

Enhancing access to genetic testing for individuals with ASD/IDD by providing education to clinicians in the primary care setting

Natalie Hamilton, MD¹; Laura Pickler, MD²; Patrick Long, MD³

1. University of Colorado, Family Medicine Department; 2. Children's Hospital Colorado Anschutz Medical Campus; 3. Sequence MD



Background

- Genetic testing can help in diagnosing and managing autism spectrum disorders (ASD) and intellectual and developmental disabilities (IDD), with genetic causes identified in 10-40% of cases.¹
- The American College of Medical Genetics and Genomics (ACMG) recommends that all individuals diagnosed with ASD/IDD be offered genetic testing.^{2,3}
- Primary care providers are uniquely equipped to provide counseling on genetic testing for patients with ASD/IDD, however implementation of genetic testing remains low in this population.^{4,5}

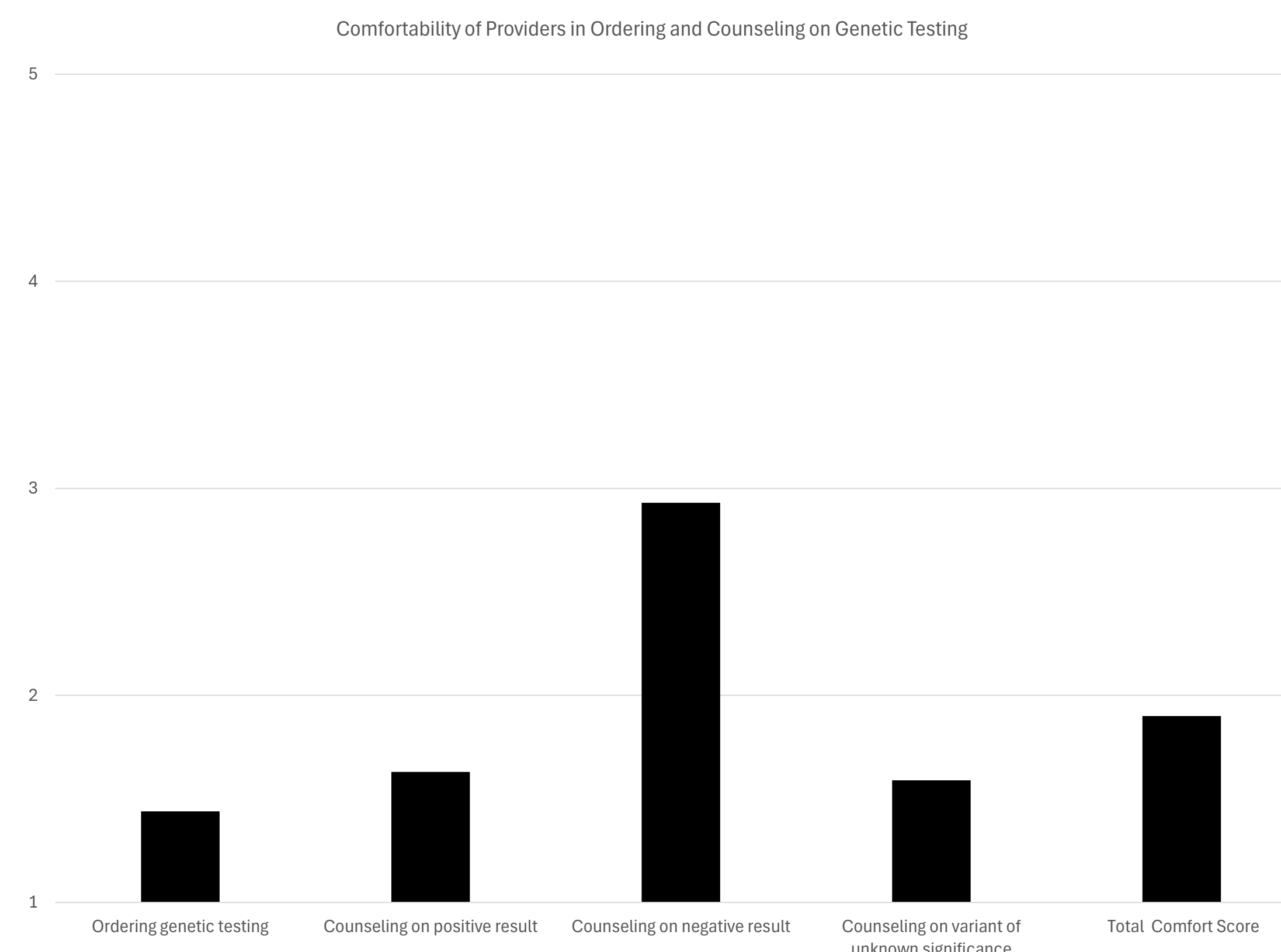
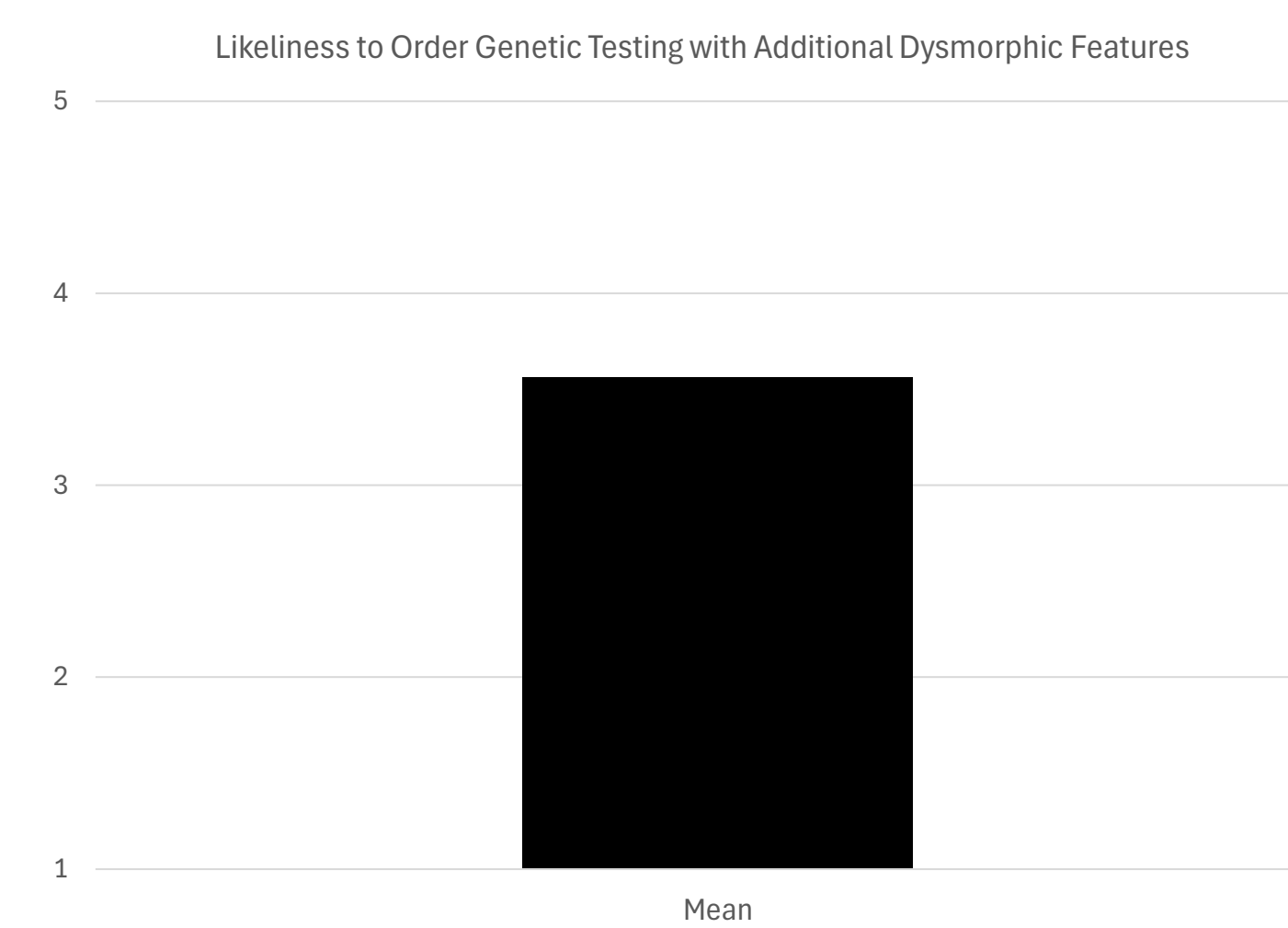
