

Machine Learning Techniques to Detect Autism Spectrum Disorder and Other Correlating Conditions.

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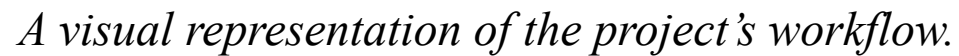
About the Project

Context

- About Autism Spectrum Disorder (ASD)
- Daily life of patients with ASD

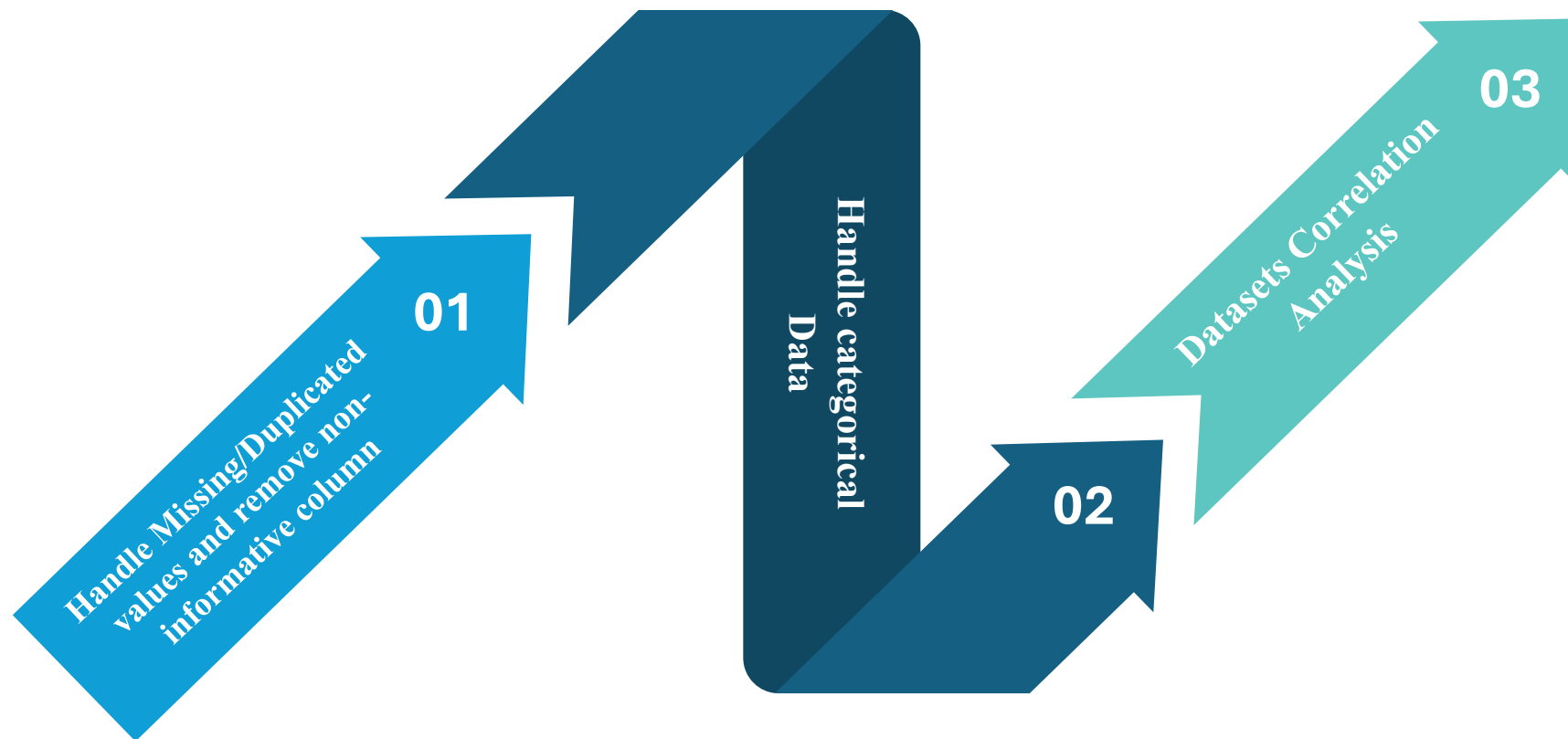
Impact

- Early detection
- Enables timely therapy
- Reduces long-term costs





