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Bridging The Gap Between Ancillary Health Professions And Rural Community Health Needs

McKenzie Rae Peterson

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BRIDGING THE GAP BETWEEN ANCILLARY HEALTH PROFESSIONS
AND RURAL COMMUNITY HEALTH NEEDS

by

McKenzie Rae Peterson

Occupational Therapy Doctorate, University of North Dakota, 2022

A Scholarly Project

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of the

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This scholarly project, submitted by McKenzie Peterson in partial fulfillment of the requirements for the Degree of Occupational Therapy Doctorate from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Sarah Nielsen, PhD, OTR/L, FAOTA

Dr. Sarah Nielsen

4/14/2022

Date

PERMISSION

Title	Bridging the Gap Between Ancillary Health Professions and Rural Community Health Needs
Department	Occupational Therapy
Degree	Occupational Therapy Doctorate

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McKenzie Peterson
4/13/22

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ABSTRACT

Introduction

       Rural communities are home to nearly one-fifth of the American population, and they face unique challenges when working to access healthcare (Health Resources & Services Administration, 2021; Slagle et al., 2012). Ancillary health professionals (AHPs) are healthcare professionals, excluding physicians, nurses, and dentists (Ancillary Care Services, 2015). The scholarly project aimed to find what evidence existed in regard to bridging the gap between the healthcare needs of rural communities, and the availability of AHPs.

Methods

       The scoping review followed the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR)* guidelines (Tricco et al., 2018). Based on the findings of the scoping review, additional products were developed and disseminated. Projects were developed following Dunn et al.'s (1994) framework, *Ecology of Human Performance,* in an attempt to understand the person, context, and task interactions to increase the overall performance range of rural AHPs.

Results

       At the completion of the scholarly project, the researcher had developed several products including: (a) a rural health lecture, (b) a newsletter discussing the resources available through the Rural Health Information Hub, (c) an advocacy letter to a state licensure board discussing increased data collection, (d) a poster presentation on the benefits of more licensure data collection, (e) a poster on the findings of the scoping review, and (f) a scoping review produced for journal publication consideration.

Discussion

There continues to be a need for increased rural healthcare access and greater AHP workforce development. Education, recruitment, and retention are all valuable components in expanding the AHP performance range to ensure that the needs of rural communities can be appropriately addressed. By preparing students for future rural practice, and ensuring that practitioners have the appropriate supports, the AHP workforce can be enhanced and bolstered to meet and exceed the healthcare needs of rural communities.

Keywords: rural, scoping review, ancillary health professionals, allied health, workforce

Rural communities in the United States are home to nearly one-fifth of the national population

(Health Resources & Services Administration [HRSA], 2021). Rural communities face different challenges

than their urban counterparts. Some of these challenges include (a) a lack of ancillary health providers,

(b) a lack of specialty services, and (c) an imbalance between the available providers and the needs of

the rural population (Healthcare Workforce Data Center, 2019; Lin et al., 2015; Slagle et al., 2012; Utah

Medical Education Council, 2018; Zimbelman et al., 2010). Ancillary healthcare providers are any

healthcare professions that are not doctors, nurses, or dentists (Ancillary Care Services, 2015). A few of

the services they provide include: (a) diagnostic testing such as imaging and laboratory tests; (b)

therapeutic services like stroke rehabilitation and health maintenance programs; and (c) custodial

services such as hospice and long-term care (Ancillary Care Services, 2015). Several forecast models

have found that the demand for ancillary healthcare services exceeds the supply of those services, with

expectations for this gap to continue to grow in the coming years (Lin et al., 2015, & Zimbelman et al.,

2010). Rural ancillary health professionals have reported several challenges related to the provision of

healthcare services in rural communities including a lack of mentorship, the burden of travel, and

greater professional isolation (Gallego et al., 2015; Hanson & Magee, 2018; O'Sullivan & Worley, 2020).

Purpose

The aim of this scholarly project is to evaluate the existing literature to determine what

evidence exists related to bridging the gap between the availability of ancillary health professionals and

the health needs of rural communities. There is current literature on the topic of ancillary health

professions in rural communities. However, the literature is inconsistent with use of definitions, information gathered is variable, and a majority of the literature is from countries with universal public healthcare. All these factors affect the generalizability of the findings. The existing literature is insufficient to complete a systematic review at this time, but the completion of a scoping review with the aim of identifying key characteristics and factors related to this topic will help to establish a baseline of knowledge related to rural ancillary health professionals (Munn et al., 2018). The author seeks to answer the following questions:

1. What research exists related to assessing the demographics and predicted trends of ancillary health service providers?

2. What evidence exists pertaining to the person factors of ancillary health service providers?

3. What studies exist related to the recruitment of ancillary health service providers in rural areas?

Theoretical Framework

The Ecology of Human Performance (EHP) framework (Dunn et al., 1994) examines the dynamic interaction between the person, the task, and the context, and the subsequent impact on performance. Dunn et al. (1994) defined the person as one's experiences, sensorimotor, cognitive, and psychosocial skills and abilities. The context consists of the physical, temporal, social, and cultural features (Dunn et al., 1994). Observable behaviors that are needed to achieve a desired outcome are defined as the tasks (Dunn et al., 1994). Finally, the interaction of all three components, person, context, and task, make up the performance range (Dunn, 2017). A key component that is not defined by the EHP framework that was included for consideration in this scoping review is the institutional context, which was used to examine the impacts of healthcare policy, insurance, and reimbursement on rural ancillary service provision (Baptiste, 2017). For the analysis of this scoping the view, the EHP framework was applied as follows: (a) the person was considered the ancillary health professionals, (b) the context was identified

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as rural communities, (c) the task was workforce development, and (d) the performance range was the extent to which ancillary health providers are able to meet the healthcare needs of rural communities (Dunn, 2017).

The EHP framework operates under four key assertions or guiding principles (Dunn, 2017). The first assumption is that people and their contexts are unique and dynamic. When applying this to ancillary health providers and the rural communities they serve, you must consider the effects the two have on each other, and how changes in either the person or context effect the ability to meet the ancillary health needs of the community. The second assumption is that there is a difference between natural and contrived, or artificial, environments. This difference can be observed through suggested strategies for meeting the ancillary health supply and demand needs, versus the realities of recruitment in practice. Dunn's third assumption is that the profession of occupational therapy involves the promotion and inclusion of all persons in society. Part of this is recognizing the needs and wants of the individual or community. Ancillary health practitioners and rural communities have voiced a need for more ancillary health services and specialty services in rural areas (Gallego et al., 2017; Gallego et al., 2015). The final assumption of the EHP framework, is that independence requires meeting the wants and needs of the individual or population (Dunn, 2017). In order to best support rural communities, their need and want for more ancillary health professionals must be met. "Satisfaction with how one's life is going is a component of independence" (Dunn, 2017, p. 219). Rural communities and providers have voiced their dissatisfaction with the current state of rural health care services (Gallego et al., 2017; Gallego et al., 2015). In order to better support rural communities and practitioners, further attempts to understand the issues surrounding provision of ancillary healthcare services in rural communities are needed.

Definitions

The following terms are used frequently throughout literature and this scholarly project. The definitions below are provided to clarify the intended meanings.

- **Ancillary Health Professional and/or Practitioner:** a wide range of healthcare providers who offer diagnostic, therapeutic, and custodial services, excluding physicians, nurses, and dentists (Ancillary Care Services, 2015).

- **Rural**: All places that are not urban (Ratcliffe et al., 2016).

- **Interprofessionalism**: professional collaboration between two or more professions in order to better serve clients (D'Amour & Oandasan, 2005).

- **Sensorimotor:** An individuals' physical and sensory skills and abilities (Dunn, 2017).

- **Psychosocial:** The combination of ones' social skills, thoughts, and behaviors (Dunn, 2017).

- **Cognitive:** A persons' mental processes including planning and memory (Dunn, 2017).

Overview

The remainder of this scholarly project will proceed as follows. Chapter II will further introduce the topic of ancillary health practitioners in rural communities via an initial literature review. Chapter III provides the detailed methodology used for conducting the scoping review, which used the *Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping reviews [PRISMA-Scr]* (Tricco et al., 2018). Chapter IV contains the product, which contains information from the completed scoping review. Finally, Chapter V summarizes this scholarly project, identifies limitations, and offers suggestions for future research.

CHAPTER II

Literature Review

Roughly 20 percent of the United States population lives in rural communities (Health Resources & Services Administration [HRSA], 2021). Rural communities face different barriers to access than urban counterparts including: (a) lack of ancillary health professionals, (b) lack of specialty services, and (c) imbalance between available providers and the needs of the population living in that area (E. S. et al., personal communication, October 15th, 2021; Healthcare Workforce Data Center, 2019; Slagle et al., 2012; Utah Medical Education Council, 2018). The following literature review was analyzed through the lens of the Ecology of Human Performance [EHP] framework (Dunn et al., 1994). This framework identifies a relationship between the person, context, task, and performance (Dunn, 2017). By the definitions of the EHP framework, the person variable consists of past experiences, personal values and interests, sensorimotor, cognitive, and psychosocial skills. Dunn (2017) then defined the tasks as the observable behaviors needed to achieve a goal or outcome. Context consists of the temporal, physical, social, and cultural environments surrounding the person. The interaction of these three factors makes up the performance range, which is the demonstrated abilities of a person to complete tasks in dynamic situations (Dunn, 2017). A key component of the context that is not defined within the EHP framework is the institutional context. The institutional contextual factor provides valuable insights into the supports and barriers created by healthcare legislation, policies, insurance, and reimbursement that impact rural ancillary health service provision (Baptiste, 2017). When examining this literature, the person was defined as the ancillary health professionals, the context was the rural communities, and the task was the recruitment of ancillary health professionals. Considering these three factors, the performance

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range would be the degree to which the ancillary health needs of rural communities are being met. Further examination of the literature is needed to understand the factors influencing the following questions:

1. What research exists related to assessing the demographics and predicted trends of ancillary health service providers?