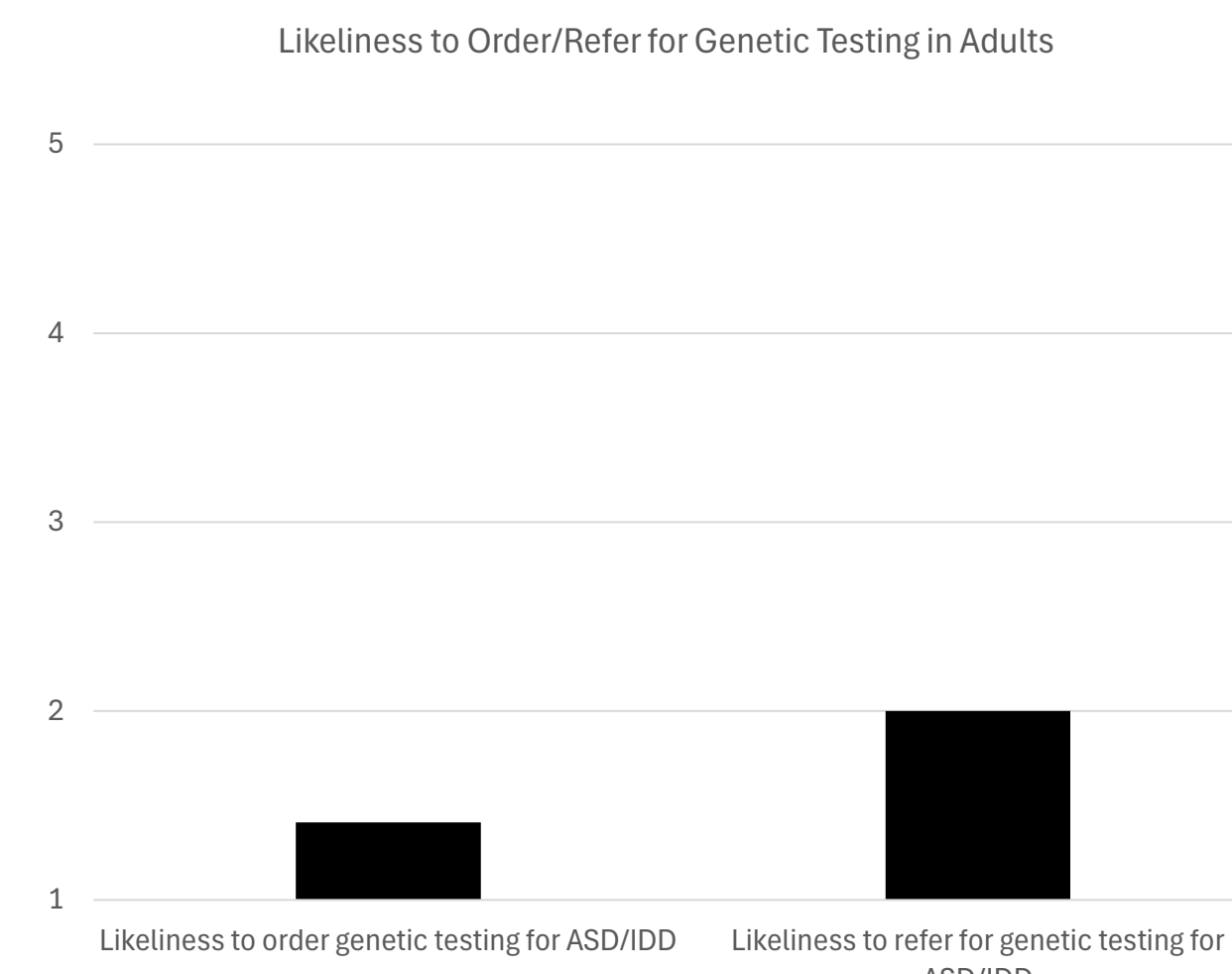
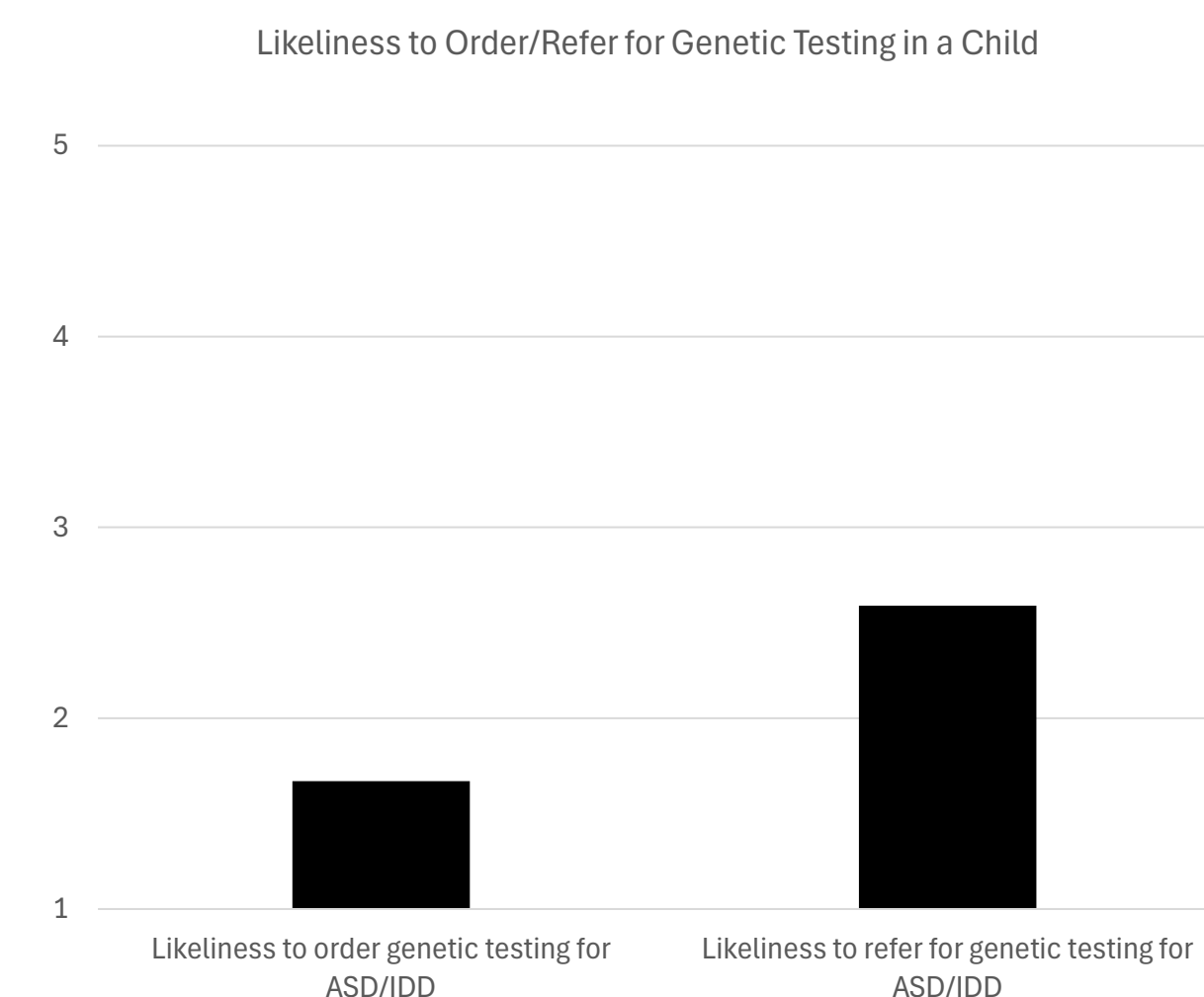
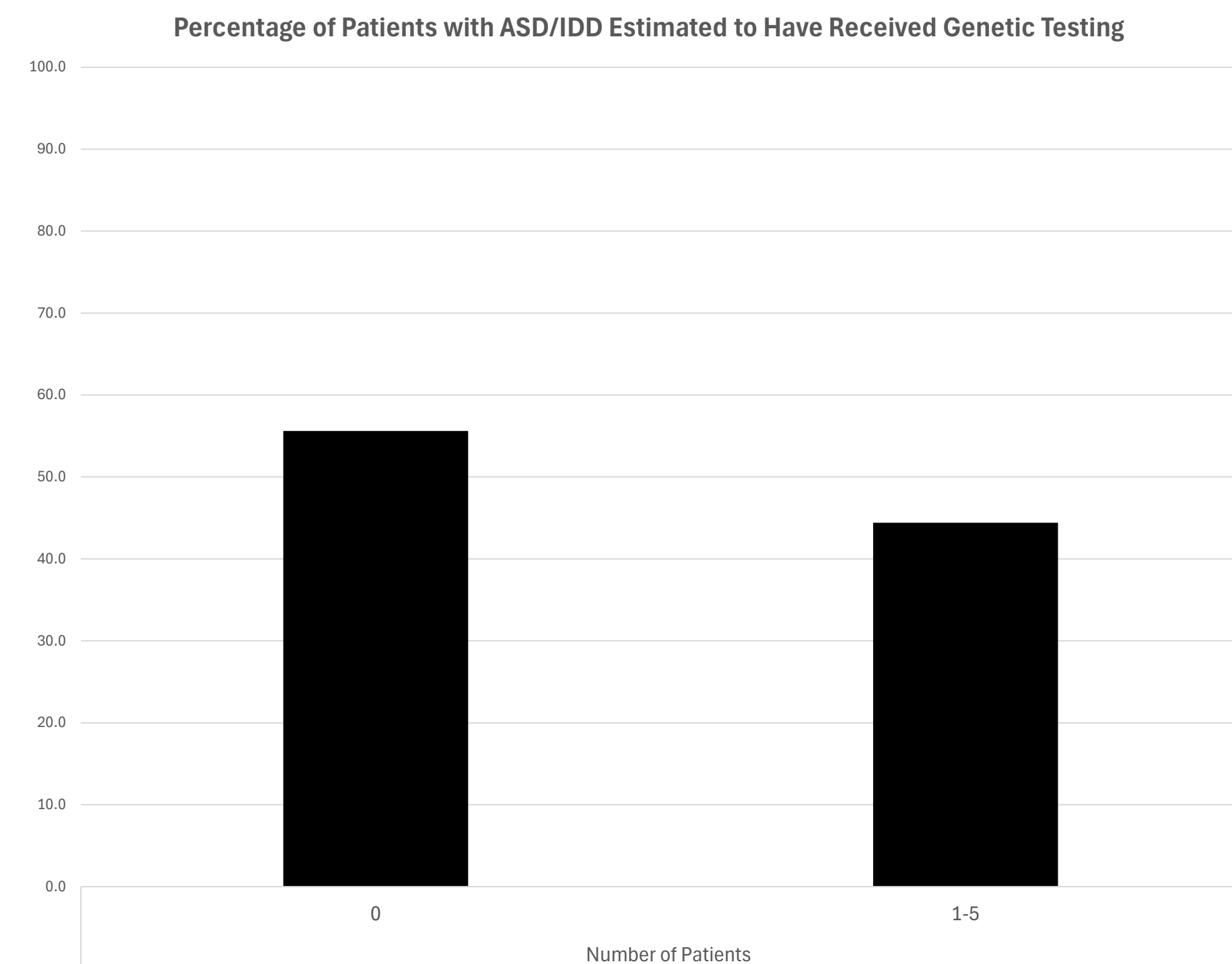
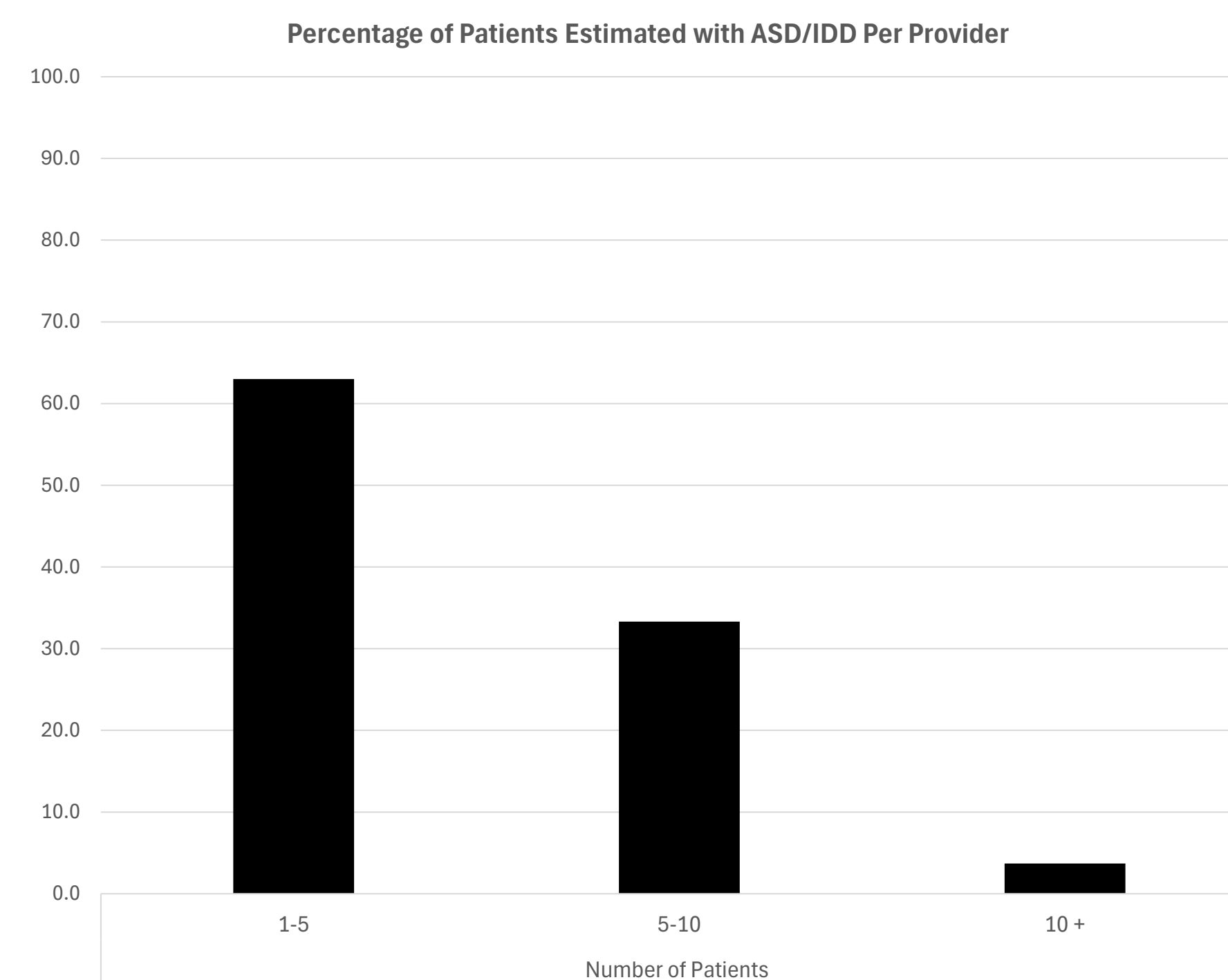
Objectives