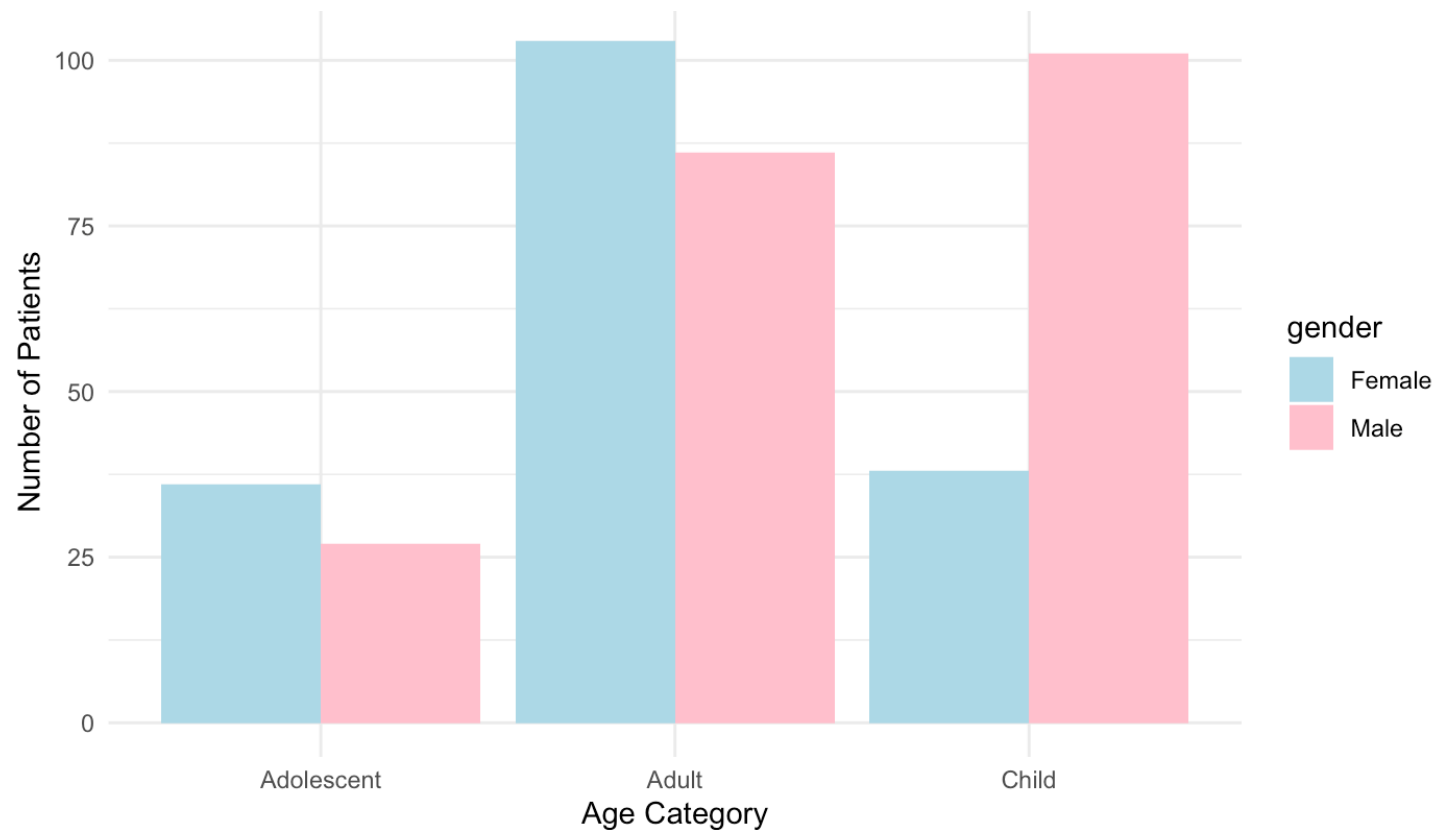
Data Preprocessing





Exploratory data analysis

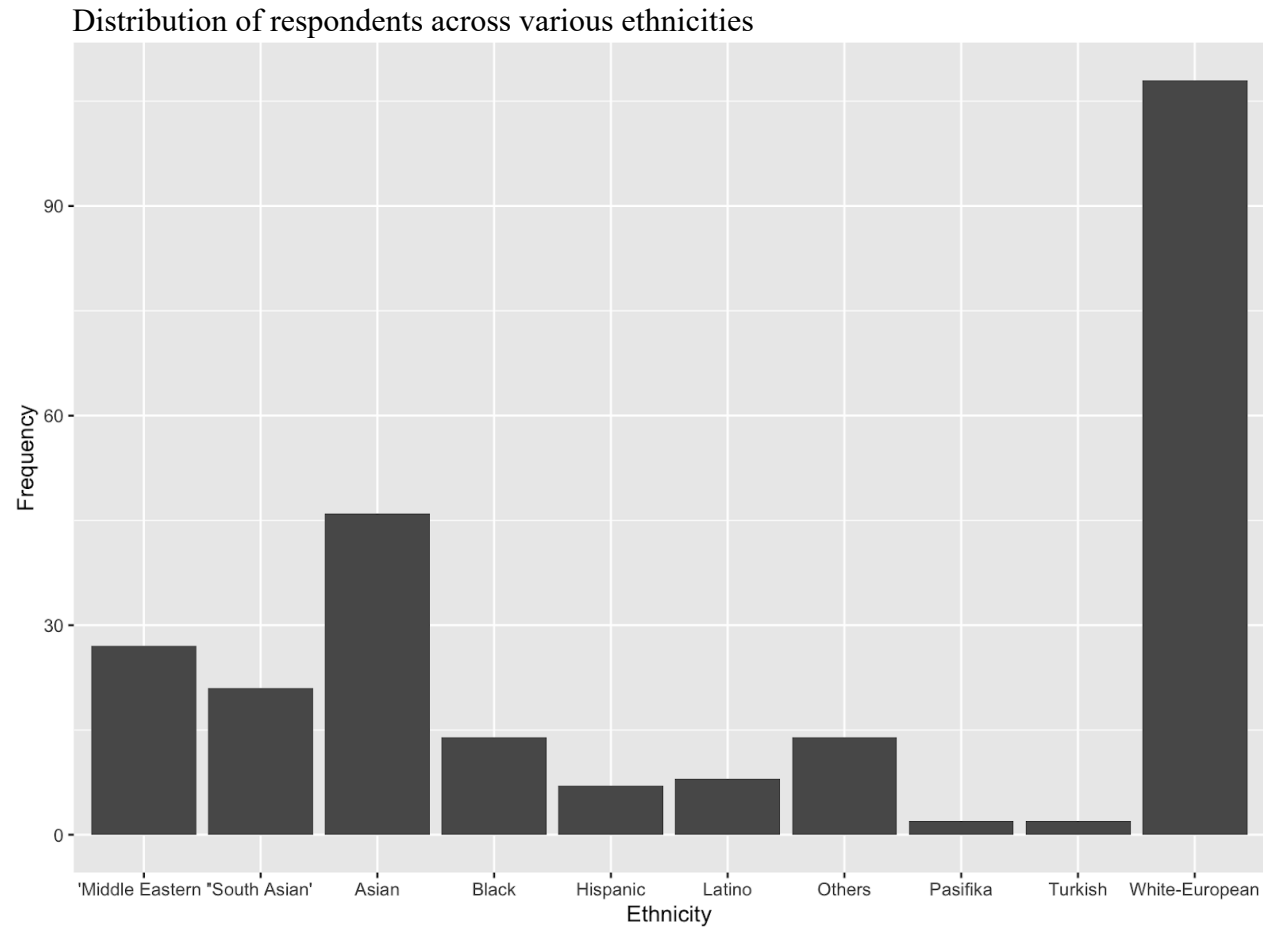
Children dataset has majority of gender skewness, most of the respondents being male.





