

OBJECTIVE

The goal of the overall study is to evaluate the effectiveness of the Hearing Evaluation Autism Risk Screener (HEARS), an ASD screener completed by audiologists based on behaviors observed in audiology clinics. This descriptive study examines preliminary data to explore how the HEARS performs with respect to traditional ASD screeners, particularly for children from diverse racial/ethnic backgrounds. Demographic characteristics of children screened using the HEARS during audiology visits during the time period of December 2022 through January 2024 will be described. The results of the HEARS will be compared to traditional ASD screeners.

BACKGROUND

Audiologists rarely screen for ASD, despite often seeing children before their ASD diagnosis (Peterman et al., 2018; Meinzen-Derr et al., 2014; Meagher et al., 2021) and despite professional guidelines indicating screening for ASD is within audiologists' scope of practice (ASHA, 2018). Furthermore, children with diverse backgrounds and co-occurring disabilities are diagnosed later with ASD (Meinzen-Derr et al., 2014; Boyle et al, 2011; Zablotsky et al, 2017). As providers who routinely see children early in their differential diagnosis process and with expertise on the effects of reduced hearing on speech/language development, audiologists are uniquely positioned to screen for ASD. Research has suggested that children who demonstrate specific behaviors observed during audiology visits, especially those that interfere with traditional test procedures, have a higher odds of receiving an ASD diagnosis compared to those children who do not demonstrate similar behaviors (Meagher et al., 2021).

METHODS

Approved by COMIRB (# 21-4877)
Audiologists completed the HEARS screener based on behaviors observed during hearing evaluation of children ages 16 months to 10 years. The HEARS was developed based on behaviors occurring during audiology visits that were associated with an ASD Dx (Meagher et al., 2021) and was informed by behaviors associated with ASD that are observable versus reliant on parent report. Parents were then contacted and asked if they would like to consent to participate in completing developmental/ASD screeners. A subset of families completing screeners were invited to complete a comprehensive developmental evaluation specifically evaluating for ASD. (However, this data is not included in this analysis). Demographic data regarding child's race/ethnicity, gender, and prior diagnoses were extracted from child's medical record and parent report. Data collection is ongoing; this analysis represents preliminary data collected from December 12, 2022 to January 18, 2024

RESULTS

Figure 1: Racial Background of HEARs Participants as a function of percentage (%). Preliminary results show that of the participants in the study, n=183, 68.3% were Caucasian/White, 15.8% were Other, 6.56% were Unknown and Asian, 1.09% were American Indian/Alaskan Native or preferred not to say, 0.55% were African American/Black and 0% were Hawaiian/Pacific Islander.

