Final Project

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Introduction

The Individuals with Disabilities Education Act (IDEA) Part C is a federal grant program that supports states in providing Early Intervention (EI) services for children zero to two who experience developmental delays and/or disabilities (Early Childhood Technical Assistance Center, 2023). These EI services incorporate family-centered practices, aiming to support caregivers' understanding of their children to provide the most effective support for their development (Romano, 2006). However, racially and linguistically minoritized children are less likely than White, English speaking monolingual children to receive EI services (Morgan et al., 2012) despite federal mandates to ensure the most marginalized, hard-to-reach communities are served.

The IDEA Section 618 requires that data is collected on children with an active IFSP who stopped receiving EI services (U.S. Department of Education [DOE], 2024). Recent data revealed that racially and/or linguistically marginalized infants and toddlers are much more likely to leave EI services via disqualification due to non-response to agencies' outreach efforts after being made eligible.

The purpose of this project is to explore the patterns in which families from racially and/or linguistically marginalized communities leave EI services by examining extant data on EI exit between 2013-2022. The data was obtained from the Office of Special Education Services (OSEP, 2024). The research questions is as follows:

- Are there associations between children's race and their reasons for exiting EI services nationally, as analyzed through descriptive statistics including chi-square tests and odds ratio analysis?
- What are the associations between children's race (Black/African American and White) and being disqualified due to "Attempts to Contact Unsuccessful"? Are the odds ratio different between the two racial groups for being disqualified for this reason?

Methods

Independent variables (IV): Student' race served as the independent variable (IV), while exit reason served as the dependent variable (DV). There were seven racial categories serving as IVs (Alaska Native/American Indian, Asian, Black/African American, Hispanic, Multiracial, Pacific Islander, White). We briefly discussed collapsing racial categories in order to make the analysis more powerful (as Maiko will also be working on state-level data with cells with "0"s as certain populations are very underrepresented). However, we decided against doing so as this would likely obscure the results, as there are large disparities within BIPOC populations when we look at their exit reasons.

Dependent variables (DV): As you can see in Table 1, there are ten exit categories under three general exit reason "umbrellas" (Hansen et al., 2 016):

Table 1: Table of Exit Reasons

exiting_reasons	exiting_category_codes
Program completion	Category (C) 1: A child is no longer eligible for Part C prior to reaching age three
Exit at age three	C2: A child is exiting Part C and has been determined to be eligible for Part B
Exit at age three	C3: Part B eligible, continuing in Part C
Exit at age three	C4: Not eligible for Part B, exit with referrals to other programs
Exit at age three	C5: Not eligible for Part B, exit with no referrals
Exit at age three	C6: Part B eligibility not determined
Not receiving services	C7: Deceased
Not receiving services	C8: Moved out of state
Not receiving services	C9: Withdrawal by parent (or guardian)
Not receiving services	C10: Attempts to contact the parents and/or child were unsuccessful

These ten reasons were collapsed into six categories based on the scope of the study and for logistical reasons. For example, "Deceased" is beyond the scope of this study; one reason is not used in Oregon; multiple codes were similar in nature to each other:

- Attempts to contact unsuccessful
- Withdrawal by parent
- Complete/not eligible for Part B
- Moved out of state

- Part B eligibility not determined
- Part B eligible

Preparatory work: We prepared the data in a following manner:

1. Created an Excel sheet from the national and Oregon data sets
2. Imported Excel sheet into RStudio
3. Collapsed/removed DVs
4. Collapsed multiple years into one aggregated data by race

Data Analysis: We used chi-square goodness of fit test to understand associations between children's race and their EI exit reasons. First, we ran descriptive analysis of the national dataset as an omnibus test. For this, we used foundational statistical functions and chi-square to test our null-hypothesis; there is no associations between children's race and their exit reasons.

