

INTRODUCTION

- The doctoring profession of audiology is guided by principles of autonomy and responsibility.
- Research in the perception of professional autonomy across other non-physician healthcare professions, such as nurses, nurse practitioners, pharmacists, or physical therapists, found several factors were associated with professional autonomy^{1,2}:
 - State specific scope-of-practice (SOP) regulations/restrictions
 - Payment policies
 - Physician-clinician relationships
- Similar investigations have not been conducted in audiology.
- The current work poses the following question via on-line survey:
 - Do SOP regulations, payment policies, and other demographic factors impact audiologists' perception of professional autonomy?

METHODS

Participants

- Recruited from: (1) Emails and newsletters distributed by national and state professional organizations in audiology; (2) Public and private audiology groups on social media
- 137 clinical audiologists practicing in all 50 states including the District of Columbia but excluding U.S. territories
 - 156 individuals initiated the survey; 19 did not complete the study and were excluded

Survey

- A 35-item, ad-hoc, survey was available via Qualtrics on-line platform. The contents of the survey are as follows:
 - Demographics:** 17 multiple-choice questions identifying current practice setting, audiology experience, and the number/type of specializations held.
 - Services Provided:** 15 multiple-choice questions detailing provided audiologic services and barriers to services not provided
 - Autonomy:** 7 questions using a 7-point Likert Scale to rate self-perceptions regarding professional autonomy and degree to which they practiced to the level of their education. (Items adapted from *The Work Design Questionnaire (WDQ)*.³

Measures

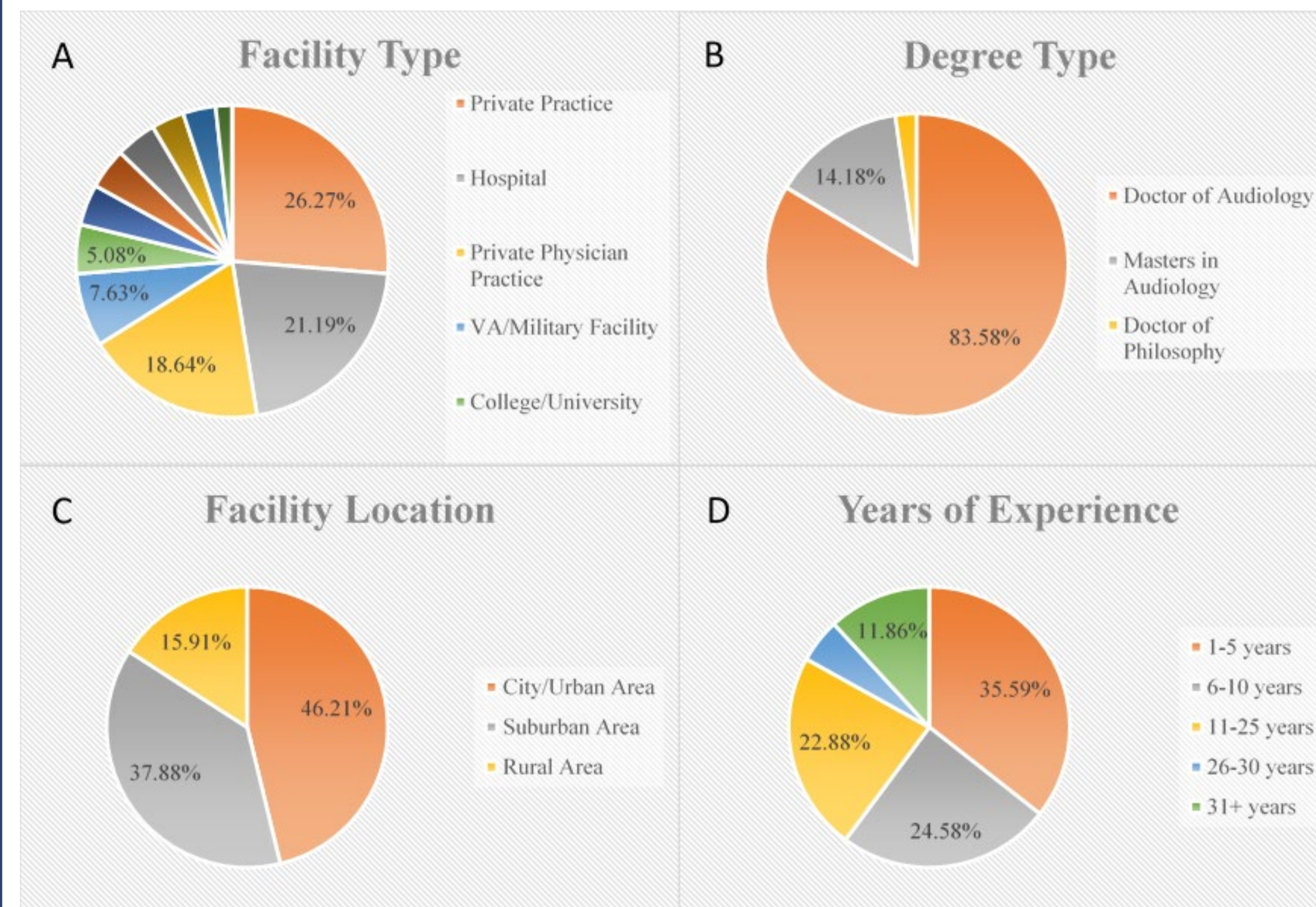
- Autonomy Rating:** Participants' perception of their own autonomy was gathered from an average rating of two questions from the autonomy section of the survey. (Low (< 3), Medium (3 - 5), and High (> 5))
- Skills Utilized Rating:** Participants' perception of how much they fully utilized their audiologic skills was gathered from an average rating of three questions from the autonomy section of the survey. (Low (< 3), Medium (3 - 5), and High (> 5))
- SOP Specificity Category:** The number of explicitly stated audiologic procedures in state licensing laws: specific (>19), semi-specific (10-19), vague (<10).

