planning.

Acknowledgements

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Appendices

Appendix A. Copy of renewal questionnaire

Demographic Questions (questions refer to your most recent practice setting)	
1. "Race" means an individual's self-identification or affiliation with one of the following categories used to identify individuals according to historical or phenotypical characteristics.	<input type="checkbox"/> White/Caucasian <input type="checkbox"/> Black/African <input type="checkbox"/> American Native <input type="checkbox"/> Hawaiian/Other Pacific Islander <input type="checkbox"/> Asian <input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Latino/Spanish <input type="checkbox"/> Other
2. Principle Practice Site State (fill in the blank)	_____
3. Zip Code (fill in the blank)	_____
4. Over the last 12 months at principal practice site, average hours worked per week	<input type="checkbox"/> Less than 10 hrs <input type="checkbox"/> 11 to 20 hours <input type="checkbox"/> 21 to 31 hours <input type="checkbox"/> 32 to 40 hours <input type="checkbox"/> 40+ hours
5. Of the hours at principal site, primary responsibilities (check all that apply)	<input type="checkbox"/> Direct Clinical/Patient Care <input type="checkbox"/> Administration <input type="checkbox"/> Research <input type="checkbox"/> Teaching/Education <input type="checkbox"/> None Applicable
6. Plans in Arizona prior to the next renewal of license	<input type="checkbox"/> Increase direct clinical/patient care hours <input type="checkbox"/> Decrease direct clinical patient care hours <input type="checkbox"/> Continue number of direct clinical/patient care hours
7. If plan to reduce direct clinical/patient care hours, indicate all that apply	<input type="checkbox"/> Plan to practice outside AZ <input type="checkbox"/> Plan to seek a position that does not provide direct clinical/patient care <input type="checkbox"/> Plan to retire from direct clinical/patient care <input type="checkbox"/> None Applicable
8. Highest Level of Education as related to work performed in primary work site	<input type="checkbox"/> Associates Degree <input type="checkbox"/> Bachelor Degree <input type="checkbox"/> Master Degree <input type="checkbox"/> Clinical Doctorate Degree (DPT) <input type="checkbox"/> PhD <input type="checkbox"/> DSc <input type="checkbox"/> Other

Appendix B. Data source description and analysis

The data for the demographic and employment characteristics of the PTs and PTAs came from the licensure renewal period due to new legislation to collect information on the healthcare workforce.⁷ In April 2020, all individuals with a physical therapist license or physical therapist assistant certification were sent renewal notification for the period of September 1, 2020 – August 31, 2022.

For the renewal period starting September 1, 2020, 5,428 PTs and 1,772 PTAs completed the required information. The purpose of this report was to describe the characteristics of PTs and PTAs currently working in Arizona and explore the PT and PTA distribution in Arizona. Therefore, those PTs and PTAs who reported working in another state or those who did not have an Arizona zip code (or missing zip code) were excluded, leaving 4,631 PTs and 1,564 PTAs for analysis. Age was calculated from birthdate. The race categories of Native Hawaiian/Other Pacific Islander and Other were combined due to small cell size.

For the human ratios for health (HRH), the framework from Diallo, et al.¹⁶ was used. The numerator was the population of PTs and PTAs working within each county. County-level numbers were derived from zip codes as the question in the questionnaire asked for the zip code where the individual worked. The denominator was the county-level population from the 2020 US Census.¹⁷ The HRH was calculated as the ratio between these 2 numbers, expressed relative to a population size of 10,000 for easier interpretation.