2. What evidence exists pertaining to the person factors of ancillary health service providers?

3. What studies exist related to the recruitment of ancillary health service providers in rural areas?

Person Components of an Ancillary Health Service Provider

Person components of ancillary health providers are multifaceted and dynamic, but there are common threads throughout the literature. The initial literature review identified three main themes when examining person factors of ancillary health professionals. These themes included personal characteristics, rural influences, and academic experiences.

Personal Characteristics

A study by Campbell et al. (2016) found that rural practitioners had certain personality traits, including higher than normal Novelty Seeking levels, and average or lower than average Harm Avoidance. An informal expert interview with four rural occupational therapists identified several key sensorimotor needs. These needs included a vehicle for transportation, personal physical mobility, having a healthy immune system when interacting across site locations, extra resources, and access to affordable tools (E. S. et al., personal communication, October 15th, 2021). Moran et al. (2020) examined the cognitive aspects needed for rural practice and identified several factors that are relevant to rural clinical placements for ancillary health professionals. These included the less intensive supervision delivery method, increased peer learning opportunities, and student supports in both professional and personal matters regarding rural life (Moran et al., 2020). The personal values and interests of ancillary health professionals, and the subsequent impact on employment decisions were assessed (Gallego et

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al., 2015). Professional autonomy when providing client care was identified as important to rural practitioners (Gallego et al., 2015). It was also found that interprofessional collaboration, professional support, and opportunities for development and professional growth were key themes identified in their questionnaire (Gallego et al., 2015).

Rural Influence

There are several studies that have identified person factors, including prior experiences, that may increase the likelihood that a person will work in a remote or rural context (Campbell et al., 2016; Hanson & Magee, 2018; Hanson et al., 2018, Slagle et al., 2012). Hanson and Magee (2018) found that participants had grown up in rural areas and worked in rural communities for their entire career. The participants also enjoyed the flexibility, variety, and rural community as identified in the interview analysis (Hanson & Magee, 2018). Other prior experiences that were noted by individuals working within a rural community included having a rural upbringing or having some rural training experience (Healthcare Workforce Data Center, 2019; Manahan et al., 2009; O'Sullivan & Worley, 2018; Utah Medical Education Council, 2018).

Academic Experiences

There are three models of rural clinical practice identified in Moran et al. (2020) when viewed from the perspective of students and rural practitioners: (a) placements to expose students to rural life and practice, (b) placement to address community needs and fill gaps in service provision, and (c) placements designed to provide students with specific skill sets. Participants of another study reported that completion of a level 1 fieldwork experience in a rural setting was a key factor, with almost two-thirds of the study participants indicating that the placement influenced their choice of where to live (p=.002) (Hanson et al., 2018). Some of the key needs from an education standpoint included an increased number of clinical placements available, exposure to interprofessional practice, and exposure to a specific skill set (Moran et al., 2020). A few key psychosocial factors consisted of the value of rural

clinical placements for student ancillary health professionals as they can develop competency in

interprofessional skills (Moran et al., 2020). Specific mechanisms identified were: (a) student and

supervisor support, (b) stakeholder engagement and consultation, and (c) adequate resources and

ongoing funding for student and staff skill attainment and continued clinical placement opportunities

(Moran et al., 2020).

The Context of Rural Communities From a Healthcare Perspective

Rural communities are widely impacted by a variety of contextual factors. These impacts vary

from the experiences of urban communities (Healthcare Workforce Data Center, 2019; Slagle et al.,

2012; Utah Medical Education Council, 2018). Common factors that were identified in the literature

included institutional influences, contextual barriers, and strategies for improvement (Federal Council

on Graduate Medical Education, 2021; Hanson & Magee, 2018; HRSA, 2019; National Rural Health

Association [NRHA], 2008; O'Sullivan & Worley, 2020).

Institutional Influences

Institutional factors such as healthcare policies and legislation have a notable impact on rural

service provision and availability. Rural areas tend to have a high number of Medicaid and Medicare

recipients, which may limit the reimbursement of ancillary health professionals according to the NRHA

(2008). A few impacts of healthcare policy on the provision of rural occupational therapy services were

identified by four rural occupational therapists including: (a) the need for insurance approval impacting

service provision/initiation, (b) changes in provision of home health/early intervention services, and (c)

limited available resources in rural communities (E. S. et al., personal communication, October 15th,

2021). A key federal legislative change in 2021 that impacted healthcare student residency and clinical

placements was the Consolidated Appropriations Act of 2021 (Federal Council on Graduate Medical

Education, 2021). The act allowed for the increase of residency positions in rural hospitals (addressing

the physician workforce) and will allow for rural training programs to have greater flexibility in clinical

placements, supporting the creation of local partnerships and greater collaboration to meet the needs

of rural communities (Federal Council on Graduate Medical Education, 2021). While this federal

legislative act is a positive change, it only addresses the physician workforce. This highlights the

discrepancies that the ancillary healthcare workforce faces as there may be a future increase in rural

physicians without the necessary ancillary health services to support rural clients.

Contextual Barriers

Rural communities face many barriers when attempting to receive ancillary health services due to

limited availability of ancillary health professionals and professionals that provide specialty services

(Gallego et al., 2017). One of the barriers identified by ancillary health professionals in the Hanson and

Magee (2018) article was the lack of peer support, with limited supervision and mentorship due to

having fewer colleagues in rural contexts. Four therapists participated in an informal interview and

noted several social barriers that impact both practitioners and clients in rural settings, including the

lack of assistance for clients aging out of pediatric services and a lack of mentorship for practitioners (E.

S. et al., personal communication, October 15th, 2021). Healthcare access is a complex issue impacted by

a variety of factors including travel time, availability of service providers, population characteristics and

size, geographic isolation, and economic factors such as insurance and income (HRSA, 2019). These

issues have also been impacted by the closure of rural hospitals, which was typically preceded by

financial distress, and left rural communities with more restricted access to healthcare (HRSA, 2019).

Strategies for Improvement

O'Sullivan and Worley (2020) found that it was important for practitioners to have skills in

prioritization and networking to cope with the high service demand of rural communities. On a larger

scale, the NRHA (2008) suggested a variety of strategies that could be implemented by ancillary health

educational programs to incentivize and aid in the recruitment of rural ancillary health practitioners.

These strategies included: (a) education on interdisciplinary practice common to rural communities, (b)

increasing accessibility of educational programs by increasing flexibility and use of information

technologies, (c) enhancing student recruitment in high schools, and (d) enhancing and expanding the

availability of rural clinical placements (NHRA, 2008).

The Task of Being a Rural Ancillary Health Provider

The task of being a rural ancillary health professional has many supports and barriers. Gallego et al.

(2015) found that some of the key supports and barriers identified included: (a) the burden of travel, (b)

a need for work flexibility, (c) the professional support or lack thereof in a rural community, (d)

professional development opportunities, (e) the lack of career progression opportunities, (f) the

increased autonomy of practice, and (g) an appreciation/desire for more incentives to offset the

additional time and work put in. This was supported and expanded upon by an informal interview, as

four rural therapists added that a key support is a close community of interprofessional ancillary health

professionals that a practitioner gets to work with on a regular basis, but there is a lack of available

specialty services in rural communities, and a need to travel outside of the rural community to expand

one's professional identity with certifications and specialty experiences (E. S. et al., personal

communication, October 15th, 2021).

When examining the existing benefits and assistance available to support rural ancillary

professionals, Rural Health Information Hub (RHI Hub) has lists of grants available to support rural

communities, many of which could benefit ancillary health professionals and their clients (RHI Hub,

2022). A proposed piece of legislature, the Allied Health Workforce Diversity Act, aims to bridge an

existing gap in services needed to better serve the healthcare needs of the individuals within minority

groups (Allied Health Workforce Diversity Act, 2021). It is important to consider the cultural differences

seen within minority groups in rural areas. If one considers the potential benefits if this legislation were

combined with recruitment strategies of seeking out rural residents and providing ancillary health care

training to increase future rural healthcare workforce numbers (Allied Health Workforce Diversity Act, 2021; American Occupational Therapy Association [AOTA], 2021).

Demographics and Predicted Trends of Ancillary Health Providers

Authors of two separate research studies developed forecast models to examine the predicted disparities between the supply and demand of occupational therapy (OT) and physical therapy (PT) services respectively (Lin et al., 2015; Zimbelman et al., 2010). Based on the performance of trends at the time of the study, and forecasted trends, the authors found that the demand for PT services would far exceed the supply of PT practitioners by the year 2030 (Zimbelman et al., 2010). Similar disparities were observed in the predicted trends for OTs (Lin et al., 2015). The authors also discussed the disparity of practitioner distribution between rural and urban areas, which is not unique to PT and OT, but is observed in many healthcare professions (Lin et al., 2015; Zimbelman et al., 2010).