Analysis

- Correlational and chi-square analyses were completed to determine the relationship among Autonomy Rating and Skills Utilized with demographic variables: SOP specificity, payment policies, physician-clinician relationship, clinical setting, years of experience.

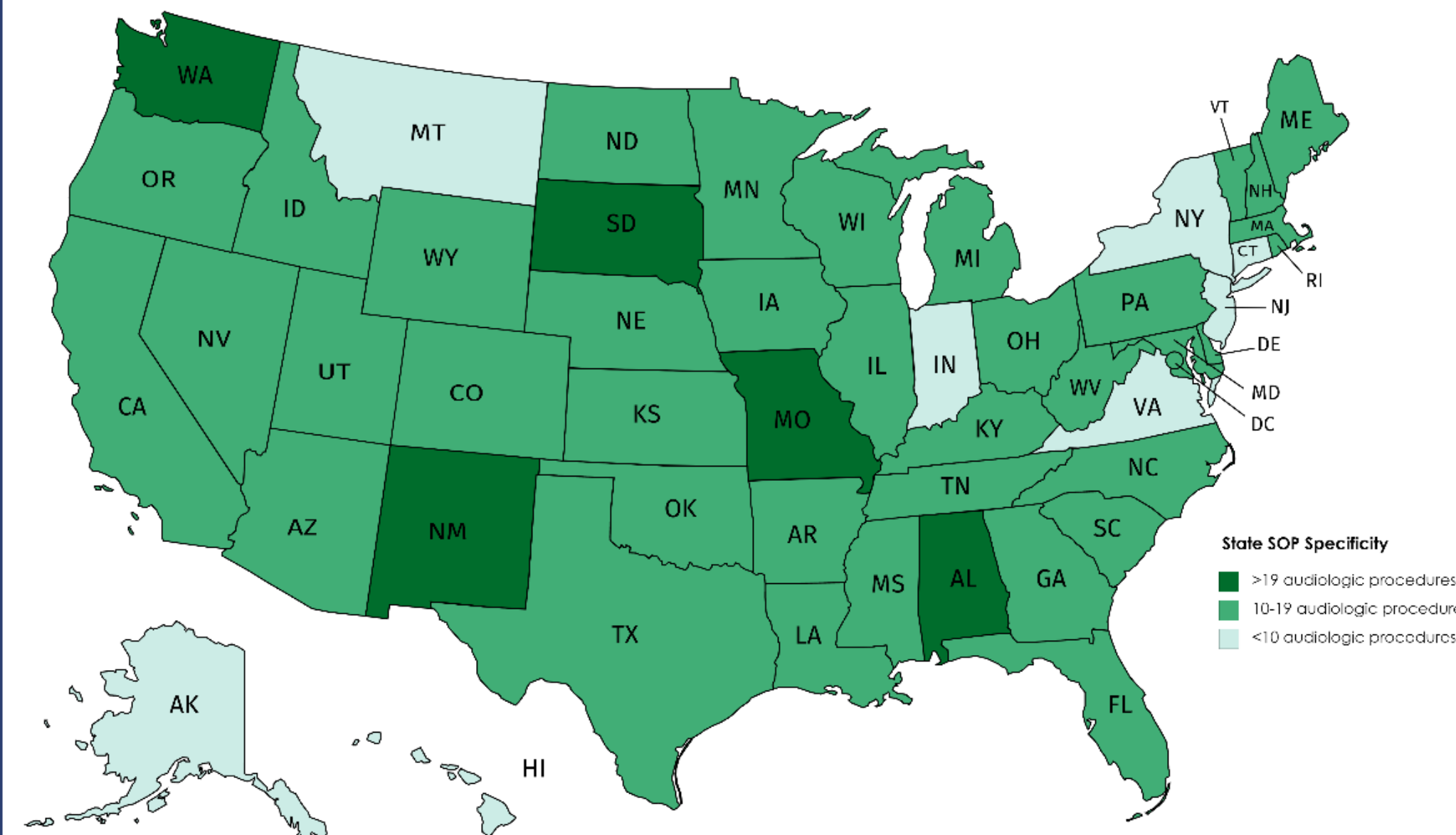
RESULTS

Figure 1. Demographics



The most common work settings were private practice, hospital and physician's office (> 65 % of all respondents). Over 80% have the AuD degree; Fewer than 20 % of respondents work in rural areas; Over 80 % of respondents have been providing services for 25 years or less. Current demographics similar to previous professional surveys.⁴