Exploratory data analysis

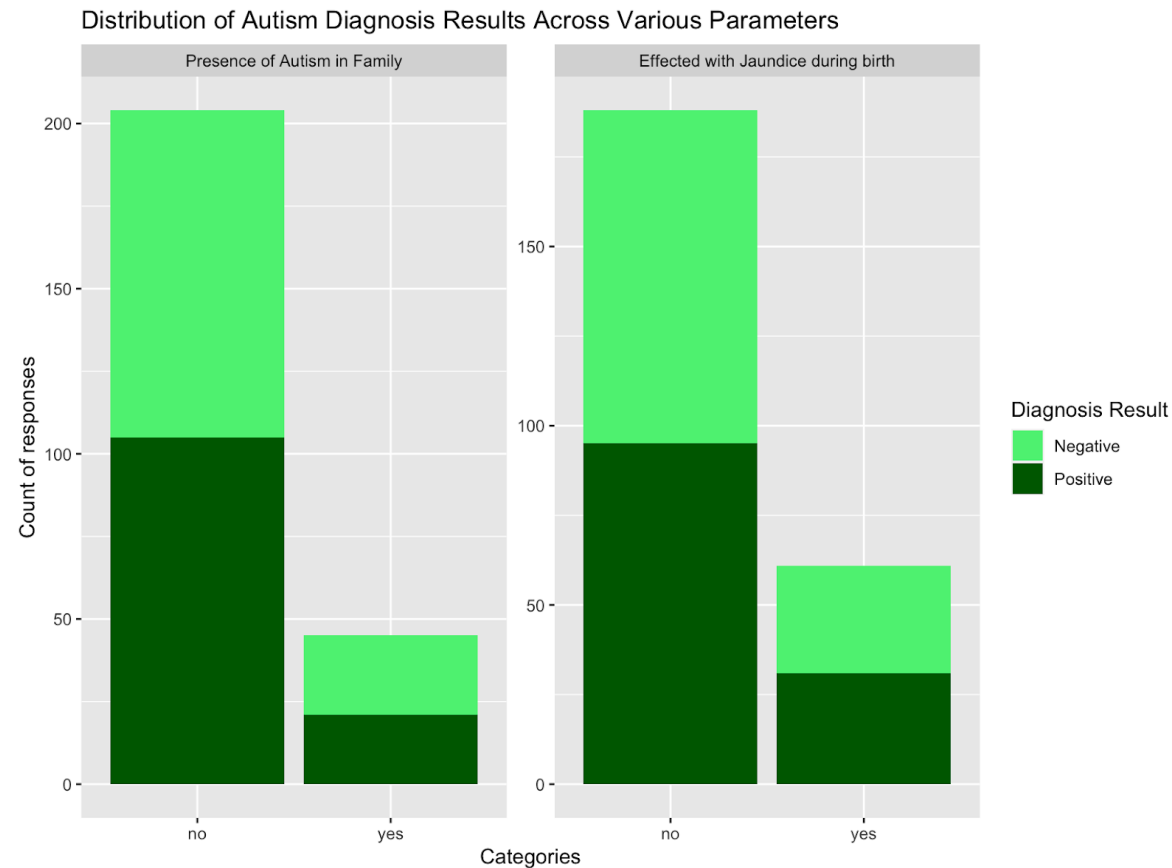
Most of the respondents are from white-European community.