The available demographics of ancillary health professionals vary by state, as each state licensure board determines what demographic information they will collect and the availability of that information (Healthcare Workforce Data Center, 2019; M. L. Peterson, personal communication, June 14th, 2021; Utah Medical Education Council, 2018). Keane et al. (2008) developed the Rural Allied Health Workforce Study (RAHWS), a questionnaire that consisted of 74 questions, taking roughly 15 minutes to complete. This questionnaire offered a method of gathering detailed information from a large population to assess and analyze hypotheses related to recruitment, retention, demographics, and other key factors (Keane et al., 2008). Some researchers also have conducted studies to examine specific person factors and demographics in greater detail, but in general the demographics collected for research on rural ancillary health professionals is highly variable and is rarely reported in the same or similar formats (Campbell et al., 2016; Hanson & Magee, 2018; Hanson et al., 2018).

Current Evidence Regarding Person Factors of Ancillary Health Professionals

Existing research regarding the person factors of rural ancillary health providers has largely

focused on prior experiences and educational opportunities of these individuals (Hanson & Magee,

2018; Hanson et al., 2018; Healthcare Workforce Data Center, 2019; O'Sullivan & Worley, 2020; Utah

Medical Education Council, 2018). There has been limited literature published on the sensorimotor,

cognitive, and psychosocial skills and abilities commonly observed of rural ancillary health providers. An

informal interview was conducted with four rural practitioners to gain a better understanding of their

perceived sensorimotor needs when working in a rural setting and the following needs were identified:

(a) a vehicle for transportation, (b) physical mobility, (c) having a healthy immune system when

interacting across site locations, (d) extra resources, and (e) access to affordable tools (E. S. et al.,

personal communication, October 15th, 2021). Moran et al. (2020) focused on the cognitive and

psychosocial needs of rural practice, including strong interpersonal skills, stakeholder engagement, and

education prior to a rural employment, with continued educational opportunities while working in a

rural community. Strong administrative skills were encouraged for rural practitioners as Hanson et al.'s

(2018) study found that despite rural practitioners having higher patient care time, they had equal

administrative duties as their urban counterparts, indicating a need for efficiency and knowhow.

Evidence Related to the Recruitment of Rural Ancillary Health Providers

It is evident that there is a need for more ancillary health service providers in rural areas (Allied

Health Workforce Diversity Act, 2021; AOTA, 2021; Healthcare Workforce Data Center, 2019; HRSA,

2019; Lin et al., 2015; Utah Medical Education Council, 2018; Zimbelman et al., 2010). A survey of health

administrators conducted in 2012 found that the key concern reported was a need for additional

ancillary health providers, with current job openings available (Slagle et al., 2012). O'Sullivan and Worley

(2020) found that a few important factors for retainment and retention of rural ancillary providers

included a strong local career path, with solid mentorship and professional development opportunities,

a supportive work environment with clear expectations and a safe workplace, and overall work satisfaction. A position paper was published by the NRHA (2008) that offered three key strategies that could be implemented by educational programs to increase the recruitment of ancillary health professionals. These strategies included: (a) the encouragement of hands-on experience or employment opportunities with students already in ancillary health educational program, (b) working with high schools to encourage vocational education opportunities, and (c) partnering with local foundations or business to offer tuition reimbursement or loan repayment incentives, among other suggestions (NRHA, 2008). Educational programs can benefit from, and further support the recruitment of rural practitioners by having an increased number of clinical placements available, increasing the exposure to interprofessional collaboration, and providing a greater exposure to specific skill sets (Moran et al., 2020).

Conclusion

The initial literature review provided a basic overview of the issue and demonstrated the need for further review of the available literature. It is clear that a more comprehensive investigation of the topic would benefit ancillary health providers and rural communities in understanding the dynamic interaction between the person, context, and task (Dunn, 2017). The information available at this time is insufficient to properly conduct a systematic review on this topic. However, by completing a scoping review focused on assessing the key characteristics and factors related to this topic, the author hopes to establish a baseline of knowledge related to ancillary health professionals in rural communities (Munn et al., 2018). The information will be organized into a format that addresses three key needs related to rural ancillary healthcare professionals: (a) available demographics and trends, (b) known person factors, and (c) employee recruitment. It is important to understand the existing literature on this topic in order to better understand why the gap exists and potential solutions to bridge the gap and meet the demands of rural communities.

Methodology

Products Developed

The author produced several products over the course of this scholarly project based on the

evidence found throughout the scoping review research. The main product developed in this Doctoral

Experiential Placement, was a scoping review article assessing the available literature on the topic of

rural ancillary health professionals related to three a priori categories. The methodology used to

conduct the scoping review followed the *PRISMA-ScR* guidelines (Tricco et al., 2018). Additional products

created during the DEP are described in the Table 1 below.

Table 1

Additional Products: Furthering the Understanding of Rural Health

Activity Title	Relation to Furthering the Understanding of Rural Health
Department Newsletter	The author wrote a brief newsletter article to explain the focus of their Doctoral Experiential Placement in regard to rural health, and the valuable resource that is the Rural Health Information Hub (www.ruralhealthinfo.org).
Rural Health Presentation	An occupational therapy course provides students with opportunities to learn and develop skills regarding various occupations in community-based practice. The author was asked to develop a 50-minute presentation addressing the current evidence for rural health practice and linking current practice to the mission of the UND School of Medicine and Health Science.
Licensure Board Data Collection Letter	With guidance from the Healthcare Workforce Group principle investigator, Mandi-Leigh Peterson, the author wrote and submitted a letter advocating for the inclusion of specific variables in the licensure data collection form to a state licensure board.

Healthcare Workforce Group Poster Presentation: How can we learn to see the future of the healthcare workforce?	Abstract: Across the world there is a call for better, more comprehensive data collection in order to understand the existing healthcare workforce, and to predict future workforce trends. While national data collection would be ideal, data collection can be more readily implemented at a state level, where licensure boards could add a few pertinent questions that would provide a better understanding of the healthcare workforce. The aim of this poster is to demonstrate how licensure boards could better serve their constituents by collecting three additional pieces of information. By asking about the licensee's main clinical practice areas, their use of telehealth, and the age range of the workforce, we can bolster our view of the upcoming workforce climate to benefit North Dakota residents and enable stakeholders to employ the most efficient strategies to ensure that the healthcare needs of the state are being met.
Scoping Review Poster Presentation: Bridging the Gap Between Ancillary Health Professions and Rural Community Health Needs	**Abstract**: **Objective:** The purpose of this study was to assess what evidence was available pertaining to the gap between the availability of ancillary health professionals (AHPs) and the health needs of rural communities. Specific research questions focused on understanding what research was available regarding demographics and predicted trends, person factors, and recruitment and retention of AHPs. **Method**: The *Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR)* guidelines were used to direct this scoping review (Tricco et al., 2018). Four databases were searched, and additional snowball hand searches were completed resulting in the final inclusion of 80 pieces of evidence. The literature found in this study was used to support the creation of additional products including a rural health lecture, a brief synopsis included in the University of North Dakota Occupational Therapy Alumni Newsletter, and an advocacy letter submitted to a licensure board advocating for the expansion of data collection items on the licensee survey. **Results:** Literature was analyzed based on its relation to the three a priori categories: (a) demographics and trends (n= 41); (b) person factors (n= 11); and recruitment and retention (n= 65) with some literature addressing multiple categories. Due to the specific phases observed in the literature, the recruitment and retention category was further subdivided into: (a) prior to tertiary education, (b) during AHP educational programs, (c) post-graduate recruitment, and (d) retention. **Conclusions**: There were three main takeaways based on the a priori categories of this study. There is a need for more large scale AHP data collection to increase the generalizability of findings and to gain a more thorough understanding of the current AHP workforce prevalence. The literature regarding person factors demonstrated an inconsistent use of language, and further examination of the available literature, with use of clear operational definitions, is needed. Finally, while many recruitment and retention strategies are currently in use or recommended, there is a need for more longitudinal studies and investigation of specific strategy outcomes and sustainability.

Scoping Review Methods

The following methodology is an abbreviated version of the search strategies and criteria used

to gather an analyze the existing literature related to rural ancillary health professionals addressing one

or more of the three a priori categories: demographics and trends, person factors, and recruitment or

retention.

Eligibility Information

Exclusion criteria of this research included: (a) not published in English, (b) focused on

physicians, nursing, or oral health professionals, (c) not involving rural context. Literature was included

in this study if it: (a) was published 2011 or later, (b) primary population were ancillary health providers,

and (c) answered at least one of the research questions.

Databases Included and Searches Completed

Four databases were searched under the direction of a medical librarian on January 3rd, 2022.

Search strings used in the database search are included in Table 2**.** Hand searches followed a

snowballing method, which were completed by the primary author on February 25th, 2022.