Figure 2. Practice Specificity by State

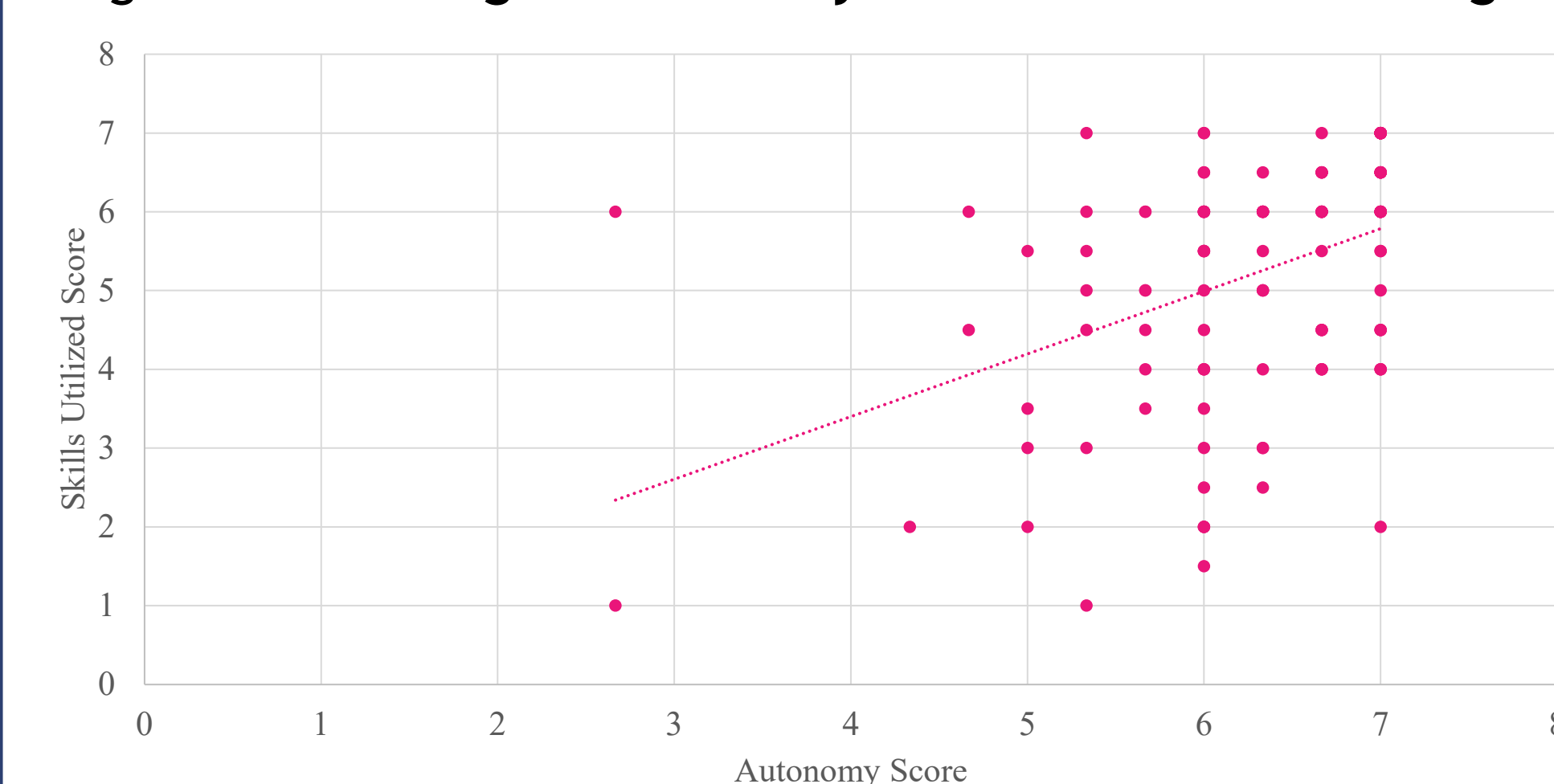


Greater specificity (number of procedures defined in state SOP laws) indicated by darker shades of green. Specific SOP= > 19 audiologic procedures explicitly defined (dark green); Semi-specific: 10-19 audiologic procedures explicitly defined (medium green); Vague specificity: Less than 10 audiologic procedures explicitly defined (light green)

Autonomy and Skills Utilized Ratings

- Autonomy ratings (M= 6.3) indicated audiologists perceived themselves to be autonomous.
- Skills utilized ratings (M= 5.2) indicated audiologists reported they practiced to a moderate-to-high extent of their education.
- Perceived autonomy increased as the degree to which audiologists practiced to the fullest extent of their education increased (rho = 0.43, p = 0). [Results unchanged when outliers removed from analysis] See Figure 3 below.

Figure 3. Audiologists Autonomy and Skills Utilized Ratings



Autonomy, Skills Utilized and Other Factors

- Number of services provided, number of professional certifications, and years of experience were not related to perceived autonomy.
- Separate chi-square analyses revealed that SOP specificity category (specific (>19), semi-specific (10-19), vague (<10)) geographic region (east, south, west, northeast)⁵, and facility type (hospital, physician practice, private practice, VA/military, college/community) were independent of perceived autonomy (p > .05).
- Skills utilized category (Low (< 3), Medium (3 - 5), and High (> 5)) was dependent upon the region of licensure (east, south, west, northeast)⁵. (chi-square = 14.88, p < .05). Audiologists in the northeast region of the United States reported lowest "skills utilized" scores.
- Skills utilized category (Low (< 3), Medium (3 - 5), and High (> 5)) was dependent upon the specificity of the state's SOP licensing laws (specific (>19), semi-specific (10-19), vague (<10)), (chi-square = 14.62, p < .05). Lower "skills utilized" ratings were reported by audiologists who practiced in states with vague SOP licensing laws.

Barriers to Service

- All participants indicated there was at least one barrier to providing an audiological service, and most listed several.
- Lack of interest (73 % of all barriers) was the most reported factor preventing audiologists from consistently providing a service, followed by lack of proficiency (33% of all barriers) and the service not being required for their patient populations (20% of all barriers). (See Table 1)

Table 1. Barriers to Providing Audiology Services.