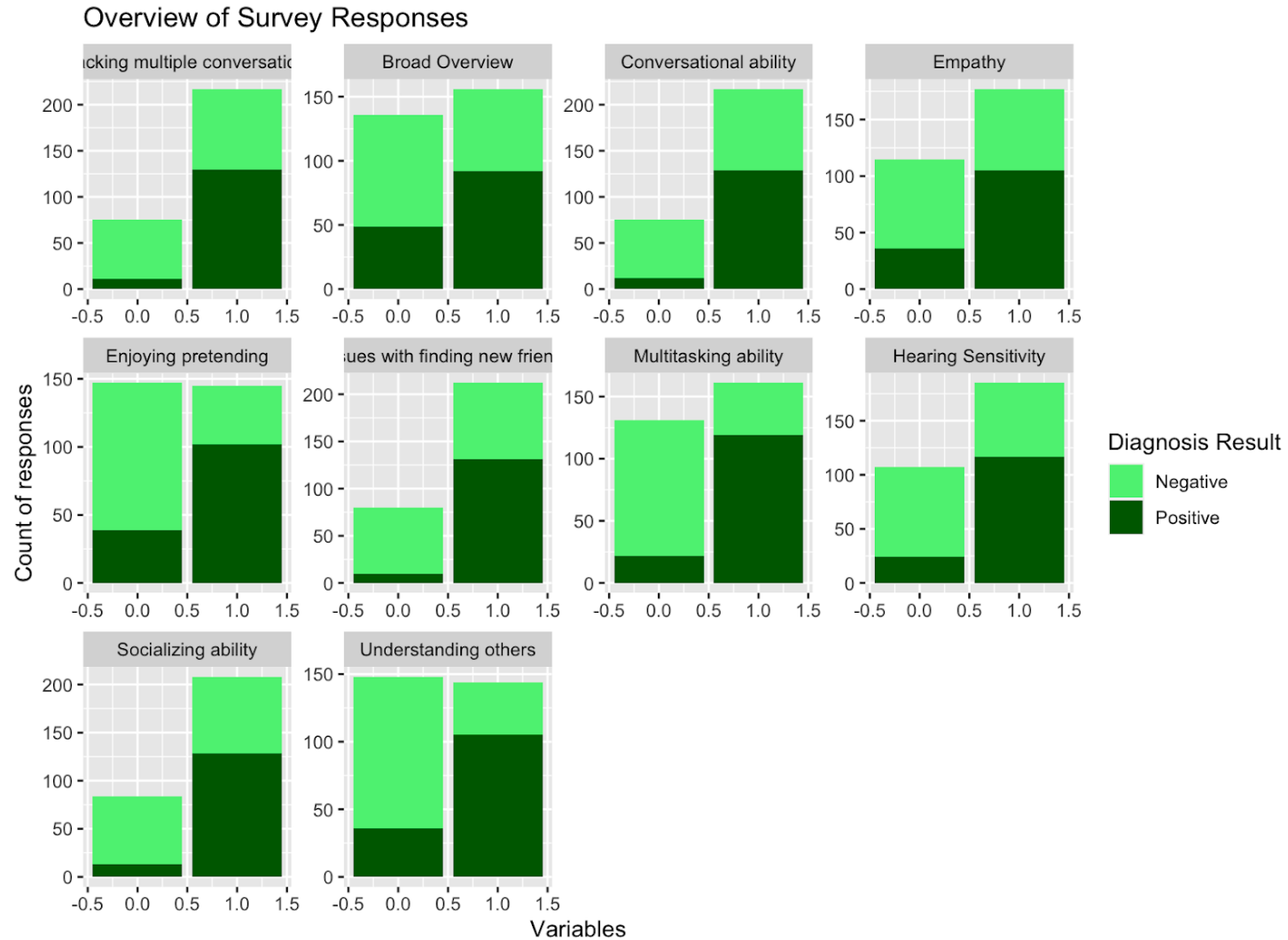
Exploratory data analysis

Families' history with autism and diagnosing with jaundice during birth are unassociated with pour target variable.