Table 2

Database Specific Search Methods

Database	Search String	Filters used	Number of results
Business Source Premier	(DE "REGIONAL disparities in the labor supply" OR OR DE "LABOR supply" OR DE "LABOR turnover" OR DE "EMPLOYMENT tenure" OR DE "JOB vacancies" OR DE "EMPLOYEE recruitment" OR DE "LABOR market") AND (DE "HEALTH care industry" OR DE "MEDICAL care" OR DE "HEALTH services administration" OR "ancillary healthcare" OR "allied health" OR "occupational therap*" OR "physical therap*" OR "speech language patholog*" OR rehabilitation) AND (rural OR frontier OR remote)	English language only	108
CINAHL	((MH "Personnel Retention") OR (MH "Personnel Recruitment") OR (MH "Workforce") OR (MH "Job Satisfaction")) AND ("ancillary healthcare" OR (MH "Ancillary Services, Hospital") OR (MH "Allied Health Personnel") OR "occupational therap*" OR "physical therap*" OR "speech language patholog*" OR rehabilitation) AND (rural OR frontier)	English language only	116
PubMed	(("Professional Practice Location"[Mesh]) OR ("Career Choice"[Mesh]) OR ("Workforce"[Mesh]) OR ("Personnel Loyalty"[Mesh]) OR ("Personnel Selection"[Mesh]) OR ("Job Satisfaction"[Mesh]) OR ("Allied Health Occupations/statistics and numerical data"[Mesh]) OR ("Attitude of Health Personnel"[Mesh]) OR access[Title/Abstract] OR retention[Title/Abstract] OR recruitment[Title/Abstract] OR workforce[Title/Abstract] OR precarity[Title/Abstract]	English language only	1,379

	OR capacity[Title/Abstract] OR ((career[Title/Abstract] OR job[Title/Abstract] OR employment[Title/Abstract]) AND (choice[Title/Abstract] OR preference[Title/Abstract] OR motivation[Title/Abstract] OR satisfaction[Title/Abstract]))) AND (("Occupational Therapists"[Mesh]) OR ("Physical Therapists"[Mesh]) OR ("Allied Health Occupations"[Mesh]) OR "ancillary healthcare"[Title/Abstract] OR "allied health"[Title/Abstract] OR "occupational therap*"[Title/Abstract] OR "physical therap*"[Title/Abstract] OR "speech language patholog*"[Title/Abstract] OR rehabilitation[Title/Abstract]) AND (rural[Title/Abstract] OR frontier[Title/Abstract] OR remote[Title/Abstract] OR ("Rural Population"[Mesh]) OR ("Rural Health Services"[Mesh]))		
SocIndex	(DE "REGIONAL disparities in the labor supply" OR DE "LABOR supply" OR DE "LABOR turnover" OR DE "EMPLOYMENT tenure" OR DE "JOB vacancies" OR DE "Employee Recruitment" OR DE "Labor Market") AND (DE "Rural Health" OR DE "Public Health" OR DE "Medical Care" OR DE "Health Services Accessibility" OR DE "Allied Health Personnel" OR DE "Home Care Services") AND (rural OR frontier OR remote)	English language only	37

Selection of Evidence

Following the completion of the database searches, all abstracts were reviewed by two

researchers. Appropriate literature was then included in the full-text review, and any disputes were

discussed between the two researchers until a decision was settled upon.

Data Charting

An Excel spreadsheet was used as the data extraction tool, and it was formatted following Table

3 below.

Table 3

Data Charting Forms Used for Abstract and Full-Text Reviews

Abstract Data Extraction													
Author	Year of Publication	Title	Database	No abstract, move to full article review	Not English Only	Not rural context	Focused on Participants or clients	If article is only MD, Nursing, or Dentistry	Include if: at least one criteria is met- unless only year is met	Includes ancillary health professionals	Includes Healthcare Workforce Development	Rural Service Delivery	Published within the last 10 years (2011 or newer)	Reason for exclusion

Full-Text Data Extraction													
Author	Year	Title	Origin	Journal	Demographics and trends	Specific Demographics collected	Person Factors	Recruitment and Retention	AHP included:	Level of Evidence	Purpose and research question	If research: Study Methodology	Results	Discussion/ Implications	Future research

Critical Appraisal of Sources

Tomlin and Borgetto's (2011) *Research Pyramid Model* was used to analyze the sources, however the specific levels of

evidence were determined not to be of utmost importance for this study, so only the broad categories (outcome, descriptive,

qualitative, quantitative) were reported.

Synthesis of Results

A priori codes were established based off of the research questions, and then used to organize the findings of the

scoping review. The three categories were: (a) demographics and trends, (b) person factors, and (c) recruitment and retention.

Recruitment and retention were further divided into the different stages in the career process: (a) prior to tertiary education, (b)

during AHP program, (c) post-graduate recruitment, and (d) retention.

CHAPTER IV

Product

The literature analyzed in this scholarly project was used to develop several products. A summary of the

product outcomes is included in Table 4. Additionally, Table 5 is included in this product, which

demonstrates the key characteristics and findings of the scoping review: (a) author, (b) year, (c) country

of origin, (d) a priori code, (e) design, (f) aim, (g) method, (h) key findings, and (i) specific recruitment

and retention strategies, if applicable. The author used Tomlin and Borgetto's (2011) research taxonomy

to code the literature. Specific validity and rigor were not of the utmost importance to the scoping

review results, so only the broad categories were reported: descriptive, qualitative, experimental,

outcomes, or not research (Tomlin & Borgetto, 2011).

Table 4

Additional Products: Outcomes Table

Product Title	Product Outcome
Department Newsletter	The brief synopsis regarding the free national and state resources the Rural Health Information Hub (ruralhealthinfo.org) offers was included in a professional studies alumni newsletter.
Rural Health Presentation	The author presented the 50-minute rural health lecture to two campuses, successfully tailoring the presentation to the different locations.
Licensure Board Data Collection Letter	The licensure board added the advocacy letter to their special meeting agenda on February 24th, 2022. The board members moved to add questions related to the use of telehealth and practitioner clinical areas of practice to the 2022 licensure renewal and application surveys.
Healthcare Workforce Group Poster Presentation: How can we learn to see the future of the healthcare workforce?	The poster is to be presented at the University of North Dakota Frank Low Research Day on April 21, 2022. The poster presentation recording, and PDF can be provided upon request from the author.

Scoping Review Poster Presentation: Bridging the Gap Between Ancillary Health Professions and Rural Community Health Needs	The poster is to be presented at the University of North Dakota Frank Low Research Day on April 21, 2022. The poster presentation recording, and PDF can be provided upon request from the author.