- To determine the barriers experienced by family medicine providers in regards to genetic testing for patients with autism and/or intellectual disabilities.

Methods

- We conducted a survey at a single site family medicine clinic to gather data on the current challenges faced by family medicine physicians regarding genetic testing for patients with ASD/IDD.
- Sixteen question survey included a mix of multiple-choice, Likert scale, and open-ended questions to gather quantitative and qualitative data with input from geneticists.
- Survey was developed and distributed via RedCap to a single site family medicine listserv.
- Performed quantitative analysis on closed-ended responses with statistical software (SPSS) and thematic analysis on open-ended responses to identify common themes and insights.

Results



Conclusions

- There is a large gap in the number of patients per provider compared to the prevalence rate of people with ASD and more than half have not received genetic testing.
- Family medicine providers are more likely to order or refer for genetic testing in a child with ASD/IDD versus an adult and much more likely to order genetic testing if there additional dysmorphic features present.
- The total comfort score for ordering and counseling on genetic testing results is overall low in family medicine providers.
- There is a correlation between providers who think it is important for patients with ASD/IDD to receive genetic testing and to refer for genetic testing, especially in a child with ASD/IDD.

Implications

- With the growing prevalence of autism, there will be an increased demand for genetic testing in this population and family medicine providers can help to meet that demand.
- Increasing knowledge and education about the importance of genetic testing in this population could increase the likelihood of family medicine providers to refer or order genetic testing.

References

1. Srivastava, S., et al. (2019). Clinical whole exome sequencing in child neurology practice. *Annals of Neurology*, 85(3), 330-341.
2. Schaefer, G. B., & Mendelsohn, N. J. (2008). Clinical genetics evaluation in identifying the etiology of autism spectrum disorders. *Genetics in Medicine*, 10(4), 301-305.
3. Manickam, K., McClain, M. R., Demmer, L. A., Biswas, S., Kearney, H. M., Malinowski, J., Massingham, L. J., Miller, D., Yu, T. W., & Hisama, F. M. (2021). Exome and genome sequencing for pediatric patients with congenital anomalies or intellectual disability: An evidence-based clinical guideline of the American College of Medical Genetics and Genomics (ACMG). *Genetics in Medicine*, 23(11), 2029-2037. <https://doi.org/10.1038/s41436-021-01242-6>
4. Sode, T., Memer, A. R., Small, B. J., Torgerson, L. N., Muñoz, K., Austin, J., Storch, E. A., Pereira, S., & Lázaro-Muñoz, G. (2023). Child and adolescent psychiatrists' use, attitudes, and understanding of genetic testing and pharmacogenetics in clinical practice. *Psychiatry Research*, 325, 115246. <https://doi.org/10.1016/j.psychres.2023.115246>
5. Abreu, N. J., Chaudha, M., Liu, S., Zhang, B., & Spence, S. J. (2024). Factors associated with underutilization of genetic testing in autism spectrum disorders. *Pediatric Neurology*, 150, 17-23. <https://doi.org/10.1016/j.pediatrneurol.2023.10.002>

Acknowledgement

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 for Community Living under the University Center of Excellence in Developmental Disabilities (UCEDDD) Grant 90DDUC0014 of the U.S. Department of Health and Human Services (HHS). This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government. Thank you to Richard Boles for statistical assistance and Scott Reed for design help.