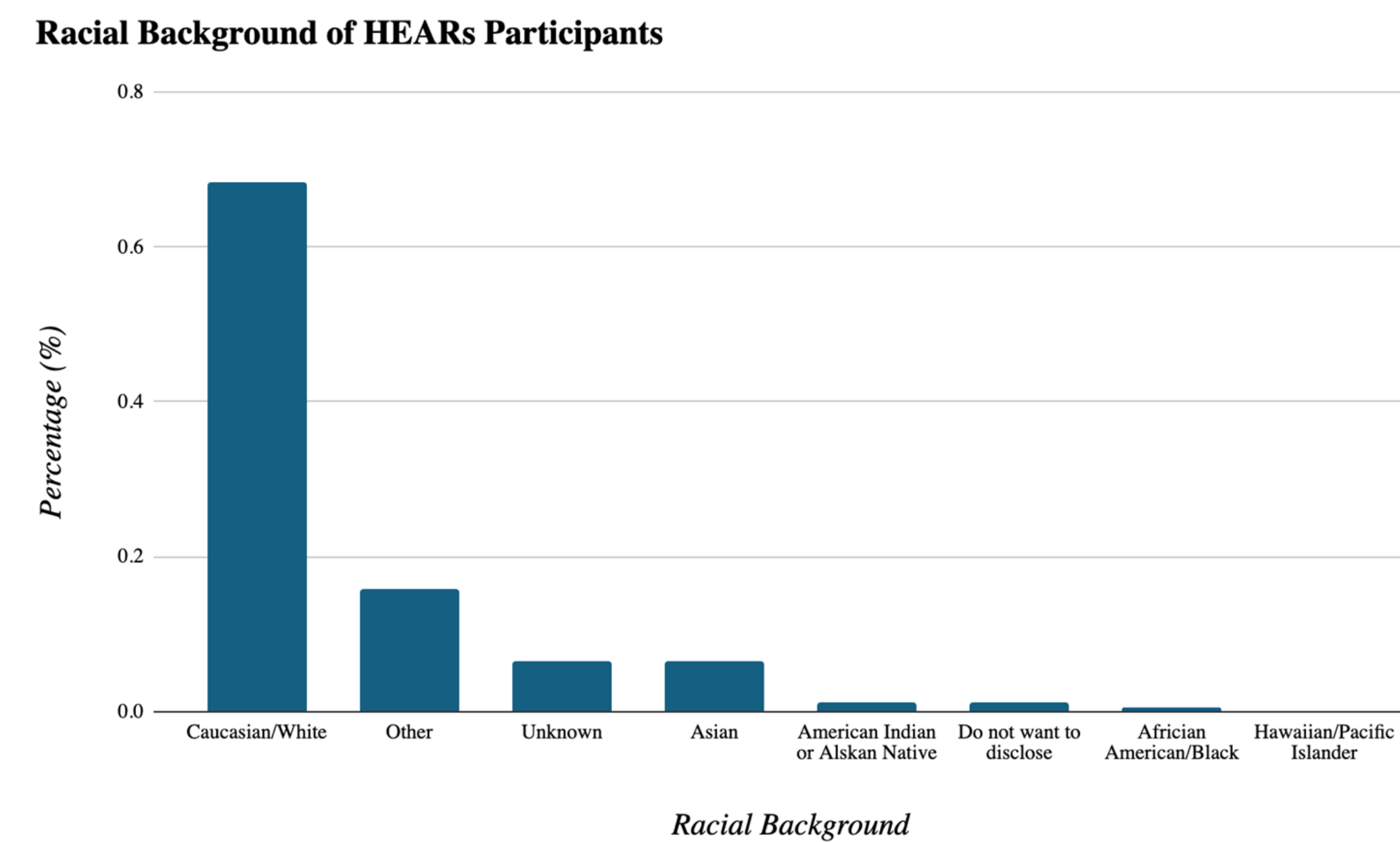


Figure 2: Ethnic Background of HEARs Participants in Percentage (%). Preliminary results show that of the participants in the study, n=183, 53.3% were Non Hispanic, 39.7% were Hispanic/Latino, 4% were other and 3% preferred not to say.

