Psychological Fitness Education Driven by Artificial Intelligence Technology and Its Influence on Education Assessment

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To maximally capture the information conveyed by students' psychological fitness data, this paper examines strategies for enhancing psychological fitness education and its assessment through AI technology. It introduces an assessment model based on fuzzy mathematics and neural network technology. This model processes students' psychological fitness data to quickly identify anomalies, thereby detecting potential psychological fitness issues. Utilizing the MATLAB simulation tool, the model is trained with psychological fitness instructional data. The training results show that the algorithm achieves an accuracy of 95.97%, surpassing other comparison algorithms. The comparison of simulation experiments confirms the significant positive impact of the proposed AI-driven psychological fitness assessment model on education.

Povzetek: Uvajanje umetne inteligence v psihološko kondicijsko izobraževanje izboljšuje natančnost ocenjevanja in prepoznavanje težav.

1 Introduction

At present, China is in a period of rapid economic and social transformation, with intensified competition and widespread group anxiety, while new things and new concepts are constantly emerging [1]. University students are at an important phase in both physical and mental development. With the growth of physiology and psychology, they are more likely to face various psychological problems due to the impact of social changes. Moreover, on the university campus, due to fierce competition and increased pressure, many university students will be pessimistic and disappointed, which will lead to depression, loneliness, and other psychological barriers [2]. At present, the pace of life and the pressure of study continue to increase, and psychological fitness has obviously become a prominent problem among university students. Therefore, more and more universities have brought psychological fitness education into the university students' education system, hoping that professional and targeted psychological fitness education can enhance university students' ability to cope with and solve psychological problems [3]. Under the background of this era, how to evaluate psychological fitness efficiently and accurately is particularly important, which is the premise of understanding people's psychological fitness status and providing effective intervention [4]. In order to discover the potential rules in students' psychological fitness education in time, establish students' psychological fitness model, and objectively evaluate students' psychological quality, it is necessary to use AI technology, select appropriate mining methods, and mine pertinently on the basis of the obtained data.

The emergence of AI has epoch-making significance, and it is also an important existence that affects the survival and growth of human beings. Its application in teaching has greatly promoted the growth of education [5]. The growth of AI provides a new idea for objective and efficient psychological fitness monitoring and assessment, but at present, the large-scale application of AI in the monitoring and assessment of students' psychological fitness is still limited by many factors [6]. In recent years, universities have gradually begun to explore the application of AI in the practice of psychological fitness education for university students so as to enhance the pertinence and effectiveness of psychological fitness education. However, at present, the application of technology is still in the exploratory stage, and there is no systematic and comprehensive application mode [7]. In this environment, it is particularly important to establish a brand-new AI-based monitoring and assessment system for students' psychological fitness. Hence, the present work discusses the related issues in the psychological fitness assessment model based on AI technology.

University students' psychological fitness test mainly tests students' psychological fitness and analyzes the test results to determine whether university students have psychological problems. In recent years, AI technology, such as ML and deep learning, has been extensively used in the field of psychological fitness, which has brought about the innovation of psychological fitness assessment methods and also given birth to the new field of "intelligent psychological fitness assessment" [8]. AI includes digital technology, networking technology, information technology, and many other technical contents. It can play a better role in classroom teaching and reduce the pressure on teachers. The ability to improve the teaching quality in class plays a critical role and significance in the course of psychological fitness education in universities and plays a boosting role in shaping students' healthy psychology [9]. Adopting AI to

collect and comprehensively analyze students' psychological conditions and using multidimensional indicators to evaluate their psychological fitness can realize the transformation of psychological fitness monitoring from static monitoring to dynamic management and the transformation of psychological fitness assessment from subjective assessment to big data algorithm assessment so as to make up for the subjective and inefficient limitations of traditional psychological fitness monitoring and assessment methods and promote educational practice. Based on this, this paper constructs a psychological fitness assessment model based on fuzzy mathematics and NN and discusses the problem of psychological fitness education driven by AI technology. The innovations include:

(1) According to the AI perspective, this paper explores the improvement strategy of psychological fitness education and its assessment method driven by AI technology and puts forward a psychological fitness assessment model based on fuzzy mathematics and NN.

(2) The factors that affect psychological fitness are fuzzy, so this paper introduces fuzzy mathematics theory into the research of psychological assessment and builds a model. The assessment model processes the data of students' psychological fitness problems and quickly find abnormal data. Based on this, students who may have psychological fitness problems can be identified.