Table 5

Scoping Review Literature Characteristics and Summaries

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[1] Adams, Jones, Lefmann, & Sheppard (2016)	Australia	1- demographics and trends	Descriptive Qualitative	To understand factors impacting service provision.	Mixed methods survey and interviews	Proposed a framework to measure physical therapy availability based on the findings of the data analysis. Takes into consideration rurality, available physical therapists, and population.	
[2] Adams, de Luca, Swain, Funabashi, Wong, Page, Sibbritt, & Peng (2019)	Australia	1- demographics and trends	Descriptive	Examined demographics, practice characteristics, and clinical management of urban vs. rural chiropractors.	21 item questionnaire	Rural chiropractors have unique practice characteristics, differing caseloads and experiences than their urban counterparts which should be considered when supporting these professionals.	
[3] Anzenberger, Popov, & Ostermann (2011)	Ukraine	1- person factors	Descriptive Qualitative	Identify student motivators and incentives for graduates to open rural pharmacies.	Mixed methods: survey and follow-up interviews	Rural intent students were found to be more intrinsically motivated. Key indicators that pharmacy students may consider rural practice included their interest in operating a privately owned pharmacy, and their expectations of rural life.	Pharmacists may benefit from decreased bureaucracy around privately owned pharmacies and increased financial assistance and grants.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[4] Bacopanos & Edgar (2016)	Australia	1- demographics and trends	Descriptive	Understand employment patterns of Notre Dame physical therapy graduates in specific settings.	Survey	Authors noted concerns that while 30% of respondents had worked in a rural setting, only 13.7% were currently in that setting. Reasons for leaving included family commitments and professional support.	Retention strategies may benefit from offering more flexibility regarding family commitments and improved professional supports.
[5] Bath, Gabrush, Fritzler, Dickson, Bisaro, Bryan, & Shah (2015)	Canada	1- demographics and trends	Descriptive	Examine clinical distribution of physical therapists and to identify differences between rural and urban physical therapists.	Cross-sectional survey	There was a large geographical imbalance found between the locations of physical therapists versus the population of Saskatchewan. Rural physical therapists were more likely to provide direct patient care, care for all ages, and have a mixed caseload.	
[6] Berg-Poppe, Karges-Brown, Ladwig, & Cross (2021)	USA	1- recruitment and retention 2- demographics and trends	Descriptive	Identify incentives or values that differentiate between health provider shortage areas and non-health provider shortage area physical therapists.	39 item survey	The authors found that non-primary care health provider shortage area professionals placed higher value on professional advancement, relationships, and financial considerations.	When attempting to increase primary care health provider shortage area employment, recruitment and retention strategies should highlight the values of the rural practice environment and foster the individuals' attachment to place.
[7] Berry & Hosford (2015)	USA	1- Person factors 2- demographics and trends 3- recruitment and retention	Descriptive	Understand the level of burnout in rural physical therapists and offer recruitment and retention strategies.	Cross-sectional survey with Maslach Burnout Inventory and demographics	It is important for management to know that 38.9% of participants scored moderate to high in emotional exhaustion, indicating potential risk of burnout.	Proposed areas of intervention include decreasing rural practitioner workload and providing assistance in obtaining continuing professional development.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[8] Brocious, Demientief, Renfro, & George-Bettisworth (2019)	USA	1- recruitment and retention 2- demographics and trends	Descriptive	Describe the graduate population and document outcomes of the program on the Alaska workforce.	Existing data review	Demonstrated the success of a Grow Your Own program that both met the needs of learners and produced lasting rural workforce impacts.	
[9] Brown, Smith, Wakely, Wolfgang, Little, & Burrows (2017)	Australia	1- demographics and trends 2- recruitment and retention	Descriptive	Understand long-term outcomes and issues of rural retention.	Longitudinal survey – baseline data presented here	Found that the efforts being made to support rural clinical placements had a positive impact on workplace intentions.	
[10] Campbell, Eley, & McAllister (2013)	Australia	1- person factors 2- demographics and trends 3- recruitment and retention	Descriptive	Describe the overall sample of rural ancillary health professionals (AHPs) and provide suggestions for recruitment and retention	Cross-sectional survey	Differences were identified between genders in this study, with women being higher in harm avoidance, cooperativeness, and reward dependence. Differences were also noted by age group and rurality.	Suggested that offering mentorship and education to younger AHPs may be key for increasing their confidence.
[11] Campbell, Farthing, Lenthall, Moore, Anderson, Witt, & Rissel (2021)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Identify work location of individuals who had clinical placements in the Northern Territory and assess if the placement had an impact on work location.	Follow-up survey, 10-year cohort study	Several factors were significantly associated with working in a rural or remote area (rural origin, influence of clinical placement, and 10+ weeks of clinical placements).	Quality rural clinical placements have a significant impact on workforce recruitment.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[12] Campbell, McAllister, & Eley (2012)	Australia	1- person factors 2- recruitment and retention	Qualitative	Determine what has been identified as motivators for rural AHPs and assess if they could be applied to a framework.	Literature review	20 extrinsic and 18 intrinsic factors were identified as having an influence on recruitment and retention. Positive extrinsic factors included: (a) rural lifestyle, (b) diverse caseload with broad experiences, and (c) family nearby. Intrinsic motivators included: (a) autonomy, (b) community, (c) connectedness, (d) teamwork, and (e) challenge.	
[13] Campbell, Moore, Farthing, Anderson, Witt, Lenthall, Petrovic, Lyons, & Rissel (2021)	Australia	1- demographics and trends 2- recruitment and retention	Descriptive	Assess student satisfaction regarding clinical placements and describe structural characteristics that impact rural clinical placements.	Survey and analysis of administrative data	Overall student satisfaction with their clinical placements was high. This was attributed to high quality clinical supervision and access to educational resources.	Targeting key factors to address clinical placement and support positive outcomes may promote rural recruitment in the ancillary health workforce.
[14] Charmaine Rispel, Ditlopo, Anthea White, & Blaauw (2019)	Africa	1- demographics and tends	Descriptive	Analyze baseline characteristics to examine career choice and job location of health graduates.	Survey Prospective longitudinal cohort study	There was a high percentage of women in this cohort. This was tied to research on the societal barriers and increased family responsibilities that women have, which may impact their place in the healthcare hierarchy.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[15] Chisholm, Russell, & Humphreys (2011)	Australia	1- recruitment and retention	Descriptive	Investigate turnover and retention factors and impacts of rural AHPs.	Survey	Some workforce turnover and retention factors vary by geographical location, town size, profession, and career grade. The authors recommended that national data collection occur to improve the diversity and generalizability of the findings.	
[16] Cosgrave (2021)	Australia	1- recruitment and retention	Qualitative	Examine the extent to which the recommendations were implemented and assess perceived sustainability of the strategies.	Participatory action research- focus groups	Authors developed 10 recommendations across the three theoretical domains: (a) workplace/ organization, (b) role/ career, and (c) community/ place.	Recommendations included (a) improved accommodations and processes, (b) supporting managers, (c) structure mentorship programs, and (d) continuing professional development.
[17] Cosgrave, Malatzky, & Gillespie (2019)	Australia, USA, Canada	1- recruitment and retention	Qualitative	Identify research gaps and offer suggestions for how to develop the evidence needed to promote changes in the retention of the rural AHP workforce.	Scoping review	Four main themes were identified: (a) rural familiarity and interest, (b) social connection and place integration, (c) community participation and satisfaction, and (d) fulfillment of life aspirations. It was found that community and job satisfaction were linked.	Authors suggested that retention strategies should be aimed at both the individual and workforce levels.
[18] Cosgrave (2020)	Australia	1- recruitment and retention	Qualitative	Explore perceived and experienced impacts of recruitment and retention of rural AHPs.	Interviews	Themes identified in this study were largely negatively impacting recruitment and retention of AHPs.	10 strategies were offered to combat challenges identified in the study including: transitional accommodations, support program, and community engagement.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[19] Cosgrave, Maple, & Hussain (2018a)	Australia	1- recruitment and retention	Qualitative	Extend the current understanding of health workforce retention in rural community mental health.	Interviews	Two main factors impacted intention to leave for rural community mental health providers: managing the job and adapting to the workplace.	Increased access to profession specific mentorship and networking opportunities.
[20] Cosgrave, Maple, & Hussain (2018b)	Australia	1- recruitment and retention	Qualitative	Assess how employment and rural life factors impact turnover intention in early career AHPs.	Interviews	Professional satisfaction was affected by (a) scope of practice, (b) workplace relationships, and (c) access to continuing professional development and career advancement. These varied by the practitioner stage of adjustment. Turnover intention was typically decided by 12-18 months.	
[21] Couch, Menz, Coker, White, Haines, & Williams (2021)	Australia, India, USA, Nepal, Canada	1- recruitment and retention	Descriptive	Determine factors that influence recruitment and retention of AHP workplace location choices.	Systematic review	The five key themes found were (a) career development, (b) clinical load, (c) organization and workplace structure, (d) prior exposure, and (e) personal factors.	It is important to identify sustainable and effective solutions for rural AHP recruitment and retention.
[22] Devine, Williams, & Nielsen (2013)	Australia	1- recruitment and retention	Descriptive Qualitative	Assess what impact scholarships had on recruitment and retention outcomes and early career practice locations.	Mixed methods: interviews and administrative data analysis	Authors identified four main themes related to recruitment and retention: (a) advantages and issues of new grads in rural practice, (b) scholarship effectiveness, (c) recommended changes for scholarships, and (d) support strategies for new grads.	Improved transition processes for new graduates starting in rural practice, with a recommendation that new graduates gain some experience in a regional site prior to starting at a rural site.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[23] Durey, Haigh, & Katzenellenbogen (2015)	Australia	1- recruitment and retention	Not research	Present authors' considerations for how rural pipeline could enhance rural AHP recruitment and retention.		Authors highlighted that the "conventional pipeline" mainly targets local AHPs.	Pipeline programs would benefit from an expansion beyond those of educational years using flexible and integrated strategies.
[24] Edelman, Grundy, Larkins, Topp, Atkinson, Patel, Strivens, Moodley & Whittaker (2020)	Australia	1- demographics and trends 2- recruitment and retention	Descriptive	Identify and map the literature available on health service delivery and workforce in northern Australia.	Scoping review	The continued workforce shortages highlight the importance of investing in the evaluation and reform of the existing educational pathways and governmental structures that imped timely recruitment.	Suggested areas for a sustainable workforce included: (a) targeted recruitment, (b) adequate support, (c) remuneration packages, (d) retention incentives, (e) workplace organization, (f) professional environment, and (g) family supports and community amenities.
[25] Elwood (2021)	USA	1- recruitment and retention	Not Research	Advocate for increased workforce data publications.		A lack of national workforce data raises concerns about whether the existing workforce can meet the growing demands and shifting delivery methods.	
[26] Fleming & Spark (2011)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Determine the impact of demographic, training, and education characteristics on pharmacist practice location.	Questionnaire	Factors impacting rural employment decision included: (a) rural internship, (b) spouse/partner rural background, and negatively impacted by (c) working in a hospital pharmacy. Rural clinical placements were more often undertaken by those with rural childhood or attending a rural university.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[27] Foo, Storr, & Maloney (2017)	Australia	1- demographics and trends	Descriptive Qualitative	Understand the experiences and characteristics of international physical therapists seeking employment in Australia.	Mixed methods: open-ended survey	International physical therapists may be able to fill existing service gaps as they have the necessary skills and experiences, however many applicants feel that the registration process is overly strict, and the potential for failure and resulting consequences may deter potential physical therapy workforce.	
[28] Fragar & Depczynski (2011)	Australia	1- person factors 2- recruitment and retention	Qualitative	Improve understanding of work tasks and aspects of AHP work that may be more challenging for older rural health workers.	Focus groups	Aging AHPs reported concerns and work limitations that were consistent with expected aging changes. The study found that rural practitioners were more likely to experience compassion fatigue, possibly due to losing well-known patients.	Potential strategies involved integrating experienced AHPs into leadership positions to decrease feelings of powerlessness that may be linked to burnout or ill health.
[29] Furness, Tynan, & Ostini (2019)	Australia	1- recruitment and retention 2- person factors	Qualitative	Understand AHP perceptions of clinical placement influence on supporting AHP students to *think, feel, and act* as an AHP.	Focus groups	Rural clinical placements offer AHP students unique opportunities for students to "think, feel, and act" like an AHP. The generalist experiences promote skill integration and can provide opportunities for skill development and confidence building.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[30] Gallego, Chedid, Dew, Bulkeley, Lincoln, Bundy, Brentnall, & Vetich (2016)	Australia	1- recruitment and retention	Descriptive	Profile private therapists working in New South Wales to assess current workforce challenges impacted by National Disability Insurance Scheme.	Survey	Motivators for rural practice included: (a) a need for autonomy, (b) available childcare, (c) friends and family nearby, and (d) partner employment opportunities. The authors identified that all of these require increased flexibility.	The authors advocated for increased professional networking opportunities as many practitioners depicted rural practice as professionally isolating.
[31] Gallego, Chedid, Dew, Lincoln, Bundy, Veitch, Bulkeley, & Brentnall (2015)	Australia	1- person factors 2- demographics and trends	Descriptive	Profile AHP workforce serving people with disabilities in rural New South Wales.	Cross-section survey	Intrinsic and extrinsic factors were identified as having an influence on work location. Personal motivators for rural practice included: (a) community connection, (b) rural lifestyle, and (c) rural upbringing or training.	Retention would benefit from strategies to address negative workplace factors including: (a) limited continuing professional development, (b) lack of employment stability, and (c) staff shortages.
[32] Gallego, Dew, Bulkeley, Vetich, Lincoln, Bundy, & Brentnall (2015)	Australia	1- recruitment and retention 2- demographics and trends	Qualitative	Develop a discrete choice questionnaire to identify factors that AHPs find important to encouraging them in their work.	Focus groups and interviews	Six themes were identified as impacting recruitment and retention: (a) travel burden, (b) work flexibility, (c) professional support, (d) access to continuing professional development, (e) autonomy of practice, and (f) remuneration.	
[33] George, Larmer, & Kayes (2019)	New Zealand	1- recruitment and retention	Not research	Provide an overview of the health workforce development within New Zealand and highlight future areas of growth.		Based on the needs of rural population and inadequate practitioners, a rural generalist role may be effective to address the needs of rural practice.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[34] Gray, Gordon, O'Neill, & Pearce (2019)	Australia	1- recruitment and retention	Descriptive	Examine perceptions of first year AHP students transition to university and offer strategies to increase academic success.	Survey	Key themes: (a) adjusting to being away from home, (b) adjusting to university culture, and (c) differing experiences of mature age students.	Promoting self-efficacy could combat feelings of isolation. University orientation needs to support all students across different life stages.
[35] Hanson, Jedlicka, Harris, & Klug (2015)	USA	1- recruitment and retention	Not Research			Students benefit from social supports when on clinical placements, and thus may benefit from a greater awareness of available resources prior to going on a placement.	Preplacement briefings and thorough orientation may be important factors to promoting positive clinical placement experiences.
[36] Haskins, Phakathi, Grant, & Horwood (2017)	Africa	1- demographics and trends 2- recruitment and retention	Descriptive	Investigate factors that influence recruitment and retention of health professionals at a rural hospital.	Survey	Participant perceptions and reported quality of life in rural areas were negatively, largely due to environmental factors.	Recruitment and retention efforts should focus on (a) improving accommodations, (b) addressing rural work perceptions, and (c) offering tailored incentives.
