**CONCLUSION:**

An optimised model for sleep disorder classification is proposed that implements MLAs with a genetic algorithm to explore optimal hyperparameter values for each model and obtain good results. This paper analysed the performance of MLAs for sleep disorder classification and evaluated many state-of-the-art MLAs on the real-world Sleep Health and Lifestyle Dataset. In addition, MLAs can learn from high-dimensional sleep data and attempt to classify sleep disorders without depending on expert-defined features. The proposed optimised ANN with GA achieved the highest accuracy over the other MLAs at 92.92%. The precision, recall, and F1-score values on the testing data were 92.01%, 93.80% and 91.93%, respectively. Even with a limitation in the amount of data. This study addressed the challenges in implementing MLAs for classification sleep disordering. However, large datasets are still needed for training and evaluating models in this field. The MLAs with GA can significantly improve the accuracy of sleep disorder classification. Future work will focus on developing MLAs using unsupervised learning in addition to assessing the dataset on a new model and comparing its performance against existing state-of-the-art models.