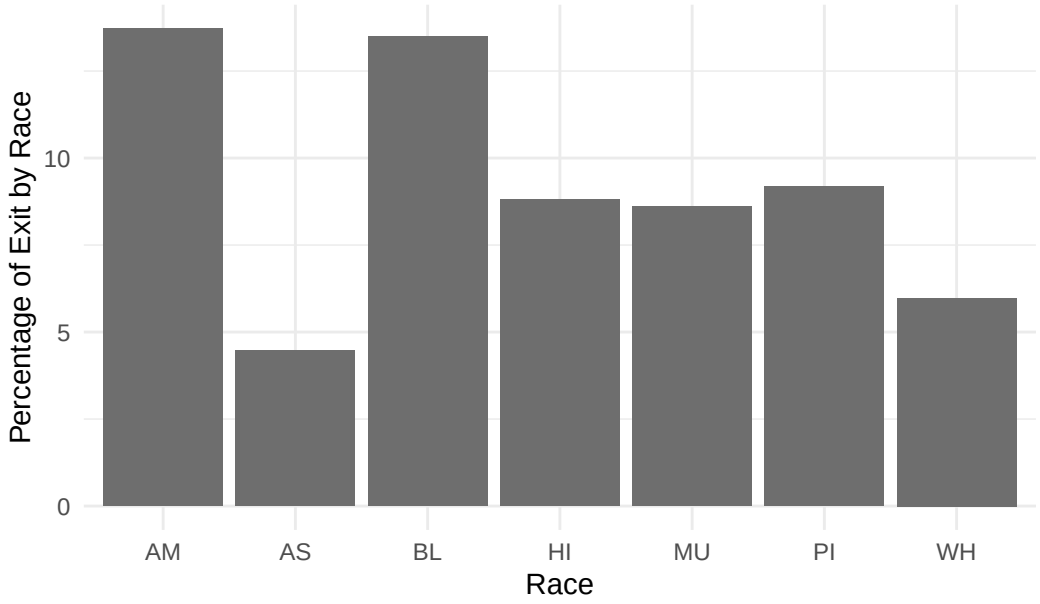
We then analyzed the association between the exit reason, "Attempts to Contact Unsuccessful", using similar analysis. For this stage, we looked at the association between two racial categories, Black/African American and White infants/toddler groups, with "Attempts to Contact Unsuccessful". We created 2x2 table for this analysis, complete with the total number of exits. This was used to analyze the odd ratio and Cohen's *h*.

Results

The initial exploration included exit data from 3,310,559 children who exited the EI services between 2013 and 2022 nationally. Approximately _____% of the children were Black/African American, while _____ children were reported as being White. The chi-square omnibus test indicated that there was a statistically significant association between children's race and their exit reasons, X-squared (30, N = 3,310,559) = 52218, $p <$ 2.2e-16 or 0.00000000000000022 ($p < .001$).

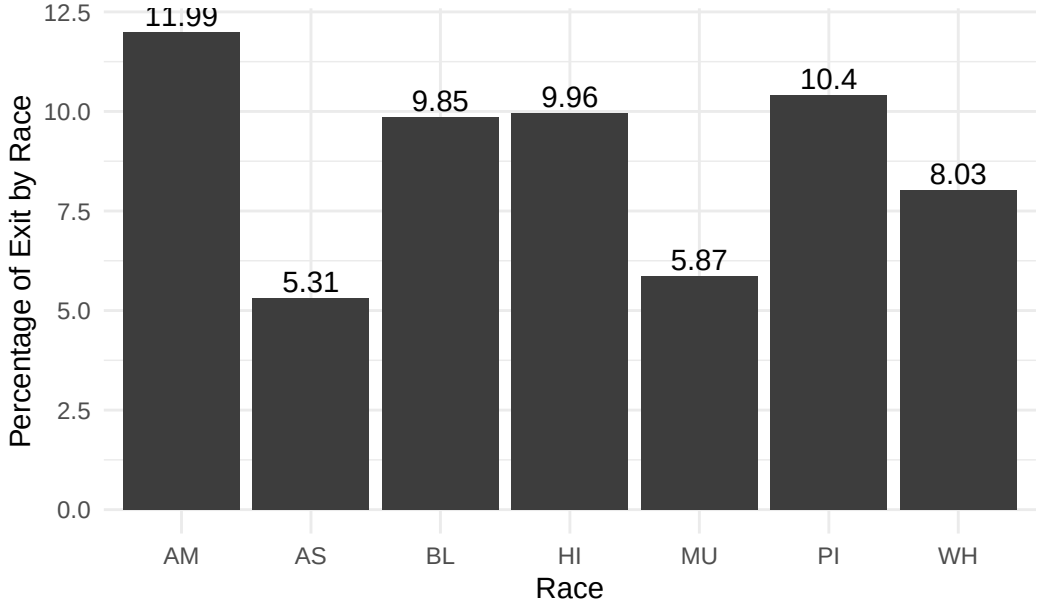
Looking specifically at the "Attempts to Contact Unsuccessful" category, approximately 13.5% of Black/African American infants ant dollders were disqualified from EI services nationally due to agencies losing contact with families, while only about 5.98% of White children were disqualified for the same reason (Figure 1).