2 Related work

University students' psychological fitness has been widely concerned, and some scholars have also studied it. Lamont Sr et al. put forward the research method of applying DM (Data mining) technology to students' psychological fitness education. It provides a theoretical basis for cultivating students' sound personality and promoting their healthy growth [10]. Pottinger et al. fully considered the AI-driven background, applied the efficient data clustering method to the data, and established the assessment index system of students' psychological fitness [11]. Happell et al. combed the traditional collection methods of students' psychological fitness monitoring, analyzed the application status of emerging methods, and put forward the idea of establishing a monitoring and assessment system of primary and secondary school students' psychological fitness based on AI [12]. Wright et al. expounded on the research status of DM and the psychological issues in university students and deeply analyzed the feasibility of introducing DM technology into the analysis of students' psychological problems. The concept, function, technology, method, and stage of DM are introduced [13]. Gu et al. pointed out that the application of DM technology should be combined with the research on students' psychological fitness problems to explore further new methods for early prevention and intervention of students' mental disorders [14]. Hawley et al. believe that in the modern situation, it is utilized to use technical tools to promote the ability of university teachers to screen, locate, and analyze students' psychological fitness problems so that teachers can concentrate more practice and energy on helping students solve psychological problems [15]. Whitehead et al. pointed out that the combination of AI and higher education will be the development trend of future education and the inevitable result of conforming to social development, which can greatly promote education to a new level [16]. According to the survey by Brittain et al., the detection rate of adolescent psychological problems is about 26%. Among psychological problems, learning pressure is the most obvious, followed by compulsion and anxiety [17]. Collier et al. believe that research on the assessment of psychological fitness education in universities to enrich and improve the relevant theories of psychological fitness education assessment in universities can promote the scientific growth of psychological fitness education in universities; at the same time, it will further promote the growth of psychological fitness education in universities [18]. It is important from a theoretical and practical viewpoint to cultivate high-quality talents needed by society in the new century. Allen et al. put forward a classifier model to evaluate psychological fitness status, which uses a perceptron model to evaluate psychological fitness status by selecting important influencing factors in psychological fitness assessment as input vectors [19]. Yla et al. have studied the psychological fitness education of university students in the information age [20]. Say et al. studied the challenges faced by students' psychological fitness education in the new era [21]. Shah et al. believe that to enhance the psychological fitness level of university students, senior management departments of universities should actively take various effective measures to create conditions, mobilize and organize university students to actively participate in various forms of physical exercises, and improve and promote their psychological fitness [22].

Table 1: Summary table

Researchers/Teams	Research topic	Main methods	Key findings	The existing gap
Lamont Sr et al	Student mental health education	Data mining techniques	Provided a theoretical basis for cultivating a sound personality	Lack of evaluation of the practical application effect of data mining technology
Pottinger et al	Student mental health assessment	Efficient data clustering methods	Established a mental health assessment index system	The actual application scope and effectiveness of the indicator system are unknown
Happy et al	Psychological health monitoring and evaluation	Monitoring methods driven by artificial intelligence	Proposed a framework for monitoring and evaluating the mental health of primary and secondary school students	Lack of empirical testing of system effectiveness
Wright et al	Analysis of Student Psychological Problems	Data Mining (DM) Technology	Analyzed the feasibility of introducing DM technology	Lack of case analysis on the practical application of DM technology
Gu et al	Prevention of student psychological disorders	Research on the combination of DM technology and mental health	Explored new methods for early prevention and intervention	Not specifically explained how to combine DM technology for prevention
Hawley et al	Teachers screen students for psychological issues	Application of technical tools	Improved the ability of teachers to screen students for psychological issues	Lack of specific guidance and training on the use of technical tools by teachers
Whitehead et al	The combination of artificial intelligence and higher education	trend analysis	Predicted the application prospects of artificial intelligence in education	Lack of empirical research on the application of artificial intelligence in education
Brittain et al	Adolescent psychological issues	Survey and research	The detection rate of psychological problems is about 26%, with the most obvious learning pressure	Lack of research on intervention measures for adolescent psychological problems
Allen et al	Assessment of mental health status	perceptron model	Proposed a classifier model for evaluating mental health	Lack of validation of model generalization ability and accuracy

Based on the AI perspective, this paper explores the improvement strategy of psychological fitness education and its assessment method driven by AI technology and puts forward a psychological fitness assessment model based on fuzzy mathematics and NN. In the MATLAB simulation environment, the assessment model of psychological fitness education is used to train and learn a certain amount of psychological fitness instructional data. Finally, the simulation results indicate that the developed psychological fitness assessment model is of positive significance to AI-driven psychological fitness education.

