

ABSTRACT 33

NEUROSCIENCES

The power of self-love: an artificial neural network based on neuroscience inference to predict university students self-reported mental health dimensions**AUTHOR:** Álvaro Vaz, Samuel Encarnação, Paula Vaz, Filipe Vaz, António Monteiro**LABORATORY, CENTER, UNIT:** Universidade do Algarve, Instituto Politécnico de Bragança**KEYWORDS:** Artificial Intelligence, Mental Health, Neuroscience**BACKGROUND:**

In line with the sustainable development goals of the United Nations 2030 agenda, namely goal number 3 – Good health and well-being -, student mental health is a global goal, first because it is health we are talking about and secondly because it has implications in the quality of learning and, consequently, in the adequate preparation of professionals for society.

OBJECTIVES:

This study aimed to conduct an artificial neural network (ANN) to predict the student's self-reported mental health dimensions.

METHODS:

This is a cross-sectional and observational study enrolling data collected by applying a questionnaire comprising sociodemographic and health state variables from 2050 university students aged (18-30 years).

RESULTS:

The algorithm predicted the student's overall mental health state self-perception with 94% accuracy (weighted average= [precision= 0.67%, recall= 0.67%, F-1 score0 0.67%]) and was cross-validated with reasonable accuracy (60%). The student's depressive state was predicted with 97% accuracy (weighted average= [precision= 0.79%, recall=0.79%, F-1 score0 0.79%], and was cross-validated with good accuracy (73%). The student's lack of interest in performing their activities of daily living (ADLs) was predicted with 94% accuracy (weighted average= [precision= 0.69%, recall=0.77%, F-1 score0 0.76%], and was cross-validated with reasonable accuracy (67%).

DISCUSSION AND CONCLUSIONS:

The ANN presented excellent learning performance (>90%) for all targeted variables, within reasonable to good generalization capacity (60-73%). Finally, the university student's depressive state was the best-predicted variable (73%).