Barriers	Services
Not interested in providing service (N=300)	Auditory Brainstem Implant Services
	Auditory Evoked Potentials
	Behavioral Diagnostic Tests
	Evaluation of Auditory Processing
	Hearing Aid Evaluation and Fitting Services
	Hearing Conservation and Ototoxic Monitoring
Not proficient in this skill set (N=190)	Intraoperative Monitoring
	Middle Ear Measures
	Tinnitus Evaluation/Treatment
	Vestibular Assessment
	Vestibular Rehabilitation
	Auditory Brainstem Implant Services
Not required for target patient population (N=53)	Cochlear Implant Services
	Evaluation of Auditory Processing
	Intraoperative Monitoring
	Vestibular Rehabilitation
	Hearing Conservation and Ototoxic Monitoring
	Middle Ear Measures
Proficient in service but do not have required equipment (N=43)	Tinnitus Evaluation/Treatment
	Auditory Evoked Potentials
	Hearing Aid Evaluation and Fitting Services
	Vestibular Assessment
	Vestibular Rehabilitation
	Hearing Conservation and Ototoxic Monitoring
Service not reimbursed by insurance (N=50)	Assistive Listening Device Services
	Cerumen Management
	Habitatative and Rehabilitative Services
	Habitatative and Rehabilitative Services
	Habitatative and Rehabilitative Services
	Habitatative and Rehabilitative Services
Other: Other practioners do this (N=27)	Cerumen Management
	Cochlear Implant Services
Time constraints (N=20)	Habitatative and Rehabilitative Services
	Habitatative and Rehabilitative Services
Other: Patients not interested (N=5)	Assistive Listening Device Services
	Behavioral Diagnostic Tests
Other: Scheduling (N=1)	Assistive Listening Device Services
	Behavioral Diagnostic Tests

DISCUSSION & CONCLUSIONS

- It appears that audiologists, regardless of demographic factors, feel they are independent in their practice. Perceived autonomy for the audiologists in this study was significantly correlated with skills utilized but no other factors. Given the breadth and depth of audiology education, it is understandable that audiologists who practice to the full extent of their education are more likely to feel autonomous.
- Unlike other nonmedical health providers, state-level SOP laws, payment policies, and physician-clinician relationship did not have an impact on the audiologists' perception of autonomy.
- In the current study, autonomy was established by assessing the participants' decision-making capabilities using questions adapted from the WDQ.³ Previous work also evaluated billing capabilities and these differences in autonomy parameters may have limited the current work.
- The specificity of state SOP laws had little impact on audiologists' perceived professional autonomy; however, SOP laws had a significant impact on their perception of audiologic skills utilized. Audiologists in this study who reported practicing at "low" levels of their education tended to live in states with "vague" specificity in SOP laws. Since perception of skills utilized was dependent upon state SOP `specificity, a relationship between specificity of licensing laws and perceived autonomy cannot be ruled out.
- Audiologists reported a lack of interest as a primary reason for not providing particular services; It is possible that the services of interest to audiologists may not be those impacted by state-level SOP laws or other factors influencing perceptions of autonomy.
- A second barrier to audiologists providing services was a lack of proficiency in a certain skillset. Lack of expertise may stem from several sources: (1) The audiologist's education did not fully prepare them for a specific skill set; (2) After an extended time away from school, the audiologist is not as confident in knowledge for skills not practiced consistently. (3) The audiologist has a specialization or certification that limits practicing other skills consistently.
- Current results may be impacted by several factors: (1) Survey questions may not have adequately assessed the effect of payment policies and ENT-audiologist relation; (2) The limited range (ceiling) in autonomy ratings; (3) Subjective ratings by audiologists regarding autonomy or skills utilized may be biased, limiting accuracy; (4) Important factors associated with autonomy may have remained unassessed; (5) Categorization of the degree of SOP or skills utilized was at the discretion of the researcher and may have been faulty; (6) There were a limited number of respondents within each state and practice setting.

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ACKNOWLEDGEMENTS

Thanks to state audiology associations, face-book groups, and audiologists who made this work possible.

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