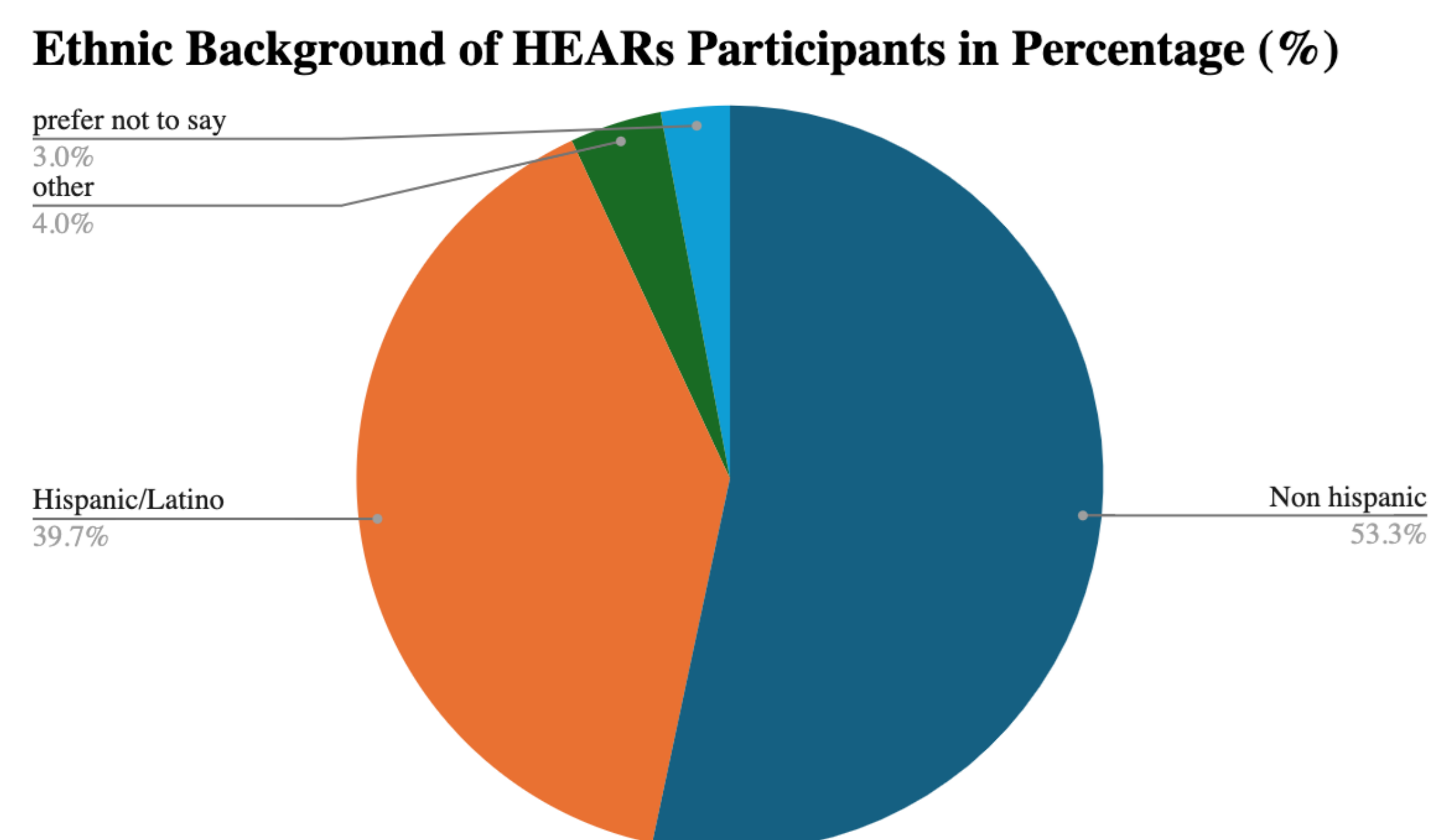


Figure 3: Racial Background of HEARs Participants that have an Autism Spectrum Disorder Diagnosis (n=10)