[37] Hays, Taylor, & Glass (2020)	Australia	1- recruitment and retention	Qualitative	Identify factors that motivate and challenge pharmacists to practice in rural and remote Australia.	Interviews	Three main themes were identified: (a) pharmacy workforce, (b) practice environment, and (c) social factors. Rural pharmacy practice had unique challenges and benefits.	Supports would be beneficial to increase access to professional development, and address costs related to the geographical distance travel in rural practice.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[38] Jessup, Barnett, Cross, Obamiro, & Mallick (2021)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive Qualitative	Explore pathways of nursing and AHPs to employment in rural areas.	Mixed methods: Survey and follow-up interviews	Three key lessons: 1) gaining employment takes time (2-6 months average) 2) rural employment may be a way to get a job faster 3) learning to compromise is key in a precarious job market	
[39] Jessup, Barnett, Obamiro, Cross, & Mseke (2021)	Australia	1- demographics and trends	Descriptive	Examine data on the provision of health, welfare, and care service in Tasmania between 2011-2016.	Administrative data analysis	Found that health, welfare, and care workforce was highly feminized with women working fewer hours/week compared to males. An increase in part time employment was observed, though it was unclear if this was preferred.	
[40] Keane, Lincoln, Rolfe, & Smith (2013)	Australia	1- recruitment and retention 2- demographics and trends	Qualitative	Expand upon previous study and further identify factors affecting recruitment and retention.	Focus group	The high clinical demands may increase intention to leave.	In countries with public and private healthcare, strategies need to be targeted to the different needs of the public versus private sectors.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[41] Keane, Lincoln, & Smith (2012)	Australia	1- recruitment and retention	Descriptive	Understand conceptual themes from survey data and assess how recruitment and retention varies between public and private sectors.	Survey	Five main themes were identified as both push and pull factors: (a) personal factors, (b) workload/ type of work (c) continuing professional development, (d) impact of management, (e) career progression. Key pull factors included personal factors and continuing professional development, while impact of management tended to be push factors.	Increased supports are needed to make accessing continuing professional development more effective to decrease professional isolation.
[42] Keane, Smith, Lincoln, & Fisher (2011)	Australia	1- demographics and trends 2- recruitment and retention	Descriptive	Gather detailed demographic, employment, and education information of AHPs in rural New South Wales.	Survey	A need to grow the young AHP workforce was identified based on the reports of upcoming attrition.	Recruitment strategies included: (a) targeting high school students, (b) increasing available scholarships, and (c) promoting the positives of rural practice. Retention strategies included: (a) promoting diversity and autonomy, (b) flexible employment, (c) stress management programs, and (d) career advancement.
[43] Kumar, Tian, May, Crouch, & McCulloch (2020)	Australia	1- recruitment and retention	Qualitative	Explore the enablers and barriers of AHPs transitioning to rural practice.	Semi-structured interviews	Identified five main themes regarding rural recruitment and retention: nature of rural practice, exposure to rural "taster," social and lifestyle, job availability and characteristics, and mentor and support.	Suggested potential incentives (scholarships and availability of accommodations) that may encourage AHPs to purse rural practice.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[44] Lai, Taylor, Haigh, & Thompson (2018)	Australia	1- recruitment and retention	Descriptive	Describe the enablers and barriers of retention for Indigenous people.	Systematic Review	Four main categories: (a) structural, (b) health/ education system, (c) organizational, and (d) individual level factors. Identified a need for clear roles, scope of practice, and responsibilities.	Strategies included: (a) increased collaboration with educational programs and remuneration, (b) cultural respect, (c) continuing professional development, and (d) flexible working arrangements would be beneficial.
[45] Lincoln, Gallego, Dew, Bulkeley, Veitch, Bundy, Brentnall, Chedid, & Griffiths (2014)	Australia	1- recruitment and retention	Qualitative	Investigate recruitment and retention issues from the perspective of front-line AHPs.	Focus groups and interviews	Three main themes: (a) flexible recruitment, (b) retention strategies, and (c) challenges to retention. Negative impacts that were reported included: (a) a lack of resources, (b) heavy workload, and (c) top-heavy organizational structures.	Flexible recruitment is needed to meet the various needs of different recruits, with examination of rural specific strategies required.
[46] Ling, Jacobs, Ponton, Slark, Verstappen, Webster, & Poole (2018)	New Zealand	1- demographics and trends 2- recruitment and retention	Descriptive	Examine impacts of student debt on career choice.	Survey	Found that student debt was not a deterrent from rural practice, with other influences being more likely to impact students and new graduates in considering work locations.	
[47] Lyle & Greenhill (2018)	Australia	1- recruitment and retention	Descriptive	Review important contributions of various rural pipeline programs and their impacts on the rural health workforce.	Literature review	Rural academic centers play an important role in encouraging high school students to pursue AHP careers. It was found that rural clinical schools were successful at encouraging early career rural practice.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[48] Martin, Mandrusiak, Lu, & Forbes (2021)	Australia	1- person factors 2- recruitment and retention	Qualitative	Identify a set of competencies that contribute to effective physical therapy practice in rural Australia.	Delphi Panel	19 key competencies were identified as important for rural physical therapists. These competencies included broad concepts such as isolation, limited resources, and determinants of health, along with intrinsic factors.	These competencies are important for integration into physical therapy programs to prepare students for future rural practice.
[49] Matichuk, Boniface, & Smith (2016)	Canada	1- recruitment and retention 2- person factors	Not Research	A roundtable discussion involving Jenna Schuweiler, Kathy Gillis, Dr, Martine Brousseau, and Robin Roots, as their shared their experiences of working rural and remote locations.		Positive factors for rural recruitment included rural origin, proximity to family, and a rural education. Positive retention factors included job satisfaction and the rural lifestyle. Beneficial person factors reported included being eager, open-minded, resourceful, brave, and a reflective practitioner.	
[50] McKinstry & Cusick (2015)	Australia	1- recruitment and retention	Not research	An opinion piece arguing for an increase in the presence of occupational therapist in mental health to better serve rural and remote areas.		Authors made suggestions for improving recruitment and retention in rural mental health throughout the career.	Discussed: (a) recruiting high school students, (b) recruiting occupational therapy students, (c) promoting occupational therapy in mental health to rural managers, and (d) increased access to mentorship and continuing professional development.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[51] Minisini, Sheppard, & Jones (2011)	Australia	1- person factors 2- recruitment and retention	Qualitative	Understand self-efficacy and the contributing factors among rural physical therapists.	Literature search	Rural physical therapists take on generalist skills set and role in their communities. The authors identified a need to assess the effectiveness of current recruitment and retention strategies.	Self-efficacy may be a key component for establishing a more stable and supportive rural workforce.
[52] Nancarrow, Young, O'Callaghan, Jenkins, Philip, & Barlow (2017)	Australia	1- demographics and trends	Descriptive	Fill and identify gaps in the workforce data within Victoria.	Environmental scan and existing data analysis of a questionnaire	Found an increase of newly licensed professionals, which could be related to new training programs. Also found that return to work programs were highly feminized and suggested that future research examine the nature of attrition and potential impact of life stage on attrition.	
[53] O'Sullivan, & Worley (2020)	Australia, Canada, USA, New Zealand	1- recruitment and retention	Qualitative	Provide advice on the current priorities related to rural and remote ancillary health service in Australia.	Scoping review	Issues that impacted retention included high clinical demands, which were influenced by the limited practitioners, and increased with rurality.	The authors identified a need for: (a) more robust training pathways, (b) increased rural job opportunities, and (c) the development of regionally based service models involving telehealth and outreach services.
[54] Playford, Moran, & Thompson (2020)	Australia	1- demographics and trends	Descriptive	Assess factors associated with initial and long-term rural practice.	Longitudinal surveys	Demonstrated the value of continued longitudinal studies, while reinforcing the findings of existing workforce studies on key factors for rural work.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[55] Quilliam, Crawford, McKinstry, Wong Shee, Harvey, Glenister, & Sutton (2021)	Australia, USA	1- recruitment and retention 2- demographics and trends	Qualitative	Identify research gaps related to supports for mature-aged nursing and AHP students.	Scoping Review	There is a lack of literature regarding mature-aged students. Some of the barriers that were more impactful for mature-aged students included (a) juggling responsibilities, (b) caring for family, (c) working, and (d) navigating the higher education system.	Recruitment strategies should be developed to support mature-aged students throughout the ancillary health program.
[56] Redford (2019)	USA	1- recruitment and retention	Not Research	Discuss how healthcare shortage continued to be an issue for rural communities.		Barriers continue to exist regarding the development of a strong rural workforce.	Development of some K-12 dual enrollment programs may be beneficial to meeting those needs.
[57] Ridgewell, Clarke, Anderson, & Dillon (2021)	Australia	1- demographics and trends	Descriptive	Compare orthotist/ prosthetist workforce data from 2007, 2012, and 2019.	Licensure data analysis	There was an overall increase in practitioner prevalence, though it was still below the recommended numbers from other countries. Geographic dispersion did not improve in the time span examined, but there was an increase in female providers.	
[58] Ridgewell, Dillon, O'Connor, Anderson, Clarke (2016)	Australia	1- demographics and trends 2- recruitment and retention	Descriptive	Compare orthotist/ prosthetist workforce data from 2007 and 2012.	Licensure data analysis	This highlighted the need for recruitment strategies to target states with aging client populations.	Suggested that strategies should be specialized to the needs and demographics of specific areas.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[59] Roots & Li (2013)	Canada	1- recruitment and retention	Qualitative	Understand factors and determinants of recruitment and retention of AHPs.	Literature review	Three main themes were identified: availability of professional support, opportunities for professional growth, and nature of rural practice. It was noted that the same factors that attract people to rural practice are often the reasons they leave.	
[60] Roots, Brown, Bainbridge, & Li (2014)	Canada	1- recruitment and retention 2- demographics and trends	Qualitative	Understand rural rehabilitation practice within the broad context of the current healthcare system.	Interviews	Participants reported how rural practice goes beyond rehabilitation and highlighted the importance of understanding the impacts of the environment and other determinants of health in a rural setting.	A specialist-generalist practitioner was discussed, with a need to maintain broad expertise while learning specialist skills needed within the community. Access to continuing professional development is a vital part of this strategy.
[61] Roots, Smith, Brown, Bainbridge, & Linda (2014)	Canada	1- person factors 2- recruitment and retention	Qualitative	Learn more about rural occupational therapists and the factors that support their recruitment and retention.	Interviews	Practitioners entering rural practice need a broad range of skills, including being resourceful and creative.	Educational programs should consider integrating population health and social determinants of health into their curriculum. Recruitment and retention would benefit from the development of professional support networks and increased access to continuing professional development.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[62] Russell, McGrail, & Humphreys (2017)	Australia	1- recruitment and retention	Qualitative	Synthesis current evidence on the factors related to retention of rural health professionals and provide suggestions for Australian policymakers.	Literature review	Geographical location was the strongest factor affecting retention. Some differences were noted between retention of various AHPs. Six retention domains were identified: (a) geographical location, (b) professional and organizational factors, (c) finances and economics, (d) regulatory factors, (e) education, and (f) family and personal factors.	Incentives used should take into consideration both remoteness and population size.
[63] Schmidt, & Dmytryk (2014)	Australia	1- recruitment and retention	Qualitative	Examine the value and influence of the Public-Private Partnership model for recruiting and managing new graduate therapists.	Focus groups and interviews	This study found that mixed sector jobs (public and private) offered broad work experiences, a diverse workload, and improved mentorship and supports for new grads.	The Public-Private Partnership model offers a new way to meet both public and private sector needs, while supporting new grads.
[64] Shah, Milosavljevic, Proctor, McQuarrie, Cuddington, & Bath (2018)	Canada	1- recruitment and retention 2- demographics and trends	Descriptive	Identify and target potential health locations for expansion of rural clinical placements.	Geospatial mapping and administrative data analysis	By offering more rural clinical placements, more physical therapists will have a chance to have a positive rural placement experience, which could create lasting effects on recruitment.	Specific recruitment and retention strategies: (a) assess demographic characteristics of practitioners to assess the fit, (b) relocation incentives, and (c) support and mentorship.
[65] Slagle, Byington, & Verhovsek (2012)	USA	1- recruitment and retention 2- demographics and trends	Descriptive	Examine differences between urban and rural healthcare administrator perspectives on AHP recruitment and retention.	Survey	This study demonstrates that there are key differences between urban and rural recruitment strategies. Rural respondents were more likely to report management influencing their retention.	Strategies differ between rural and urban settings and may need to vary between ancillary health professions.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[66] Smedts, Campbell, & Sweet (2013)	Australia	1- recruitment and retention	Descriptive	Identify characteristics of Northern Territory AHPs and their participation in student supervision.	Survey	Concerns were raised about the high number of professionals reporting an intention to leave their current job within five years. A link between intention to stay and professionals who provided student supervision was found.	Authors suggested that educational and incentive programs should be supported to attract students to local AHP programs.
[67] Smith, Cross, Waller, Chambers, Farthing, Barraclough, Pit, Sutton, Muyambi, King, & Anderson (2018)	Australia	1- demographics and trend 2- recruitment and retention	Qualitative	Provide greater understanding of the lived experiences of students and explore factors that contribute to positive or negative experiences.	Open-ended survey	Three key themes: (a) preparation and support, (b) rural experience, and (c) rural lifestyle and socialization. Student clinical placement satisfaction was strongly influenced by the diverse learning environment and a positive relationship with their supervisor.	Student experiences are optimized when extended beyond the placement setting and into the surrounding community.
[68] Smith, White, Roufeil, Veitch, Pont, Patel, Luetsch, & Mitchell (2013)	Australia	1- recruitment and retention	Descriptive Qualitative	Describe current rural pharmacist workforce and identify barriers or drivers for rural practice.	Mixed methods: Focus groups and interviews, survey, and administrative data analysis	Main drivers for rural practice intention included: (a) lifestyle and quality of life, (b) rural background, (c) business and job opportunities, (d) family reasons, and (e) personal and professional satisfaction. Barriers included (a) work-life balance, (b) career advancement, and (c) workplace conflicts.	Authors suggested: (a) increased remuneration, (b) financial incentives, (c) locum support, and (d) access to continuing professional development, while (e) promoting the positives of rural life, (f) offering accommodations, and (g) identifying spousal job opportunities.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[69] Smith, Fisher, Keane, & Lincoln (2011)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Compare results of 2005 to 2008 study to assess validity and any evident changes.	Analysis of two cross-sectional surveys	Significant workforce shifts due to the retirement of the "Baby Boomer" workforce. Noted a significant decrease in respondent satisfaction with access to continuing professional development.	
[70] Smith, Sutton, Beauchamp, Depczynski, Brown, Fisher, Wakely, Maybery, & Versace (2021)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Compare student profile characteristics and associations between location, extent, and type of clinical placement exposure.	Retrospective data analysis	This study found that students with rural origins were more likely to have undertaken rural clinical placements, and to have more cumulative placement days.	Due to the increased likelihood of rural students being from a lower socio-economic background, it is recommended that ongoing supports may be beneficial incentives to increase the rural workforce.
[71] Smith, Sutton, Pit, Muyambi, Terry, Farthing, Courtney, & Cross (2018)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Investigate factors affecting student clinical placement satisfaction and self-reported practice intentions.	Cross-sectional survey	The authors found that overall placement satisfaction was highly correlated with rural work intention.	Some components identified that may positively impact placement perceptions included (a) access to educational resources and accommodations, (b) high quality cultural training, (c) interprofessional education, and (d) workplace supervision.
[72] Spiers & Harris (2015)	Australia	1- recruitment and retention	Qualitative	Identify barriers and enablers for accessing education and clinical placements from the student perspective.	Literature review	The authors identified barriers and enablers related to the rural tertiary transition, and clinical placement transitions.	The main support strategies identified included (a) financial incentives, (b) voluntary clinical placements, (c) regional coordination and resources, and (d) regional development.