3 Methodology

3.1 Application of AI technology in monitoring and evaluating students' psychological fitness

In the work of psychological fitness education in universities, teachers can build a sound, intelligent mental education system based on the Internet so as to broaden the channels and ways of psychological fitness education, enrich the teaching content, broaden students' horizons, continuously improve students' psychological quality and endurance, and help students shape a good mental state. Social progress and development have accelerated people's life rhythm and intensified social competition [23]. These changes are bound to have a significant impact on individual psychological fitness. Under the background of this era, how to evaluate psychological fitness efficiently and accurately is particularly important. The assessment of psychological fitness education in universities is the guiding guarantee for psychological fitness education in universities to achieve the established goals. It is the basis of objective assessment and analysis of psychological fitness education in universities. It is a compass for universities to reform and adjust inappropriate curriculum contents, activity forms, or other work related to psychological fitness education in time. The monitoring and assessment of students' psychological fitness, as a professional basic work, determines the direction, quality, and professional level of school psychological fitness education [24]. At present, universities have begun to apply the students' psychological fitness assessment system as an important technical platform for students' psychological fitness testing. This kind of system mainly integrates and utilizes AI technology to provide a psychological fitness assessment model for university students. The model is used to analyze the psychological fitness assessment questionnaire submitted by the assessed object, and finally, a psychological fitness assessment report form is formed, which can be used as the basis for judging the psychological fitness status of university students.

Scientific and effective psychological fitness monitoring and assessment can help schools and teachers quickly grasp students' psychological status, guide students' psychological problems as early as possible, and help students grow up healthily [25]. The absence or deviation of psychological fitness monitoring and assessment will affect the mastery and judgment of students' mental state, delay the opportunity for counseling and treatment, and even hinder students' physical and mental development. Intelligent psychological fitness assessment can make up for the shortcomings of traditional methods, reduce the missed diagnosis rate, and improve diagnostic efficiency, which is of great meaning for the general survey and early warning of psychological fitness problems. With the efforts of universities and teachers, all kinds of websites and apps related to psychological education have been vigorously constructed and developed. However, it is necessary to monitor and manage the platform, which requires new methods and technologies to be involved in the management of the platform, to build an intelligent information platform further, and to play the role of psychological fitness education further. With the rapid growth of network technology, more and more students' psychological data can be obtained, and it is more and more convenient. In the face of huge data, it should not only be applied to ordinary query and statistical analysis methods but also dig out the valuable laws of data and the relationship between them so as to provide scientific decision support for psychological fitness teaching. The application of AI technology in students' psychological fitness activities is mainly reflected in two aspects. (1) according to the data analysis, teachers should master the widespread and serious psychological fitness problems of students and take them as the focus of psychological fitness education activities. Moreover, by designing and carrying out various types of educational guidance or psychological training activities, university students can be guided to overcome psychological problems. (2) After obtaining the relevant data on students' psychological fitness, the student's psychological fitness education system pushes the psychological fitness test report for each student. According to the report, the corresponding psychological fitness guidance is given to students so that students can gradually know how they can get out of their psychological predicament and achieve good development. The monitoring and assessment system of students' psychological fitness based on artificial intelligence can be seen in Fig 1.