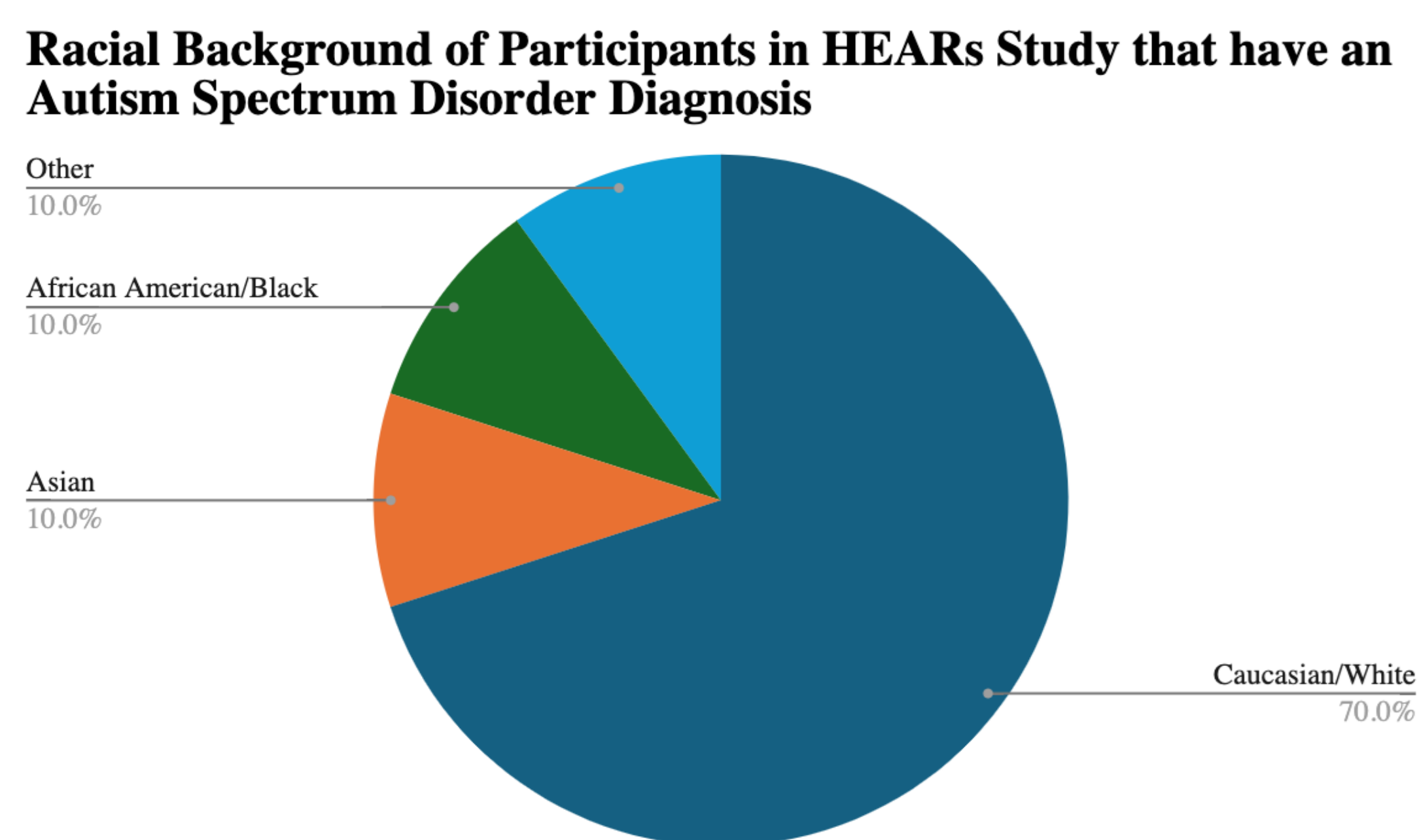
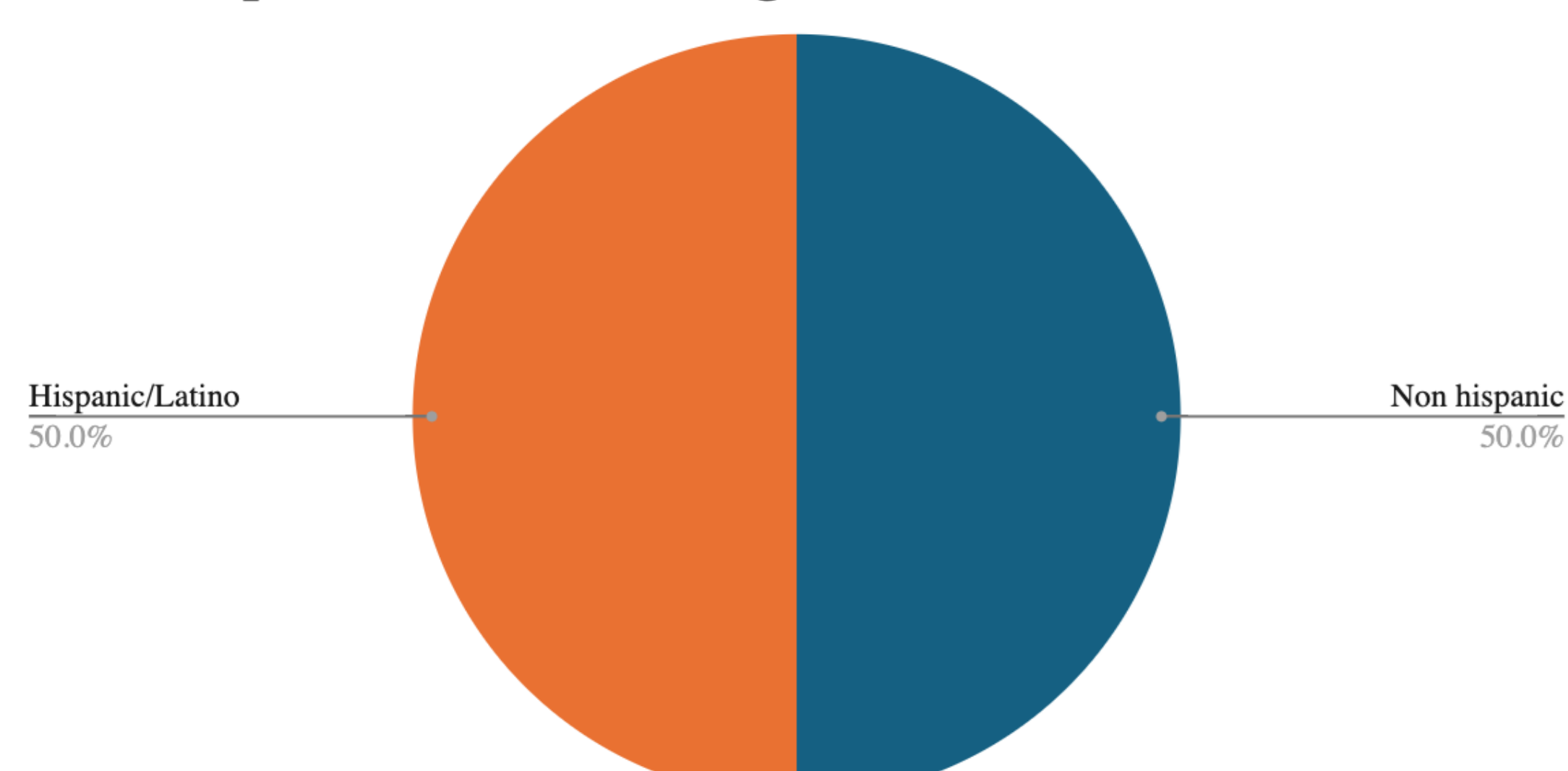