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[73] Sutton, Depczynski, Smith, Mitchell, Wakely, Brown, Waller, Drumm, Versace, Fisher, & Beauchamp (2021)	Australia	1- recruitment and retention 2- demographics and trends	Descriptive	Demonstrate the potential of the Nursing and Allied Health Graduate Outcomes Tracking study design for contributing to ancillary health and nursing workforce literature.	Data analysis of 2017 cohort	Individuals of rural origin were four times more likely to work in a rural location. Other important factors included the number of cumulative days at a rural clinical placement and undertaking an additional rural placement.	The clear relationship between location of origin, rural clinical placement exposure, and practice destination advocates for increased encouragement of rural clinical placements for AHPs.
[74] Taylor, Lindsay, & Glass (2019)	Australia	1- recruitment and retention 2- demographics and trends	Qualitative Descriptive	Identify gaps related to the impacts of curriculum and clinical placements on the current rural pharmacy workforce.	Mixed methods: Survey and follow-up interviews	Factors likely to influence practice location included: (a) rural background, (b) family and partners, (c) rural lifestyle, (d) income, and (e) job availability. Positive clinical placements are also strong influences.	Promote positive clinical placement experiences by offering more funded, supported, multidisciplinary experiences, with opportunities to experience the rural lifestyle.
[75] Terry, Phan, Peck, Hills, Kirschbaum, Bishop, Obamiro, Hoang, Nguyen, Baker, & Schmitz (2021)	Canada, Australia, New Zealand, USA, Ukraine	1- recruitment and retention	Descriptive	Identify factors associated with recruitment and retention of the rural and remote pharmacy workforce.	Systematic search	Five key themes were identified as impacting rural recruitment and retention: geographic and family factors, economics and resources, scope of practice, practice environment and community.	The study found that AHPs were motivated by both personal and professional satisfaction, both of which need to be considered for recruitment and retention strategies.
[76] Wantanabe-Galloway, Madison, Watkins, Nguyen, & Chen (2015)	USA	1- recruitment and retention	Qualitative	Understand mental health workforce recruitment and retention issues and offer potential solutions.	Focus groups	Identified 10 factors impacting recruitment and retention, with improved recruitment success reported when the applicant was from a rural area. Important qualities for applicants to have included personal initiative, networking skills, and a passion to serve.	