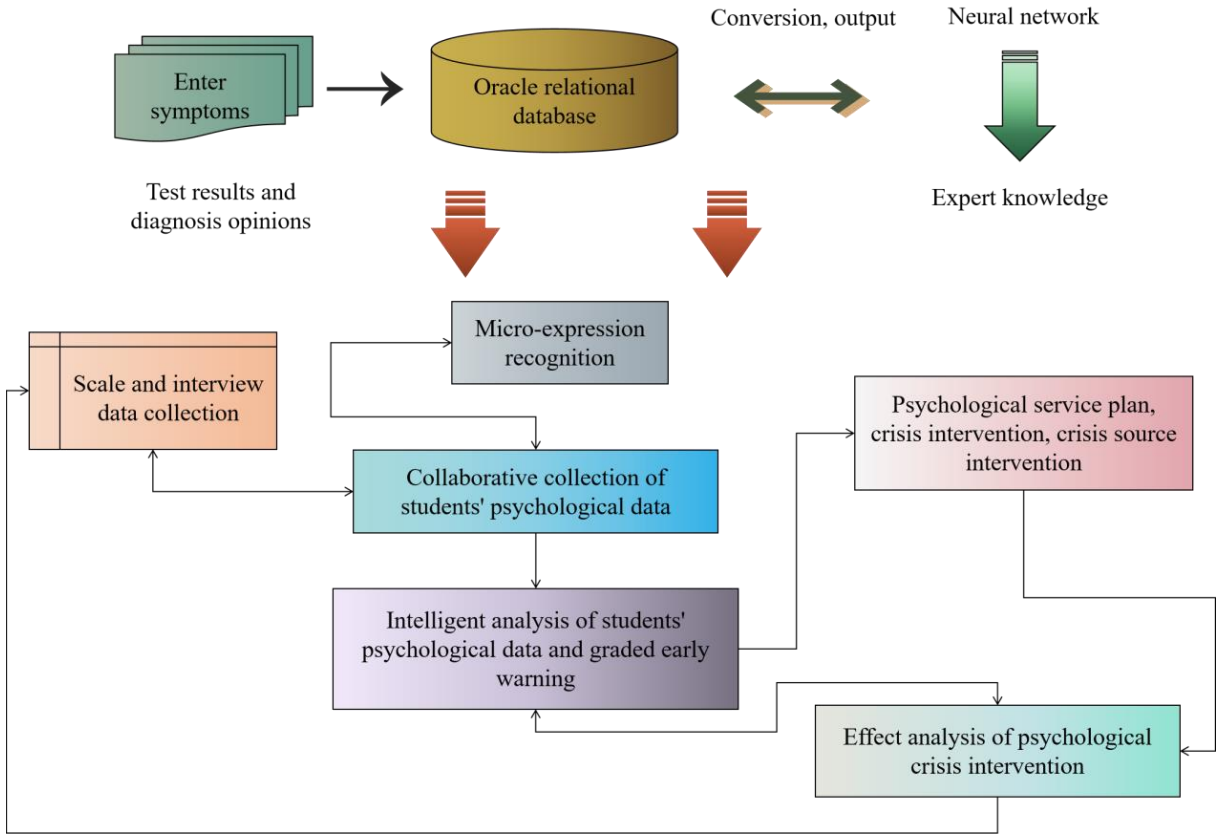

Figure 1: Monitoring and assessment system of students' psychological fitness based on artificial intelligence

Figure 1 shows the components and interactions of artificial intelligence systems in psychological assessment. The chart consists of several key components, each of which plays an important role in the psychological assessment process. This module is responsible for collecting data related to psychological assessment from various sources, including questionnaire surveys, interview records, behavioral observations, etc. These data are the basis for subsequent analysis. Before the data is used to train the model, the data preprocessing module will clean, transform, and standardize the data. This step is crucial for ensuring data quality and improving model performance. The feature extraction module extracts meaningful features from preprocessed data, which can represent key attributes of different psychological states. For example, emotions, anxiety levels, cognitive abilities, etc. can all be quantified as characteristics. With the maturity of emerging technologies, AI technology has begun to play a unique advantage in many aspects of psychological fitness monitoring and assessment, and some new ways have emerged in the monitoring and assessment of students' psychological fitness [26]. The future is the era of AI. AI will replace many industries and jobs. The advantages of AI have greatly promoted the growth of all walks of life and will lead people into a more efficient and convenient era. Considering the positive functions of AI and big data in improving the pertinence and effectiveness of psychological fitness education, teachers in universities and psychological fitness education should emphasize the application of these technologies from the aspects of consciousness and behavior. From the engineering point of view, AI makes machines have functions related to human intelligence through artificial methods. Based on the characteristics and classification of AI technology, various emerging technologies mostly embed AI as an important technical function or module and integrate it into the corresponding technical system or as a subject to realize a certain kind of function so as to perform a certain function efficiently. By applying AI technology to obtain and analyze data and using ML methods to characterize and model the relationship between features and mental state, intelligent psychological fitness assessment can assist and replace manual assessment to some extent. If AI technology can be applied to analyze and summarize the data, it is bound to deepen the understanding of students' psychological state. Generally speaking, it is required to combine AI technology with psychological fitness education in universities. Universities need to use the power of technology to build an intelligent platform for psychological fitness education, which will gradually infiltrate into students' lives and studies, gradually exert its teaching effect, and make outstanding contributions to the effectiveness of psychological fitness education.

