Artificial Intelligence based Prediction of Aggressive Behavior in Adolescent with ADHD

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Introduction

- Unpredictable aggression can result in severe isolation of teens with ADHD from community, therapeutic, medical, and educational services.
- Hitting, biting, scratching, throwing objects, and shouting often occurs without warning, sometimes long after any observable trigger.
- Physical Activity monitoring can provide a reliable way to predict aggressive behavior.

Objective

- Develop an AI model that evaluate changes in physical activity behavior to predict aggressive behavior.

Methods

- Monitoring of physical activity for 1 week in 11 adolescents.
- Physical activity-related metrics were estimated using ActiGraph wearable.
- Parents reported the time of aggressive event, which were used to train the AI models.
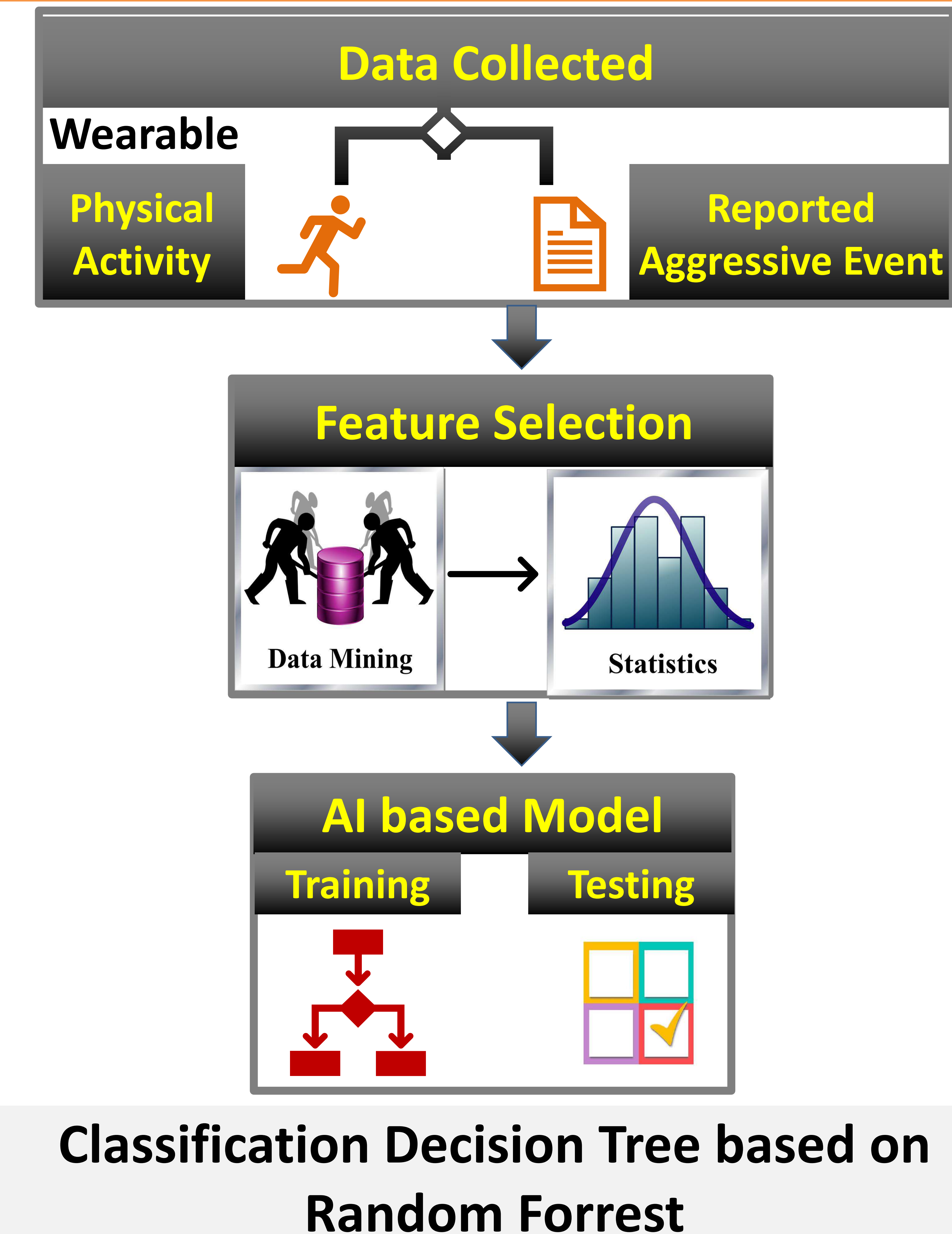
Number of Participants	11
Age	8.4 ± 0.5
Gender	1 Female
Number of days	20 days

Wearables combined with AI predict aggressive behavior in adolescent with ADHD

Model Performance	Value
Accuracy	75%
Specificity	74%
Sensitivity	90%
Precision	21%
F1 Score	0.34

Methods (Continued)

Data Collected

Wearable — Physical Activity / Reported Aggressive Event

Feature Selection — Data Mining → Statistics

AI based Model — Training / Testing

Classification Decision Tree based on Random Forrest

Discussion

- AI based model used to evaluate physical activity can be used to predict aggressive behavior.
- Energy assessed by wearables can provide most important feature to predict aggressive behavior.
- In the future, more data will be recorded to improve precision of the AI model.