Author (year)	Origin	A Priori Code	Design (Tomlin & Borgetto, 2011)	Aim	Method	Key Findings	Specific Recruitment and Retention Strategies if Applicable
[77] White & Humphreys (2014)	Australia	1- recruitment and retention	Qualitative	Understand physical therapy student preconceptions and expectations about undertaking rural/regional placements.	Focus groups	Students voiced concerns about accommodations, finances, and available community facilities when considering undertaking rural placements.	It was suggested that fieldwork sites and educators make information regarding these concerns readily available in pre-placement packet or fact sheets as students are selecting their placements.
[78] Whitford, Smith, & Newbury (2012)	Australia	1- demographics and trends	Descriptive	Assess demographics, employment, and education factors affecting AHPs in rural South Australia.	Survey	Found differences between rural and urban respondents along with generational differences. Further support for the influence of rural clinical placements on rural employment outcomes.	
[79] Winn, Chisolm, & Hummelbrunner (2014)	Canada	1- recruitment and retention 2- demographics and trends	Descriptive	Understand potential impacts of the Northern Studies Stream Program on recruitment and retention of AHPs in Northern Ontario.	Survey	Positive recruitment factors included working in an underserved area, and lifestyle options. Retention was linked to job satisfaction and available professional networks.	Employers should consider how they can integrate professional networking and work to promote job satisfaction to improve retention.
[80] Yisma, Gillam, Versace, Jones, Walsh, May, & Jones (2021)	Australia	1- demographics and trends	Descriptive	Describe the distribution of three ancillary health professions by geographical location, population, and socio-economic status in South Australia.	Data analysis	AHP prevalence was noted to vary by geographical location and the socio-economic status of an area, with more remote areas having decreased AHP prevalence.	

Summary

Background and Purpose

Rural communities face difference barriers than their urban counterparts, and thus require different strategies to bolster the rural AHP workforce (Lin et al., 2015; Slagle et al., 2012). These barriers include the lack of AHPs, insufficient specialty services, and inequitable distribution of services (Healthcare Workforce Data Center, 2019; Slagle et al., 2012; Utah Medical Education Council, 2018). According to the Symens Smith and Trevelyan (2019), 17.5% of the rural population were 65 years and older, compared to 13.8% of those in urban areas. As older adults are more likely to deal with chronic conditions, they have an increased demand for rural AHPs (Center for Health Workforce Studies, 2006).

This scholarly project aimed to evaluate the existing literature and determine what evidence exists related to the gap between availability of rural AHPs, and the healthcare demands of rural communities. Specific research questions focused on (a) demographics and predicted trends, (b) person factors, and (c) recruitment and retention of AHPs. Based on the initial literature review, the aim of the project was to identify and implement strategies that would assist in bolstering the rural AHP workforce.

Process

The author reviewed each piece of evidence, first in an abstract review with a convergence of views achieved between the primary author and the faculty advisor, then a full-text review with use of a data extraction form. A total of 80 articles were included in the final scoping review. Of the 80 articles, 11 addressed person factors, 41 addressed demographics and trends, and 65 addressed recruitment and retention with most articles addressing more than one category. Additionally, as the scoping review was

being completed, the researcher collaborated with the project advisor and site mentors to complete smaller projects that addressed the current status of rural health, national resources specific to rural health, and advocacy efforts at the state licensure level encouraging increased data collection.

Outcomes

The literature reviewed throughout the scoping review was used to support several additional products used to further the current understanding of AHPs in rural health. The additional products included: (a) a newsletter synopsis on the benefits and resources available through the Rural Health Information Hub, (b) a 50-minute presentation on the current status of rural health, with specific evidence related to being a rural occupational therapist, (c) an advocacy letter to the state licensure board providing evidence and recommendations for additional data collection, (d) a poster presentation expanding upon the advocacy letter to be generalized to most licensure boards in the US, and (e) a poster presentation providing the results of the scoping review article.

Conclusions

Building the rural AHP workforce is a multifaceted project that must occur throughout the individual's professional experiences, starting prior to their educational program, and continuing even after employed in a rural community. Education plays an important role in preparing students for the future AHP workforce, and this can be bolstered by addressing curricular topics specific to rural health, providing quality clinical placements, and having discussions with students about the positive aspects of rural practice (Campbell et al., 2021; Durey et al., 2015; Taylor et al., 2019). When businesses are attempting to recruit AHPs, it is important to use flexible and individualized recruitment strategies as methods that will be valuable to some, may seem unnecessary to other applicants (Edelman et al., 2020; Russell et al., 2017). After an AHP has been hired, it is necessary to ensure that they have the appropriate supports to feel empowered in their job to promote both personal and professional satisfaction (Cosgrave et al., 2021; Terry et al., 2021).

While the evidence demonstrates that there is still no clear understanding of what brings AHPs to rural practice, there are numerous recruitment and retainment strategies supported in the literature. Available literature does provide a number of ways to promote and encourage future rural health practice.

Strengths

This scholarly project examined three categories related to rural AHP research, and their influences on one another. It was evident that the performance range of the AHP workforce is influenced by the demographics and person factors of AHPs, and the existing recruitment and retention strategies for rural AHPs are not meeting the growing demands of rural client populations (Dunn et al., 1994). This project also had a unique viewpoint, as most of the available literature was produced by countries with universal healthcare. In addition, the researcher was able to translate the available evidence into several forms, including a classroom lecture and an advocacy letter, in order to further disseminate the findings of this study.

Limitations

Due to the time constraints of the scholarly project, only two search methods were used for the scoping review. Additional hand search methods would have been beneficial for identifying research specific to person factors due to the ambiguous and undefine language surrounding that topic. An additional limitation is that the researcher only had so much time to complete additional strategies supported by the literature to disseminate the evidence.

Recommendations

While there is a growing evidence base surrounding the rural workforce, continued research is needed to investigate specific recruitment and retention strategy long-term outcomes, as well as continuing to assess workforce demographics and predicted trends. While large-scale data collection can be challenging, state licensure boards have a unique opportunity to bolster the demographic data

available. By being intentional in the data items that they chose to collect, and using standardized

language whenever possible, it increases the generalizability and usability of the data. Future research

would benefit from examining the person factors of an AHP, with an emphasis on clarifying the research

language used to make findings more accessible.

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