3.2 Construction of psychological fitness assessment model based on AI technology

The goals of psychological fitness education generally include three sub-goals: ① Preventive goals. ② Corrective goal. ③ Developmental goals. For universities

and psychological teachers, apart from getting the data on each student's psychological fitness status through AI, it is also necessary to make an overall analysis of all students' psychological fitness status through AI technology. In this way, it is possible to master the common psychological fitness problems among university students and then formulate a centralized psychological fitness education program for university students. Based on the AI perspective, this paper explores the improvement strategy of psychological fitness education and its assessment method driven by AI technology and puts forward a psychological fitness assessment model based on fuzzy mathematics and NN. In the psychological test stage, because of students' irregular filling, wrong filling, or other similar factors, the data is not complete, and a lot of noisy data will be produced. This erroneous data, null data, and repeated data must be refined by preprocessing. Preprocessing leads to improved quality of the obtained data, ensuring the accuracy and effectiveness of DM results.

Before learning, the feed-forward NN needs to normalize the input data, that is, project the value range of an attribute to a specified range to ensure the accuracy and speed of learning results. In δ learning rules of adjusting neuron weights, the neuron basis function is a general linear function while the excitation function is a Sigmoidal one. Because Sigmoidal function is continuously differentiable, then:

$$u = \sum_{j=1}^{n+1} w_j x_j = X^T W = W^T X \tag{1}$$

$$W = [w_1, w_2, w_3, \dots, w_n, \theta]^T \tag{2}$$

$$X = [x_1, x_2, x_3, \dots, x_n, -1]^T \tag{3}$$

The purpose of adjusting the weights of neurons with δ learning rules is to minimize the square of the output error of neurons for training sample pair $\{X, d\}$ by training the weights W:

$$J(W) = \frac{1}{2}(d - y)^2 = \frac{1}{2}\left(d - f(W^T X)\right)^2 \tag{4}$$

By calculating the gradient vector:

$$\nabla J(W) = (d - y) f(W^T X) X \tag{5}$$

Set:

$$\Delta W(k) = -\eta \nabla J(W) \tag{6}$$

The weight correction formula can be expressed as follows:

$$\Delta W(k) = -\eta (d - y) f(W^T X) X \tag{7}$$

Accordingly, the weight adjustment equation is as follows:

$$W(k+1) = W(k) - \eta (d - y) f(W^T X) X \tag{8}$$

The initial weights of neurons usually take random values around zero. Generally, the NN classification algorithm adopts a multi-layer feedforward NN, including an input layer, one or more hidden layers, and one output layer for classification learning. The psychological fitness assessment model based on NN can be seen in Fig 2.

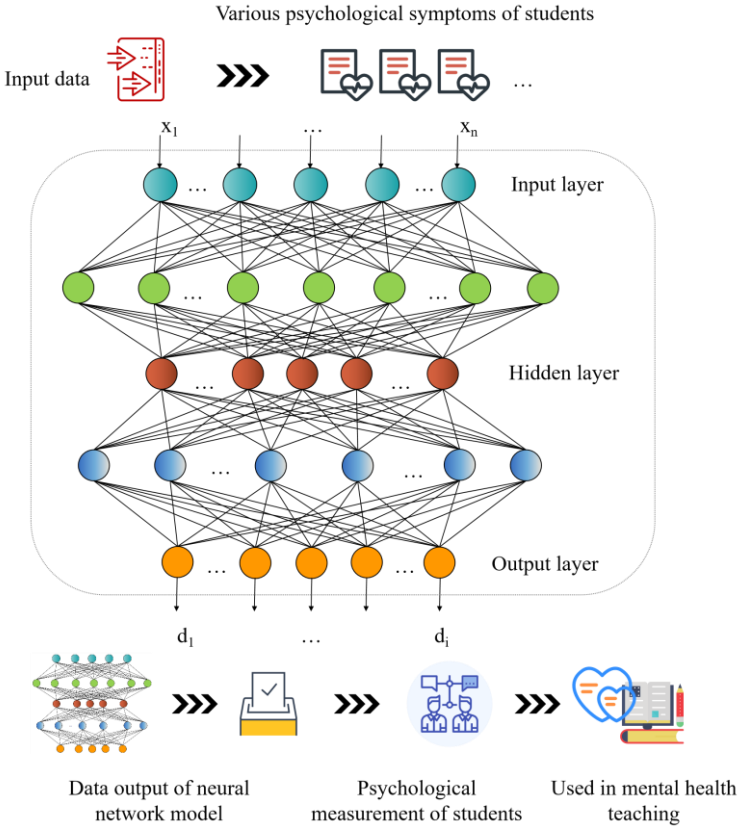

Figure 2: Psychological fitness assessment model based on NN

Multi-layer perceptron network composed of multiple perceptions can complete more complex input vector region classification by polygonal approximation.