Exploratory data analysis



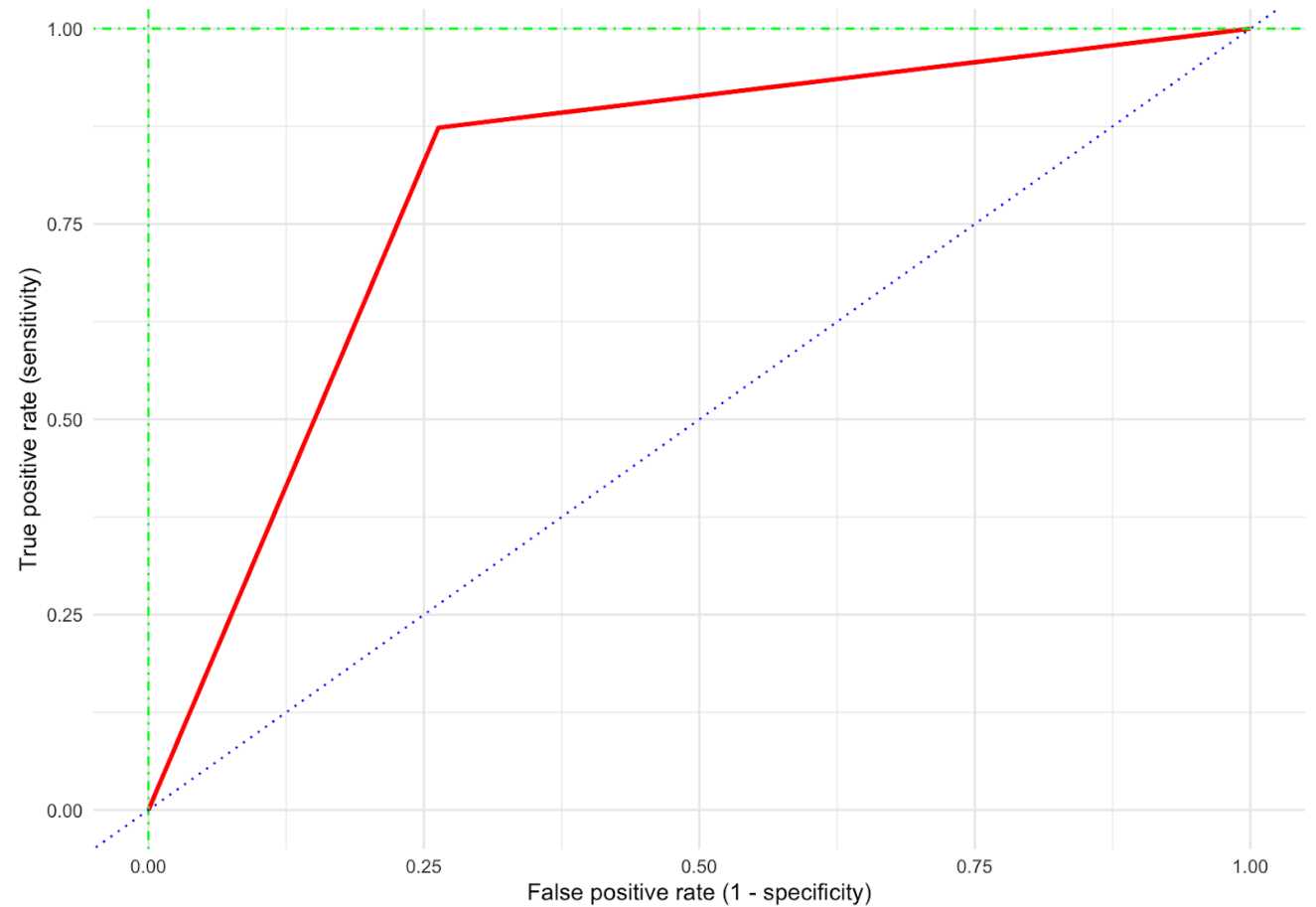


Children Dataset

Parameter	Children	
	P-value	X ²
Multitasking ability	3.43 e-13	52.94

Model	Sensitivity	Specificity
Children	0.87	0.73

ROC curve for 'Autism in Children' model



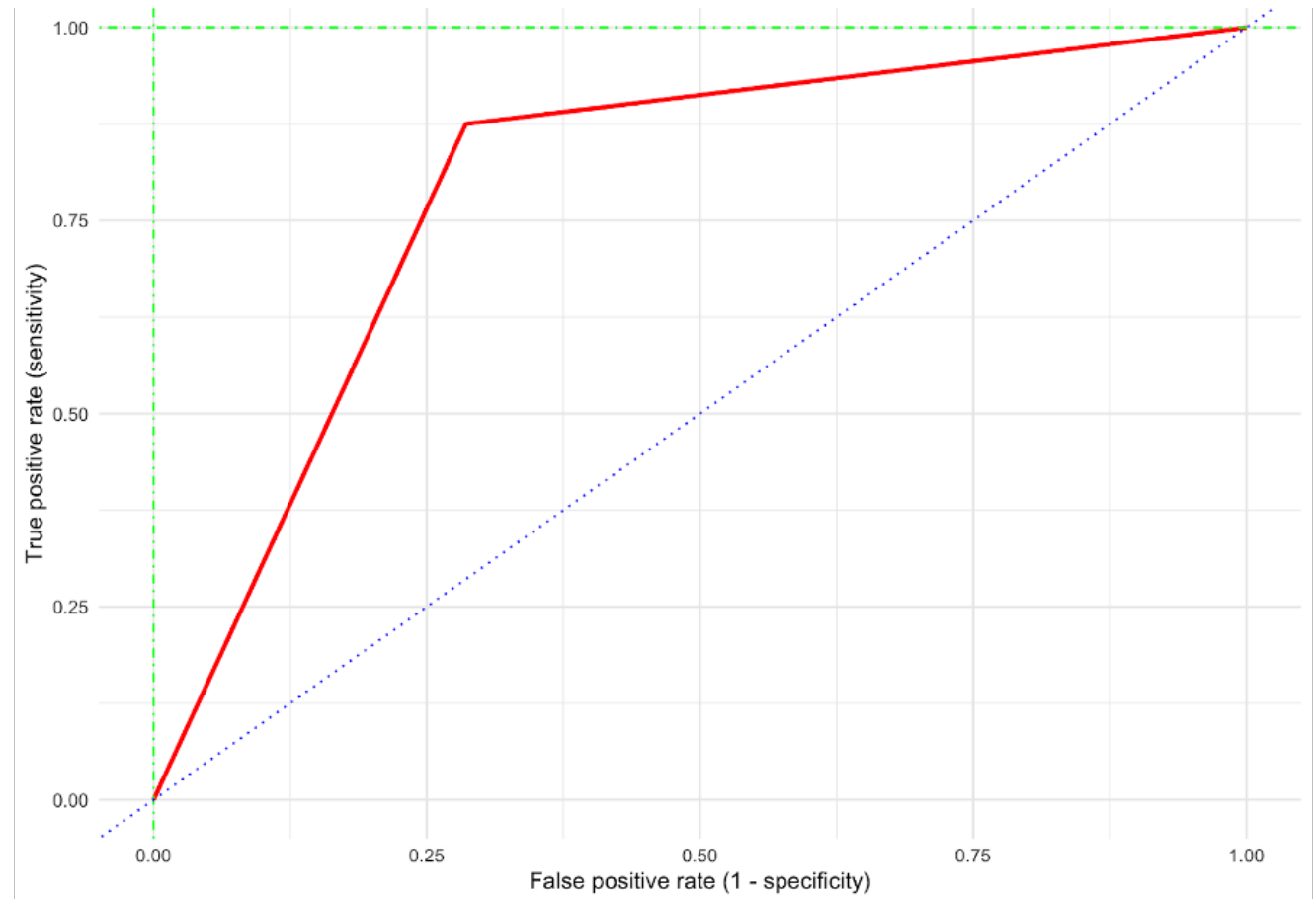


Adolescent Dataset

