**Data Set Name: Autistic Spectrum Disorder Screening Data for Children**

**Abstract:** Autistic Spectrum Disorder (ASD) is a neurodevelopment condition associated with significant healthcare costs, and early diagnosis can significantly reduce these. Unfortunately, waiting times for an ASD diagnosis are lengthy and procedures are not cost effective. The economic impact of autism and the increase in the number of ASD cases across the world reveals an urgent need for the development of easily implemented and effective screening methods. Therefore, a time-efficient and accessible ASD screening is imminent to help health professionals and inform individuals whether they should pursue formal clinical diagnosis. The rapid growth in the number of ASD cases worldwide necessitates datasets related to behaviour traits. However, such datasets are rare making it difficult to perform thorough analyses to improve the efficiency, sensitivity, specificity and predictive accuracy of the ASD screening process. Presently, very limited autism datasets associated with clinical or screening are available and most of them are genetic in nature. Hence, we propose a new dataset related to autism screening of adults that contained 20 features to be utilised for further analysis especially in determining influential autistic traits and improving the classification of ASD cases. In this dataset, we record ten behavioural features (AQ-10-Child) plus ten individuals characteristics that have proved to be effective in detecting the ASD cases from controls in behaviour science.

**Source:** Fadi Fayez Thabtah

Department of Digital Technology

Manukau Institute of Technology,

Auckland, New Zealand

[fadi.fayez](mailto:fadi.fayez)@manukau.ac.nz

**Data Type:** Multivariate OR Univariate OR Sequential OR Time-Series OR Text OR Domain-Theory

Nominal / categorical, binary and continuous

**Task:** Classification

**Attribute Type:** Categorical, continuous and binary

**Area:** Medical, health and social science

**Format Type:** Non-Matrix

**Does your data set contain missing values?** Yes

**Number of Instances (records in your data set):** 292

**Number of Attributes (fields within each record):** 21

**Relevant Information:** For Further information about the attributes/feature see below table

**Attribute Information:**

Table 1: Features and their descriptions

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Type** | **Description** |
| Age | Number | years |
| Gender | String | Male or Female |
| Ethnicity | String | List of common ethnicities in text format |
| Born with jaundice | Boolean (yes or no) | Whether the case was born with jaundice |
| Family member with PDD = AUTISM | Boolean (yes or no) | Whether any immediate family member has a PDD |
| Who is completing the test = RELATION | String | Parent, self, caregiver, medical staff, clinician ,etc. |
| Country of residence | String | List of countries in text format |
| Used the screening app before | Boolean (yes or no) | Whether the user has used a screening app |
| Screening Method Type = AGE\_DESC | Integer (0,1,2,3) | The type of screening methods chosen based on age category (0=toddler, 1=child, 2= adolescent, 3= adult) |
| Question 1 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 2 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 3 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 4 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 5 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 6 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 7 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 8 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 9 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Question 10 Answer | Binary (0, 1) | The answer code of the question based on the screening method used |
| Screening Score = RESULT | Integer | The final score obtained based on the scoring algorithm of the screening method used. This was computed in an automated manner |

**Relevant Papers:**

1) Tabtah, F. (2017). Autism Spectrum Disorder Screening: Machine Learning Adaptation and DSM-5 Fulfillment. Proceedings of the 1st International Conference on Medical and Health Informatics 2017, pp.1-6. Taichung City, Taiwan, ACM.

2) Thabtah, F. (2017). ASDTests. A mobile app for ASD screening. www.asdtests.com [accessed December 20th, 2017].

3) Thabtah, F. (2017). Machine Learning in Autistic Spectrum Disorder Behavioural Research: A Review. To Appear in Informatics for Health and Social Care Journal. December, 2017 (in press)

**Citation Request:** Please refer to the Machine Learning Repository's citation policy

**Data File:** I will submit two files. 1-the word document “description file” and 2- the dataset “WordPad”

**Attributes: A1-A10:** Items within Q-Chat-10 in which questions possible answers: “Always, Usually, Sometimes, Rarely & Never” items’ values are mapped to “1” or “0” in the dataset. For questions 1-9 (A1-A9) in Q-chat-10, if the response was Sometimes / Rarely / Never “1” is assigned to the question (A1-A9). However, for question 10 (A10), if the response was Always / Usually / Sometimes then “1” is assigned to that question. If the user obtained More than 3 Add points together for all ten questions. If your child scores more than 3 (Q-chat-10- score) then there is a potential ASD traits otherwise no ASD traits are observed. The remaining features in the datasets are collected from the “submit” screen in the “**ASD Tests screening app**”. It should be noted that the class variable was assigned automatically based on the score obtained by the user while undergoing the screening process using the “**ASD Tests screening app**”.

**NOTE**: *Number of questions or type of questions can vary from tests to tests.*

**Q1. Does your child speak very little and give unrelated answers to questions?**

Never

Rarely

Sometimes

Often

Very Often

**Q2. Does your child not respond to their name or avoid eye contact?**

Never

Rarely

Sometimes

Often

Very Often

**Q3. Does your child not engage in games of pretend with other children?**

Never

Rarely

Sometimes

Often

Very Often

**Q4. Does your child struggle to understand other people’s feelings?**

Never

Rarely

Sometimes

Often

Very Often

**Q5. Is your child easily upset by small changes?**

Never

Rarely

Sometimes

Often

Very Often

**Q6. Does your child have obsessive interests?**

Never

Rarely

Sometimes

Often

Very Often

**Q7. Is your child over or under-sensitive to smells, tastes, or touch?**

Never

Rarely

Sometimes

Often

Very Often

**Q8. Does your child struggle to socialize with other children?**

Never

Rarely

Sometimes

Often

Very Often

**Q9. Does your child avoid physical contact?**

Never

Rarely

Sometimes

Often

Very Often

**Q10. Does your child show little awareness of dangerous situations?**

Never

Rarely

Sometimes

Often

Very Often