Figure 1: Unsuccessful Contacts/DQ (U.S.)



When we look at the same dataset at the state level, the numbers change slightly. Approximately 9.85% of Black/African American infants ant toddllers were disqualified from EI services in Oregon due to agencies losing contact with families, while only about 8.03% of White children were disqualified for the same reason in Oregon (Figure 2).

Figure 2: Unsuccessful Contacts/DQ (Oregon)



The chi-square indicated that there was a statistically significant association between children being Black/African American or White and them leaving EI due to being disqualified nationally. The chi-square test indicated, X-squared (222556.00, N = 2,088,058), $p <$ 2.2e-16 or 0.0000000000000002 ($p < .001$).

Because whether or not children were Black/African American or White and whether they were likely to be disqualified from EI services due to "Attempts to Contact Unsuccessful" were both binary variables, an odds ratio was computed. Odds ratio are commonly used for reporting the odds of one outcome between two independent groups (Morgan, et al., 2020).

A 2x2 contingency table was created and analyzed, and the odds ratio was calculated to determine the relative likelihood of the students being disqualified between the two groups. The odds of Black infants and toddlers being disqualified from EI services due to "attempts to contact unsuccessful" were significantly higher than those for White infants and toddlers, with an odds ratio of **2.46** (95% CI [2.43, 2.48]). This indicates that Black students were approximately 2.46 times more likely than White students to be disqualified from EI services for this reason.

Cohen's h was calculated to evaluate the effect size of the analysis**.** The result indicated a small to medium effect size, $h = 0.25$. However, even though effect size shows the magnitude of the difference, it is not necessarily considered to be a direct indication of the importance of the findings (Morgan et al., 2020).

Discussion

Our analysis revealed that the odds ratio for Black/African American infants and toddlers to be disqualified from EI services due to "Attempts to Contact Unsuccessful" was 2.46 times higher when compared to their White peers nationally. However, there are many limitations to this descriptive analysis.

First of all, we have to remember that race is not a predictive factor for outcomes. At a quick glance, race seems to be associated with inequity in EI service exit patterns. However, research following the completion of the Human Genome Project has shown that race, from a genetic standpoint, does not contribute to health inequities. Instead, it is the environments experienced by racially minoritized communities that play a significant role (Silverstein, 2015). Silverstein cited Kittles (2015) in order to clarify this: "the bulk of those disparities are not due to any biological difference. The vast majority of health disparities are due to social, behavioral, and environmental components". Race is merely one of the many descriptors for individuals.

In addition, as Crenshaw (n.d.) established in her seminal work, we must take the framework of Intersectionality when conducting a research. This type of oversimplified statistical analysis can contribute to reinforce the status-quo where race is quickly to be blamed, rather than

the complex environments and multiple layers of identities that members of marginalized communities live in.

In addition, researchers have argued that quantitative methods are inequitable, as "the history of quant methods is inseparable from eugenics movement" (p. 4, Castillo & Strunk, 2024) and that it stems from and reinforces inequity. QuantCrit philosophy are based and expands on the centrality of racism and the lack of neutrality in numbers and categories. Going forward, it would be extremely important to remember these tenets and to approach data collection, categorization and analysis with equity and justice as the central philosophy.

References (DOESN'T SHOW CORRECTLY because mixing the insert citation and just typed ones)

Castillo, W. & Strunk, K. (2024, November 15). How to QuantCrit [PowerPoint slides]. https://www.sree.org/critical-perspectives

Early Childhood Technical Assistance Center [ecta], (2023, October 6). *Part C of IDEA*. ecta. https://ectacenter.org/partc/partc.asp

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Morgan, G.A., Barrett, K.C., Leech, N.L., & Gloeckner, G.W. (2020). *IBM SPSS for introductory statistics: Use and interpretation.* Routledge.

Romano, S.D. (2006). Historical perspectives. In G. M. Foley & J.D. Hochman (Eds.), *Mental health in early intervention: Achieving unity in principles and practice* (pp. 33-58). Baltimore: Paul H. Brookes Publishing Company.

Silverstein, J. (2015, April 15). Genes don't cause racial-health disparities, society does. The Atlantic. https://www.theatlantic.com/health/archive/2015/04/genes-dont-cause-racial-health-disparities-society-does/389637/

Crenshaw, K. (n.d.). *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics.*

Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2012). Are Minority Children Disproportionately Represented in Early Intervention and Early Childhood Special Education? *Educational Researcher*, *41*(9), 339–351. https://doi.org/10.3102/0013189X12459678