Parameter	Children	
	P-value	X ²
Multitasking ability	4.45 e-05	16.66

Model	Sensitivity	Specificity
Adolescent	0.87	0.71

ROC curve for 'Autism in Adolescent' model



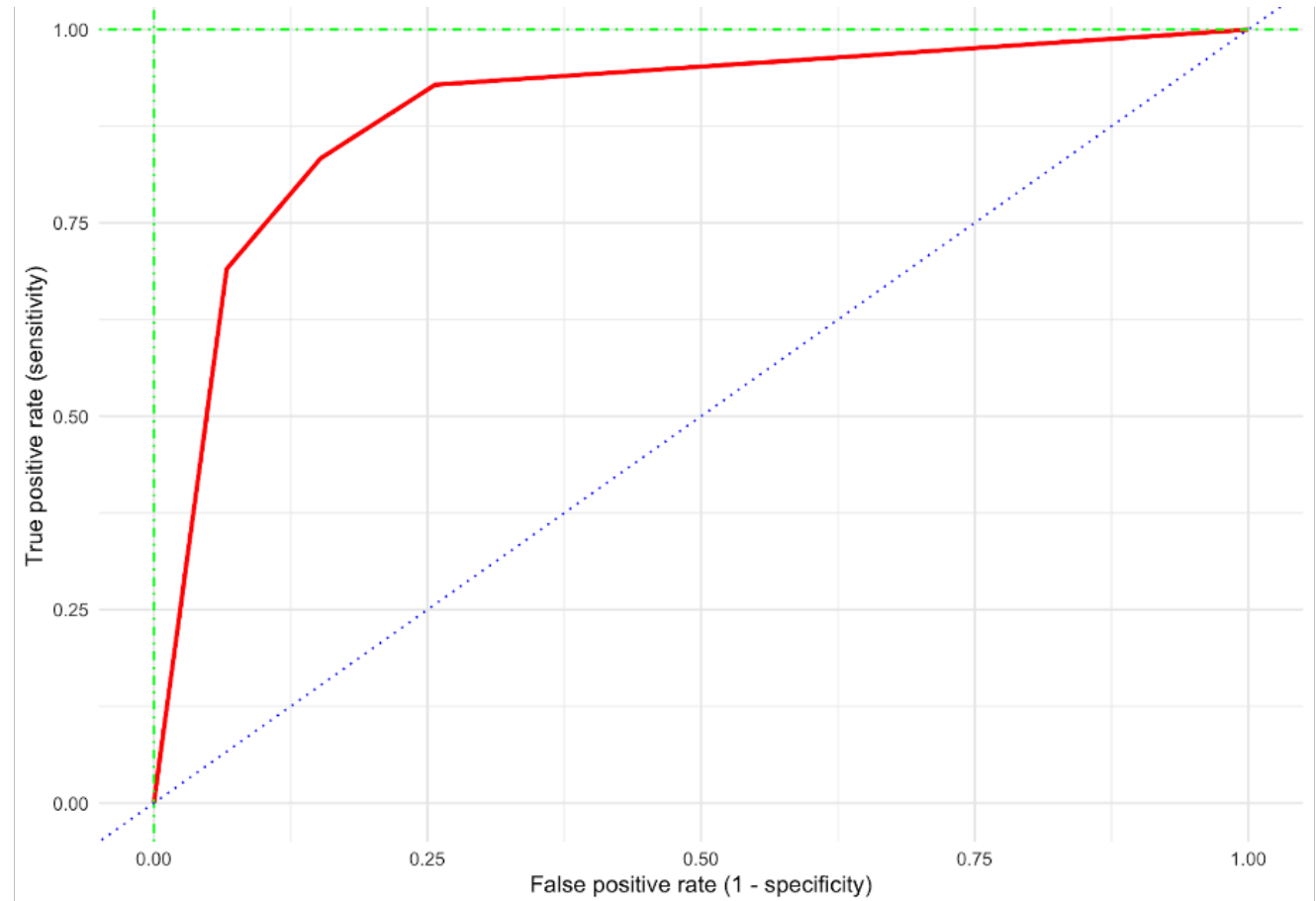


Adult Dataset

Parameter	Children	
	P-value	X ²
Socializing ability	2.10 e-14	58.42
Understanding others	6.12 e-12	47.28

Model	Sensitivity	Specificity
Adult	0.83	0.84

ROC curve for 'Autism in Adult' model





Conclusion and Future Scope

- Parameters that influenced the analysis
- Impact on correlating conditions
- Incorporate deep learning methods.
- Explore analysis of brain signals.
- Scope for correlating conditions.