Figure 4: Ethnic Background of HEARs Participants that have an Autism Spectrum Disorder Diagnosis (n=10).

Ethnic Background of Participants in HEARs Study that have an Autism Spectrum Disorder Diagnosis



RESULTS

1. Preliminary analysis suggests that a low threshold on HEARS (>0) aligns with traditional screeners. For children with no prior ASD diagnosis, 100% of subjects who received a score >0 on the HEARS also had elevated scores on traditional ASD screeners
2. 100% of subjects who did not receive an elevated score on the HEARS (score 0) also did not have elevated ratings on traditional ASD screeners
3. Analysis of subjects who already had an ASD diagnosis (N=10)
 - a. 90% had elevated scores on HEARS (>0)
 - b. 10% did not have elevated score on the HEARS (0; potential false negative)

DISCUSSION

Based on this preliminary data, screening for Autism Spectrum Disorder based on behaviors observable during a typical audiological hearing evaluation shows promise. It was also seen that race/ethnicity of a sample who completed the HEARS varies from the demographic served by the hospital. In this sample, it was found that the African American/Black and Hawaiian/Pacific Islander population was underrepresented based on the Colorado Race/Ethnicity Data, which shows that Hawaiian/Pacific Islanders makeup 4% of the population and African/American/Black makeup 5.7% of the population. Screening for ASD based on observable behaviors, independent of language used by child or parents may help fill a gap in current ASD screening practices.

Limitations

Some limitations of this study include pilot data that captures a small sample of this study data. Additional data is needed to explore the positive predictive value and sensitivity/specificity of the HEARS screener. Full diagnostic evaluations are not reported in this analysis. with children and families who cannot complete screeners or evaluations in English are not represented in this data.

Future Research

Future research will need to include intentional recruitment efforts to test the validity of the HEARS with a more diverse sample. Future research should incorporate screening tools and diagnostic evaluations that are accessible to children of families from diverse linguistic and cultural backgrounds to determine whether the HEARS is a reliable screening tool with linguistically and culturally diverse populations.

ACKNOWLEDGEMENTS

This project was supported in part by the Health Resources and Services Administration (HRSA) under the Leadership Education in Neurodevelopmental Disabilities (LEND) Grant T73MC11044 and by the Administration on Intellectual and Developmental Disabilities (AIDD) under the University Center of Excellence in Developmental Disabilities (UCDEDD) Grant 90DdUC0014 of the U.S. Department of Health and Human Services (HHS). This information or content and conclusion are those of the author and should not be construed as the official position or policy of, nor should HRSA, HHS or the U.S. Government infer any endorsements.

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