The greater value of the acceptance rate leads to higher enthusiasm of the experts:

$$J = n/N \tag{9}$$

Where: N refers to the quantity of all experts and n denotes to the actual quantity of involved experts. The coefficient of variation can be calculated as follows:

$$V_j = \frac{S_j}{M_j} \tag{10}$$

$$M_j = \frac{1}{n}\sum_{i\to 1}^{n} X \tag{11}$$

$$S_j = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_i - M_j\right)^2} \tag{12}$$

In the above equations, V_j indicates the coefficient of variation, S_j refers to standard deviation, and M_j denotes the arithmetic average. Let the data set be S, n be the number of classifications of S; T_i shows the label of a certain classification; P_i is the probability that any sample belongs to the T_i, and S_i is the number of samples in the classification T_i. In this paper, each object is divided into a cluster separately, and then these clusters are merged by the appropriate algorithm until certain conditions are met. The split hierarchical clustering is reversed. All objects are divided into one cluster at first, and then these clusters are divided by the appropriate algorithm until certain conditions are met.

This paper combines the core indicators with the auxiliary indicators to evaluate psychological fitness education more comprehensively and objectively. In formula (4):

$$w^* = \sum_{i=1}^{n} \alpha_i^* y_i x_i \tag{13}$$

Select the Lagrangian multiplier, which corresponds to a support vector, and calculate the b^* as follows:

$$b^* = y_j - \sum_{i=1}^{n} \alpha_i^* y_i\left(x_i, x_j\right) \tag{14}$$

By substituting w^*, b^* into wx+b=0 , an optimal hyperplane equation is obtained:

$$\sum_{x_i \in SV} y_i\, \alpha_i^*(x_i, x) + b^* = 0 \tag{15}$$

Finally, the optimal classification function for the classification problem is achieved as Eq. (16):

$$f(x) = sgn\left[\sum_{x_i \in SV} y_i\, \alpha_i^*(x_i, x) + b^*\right] \tag{16}$$

When the model is established, the model must be evaluated in all aspects to determine whether it is reasonable in terms of accuracy and error aspects. This paper uses the final assessment of students' psychological fitness to predict the new data so as to provide a scientific basis for the prevention of university students' mental illness.

4 Result analysis and discussion

In the DM stage, it is generally recommended not to utilize all of the data. There are certain segments of the data that have minimal impact on the development of the data model, while other parts of the data negatively affect mining calculations and can potentially result in misleading conclusions. In addition, this data holds no advantage for the final data analysis and will have no impact on reaching accurate conclusions. Hence, it is used to determine the mining object and mining target and preprocess the original data. According to the defined project tasks, this paper determines the required data sources and forms the initial data set. Adhering to the strict scientific attitude, these data are preprocessed.

In the data preprocessing stage, we carried out data cleaning (such as removing missing and outliers), feature selection (based on domain knowledge and statistical testing), feature scaling (such as normalization and normalization), and other steps. The specific details of these steps will be described in detail in the revised manuscript. For model training parameters such as learning rate, number of iterations, batch size, etc., we will clearly list the values of these parameters and explain why these values were chosen when possible. In addition, we will also discuss the impact of these parameters on model performance.

This article provides detailed information about the size of the dataset, including the sizes of the training, testing, and validation sets. This will help readers understand how the model has been trained and tested on multiple large-scale datasets. Provide a detailed description of the feature selection process used for mental health assessment. This may include feature selection based on domain knowledge, feature selection based on statistical testing, and feature selection methods based on machine learning techniques. We will also discuss the impact of selected features on model performance. In addition, this paper collects and extracts data from it, looks for data attributes and features, and reduces the data scale, which makes it possible to streamline the amount of data as much as possible without affecting data analysis, and it is convenient to mine the hidden laws and internal relations among data. The educational assessment model is employed in the MATLAB simulation tool for training and learning a specific quantity of teaching-quality data. Figure 3 displays the training error of the algorithm after the experimental test. Figure 4 demonstrates the experimental errors.

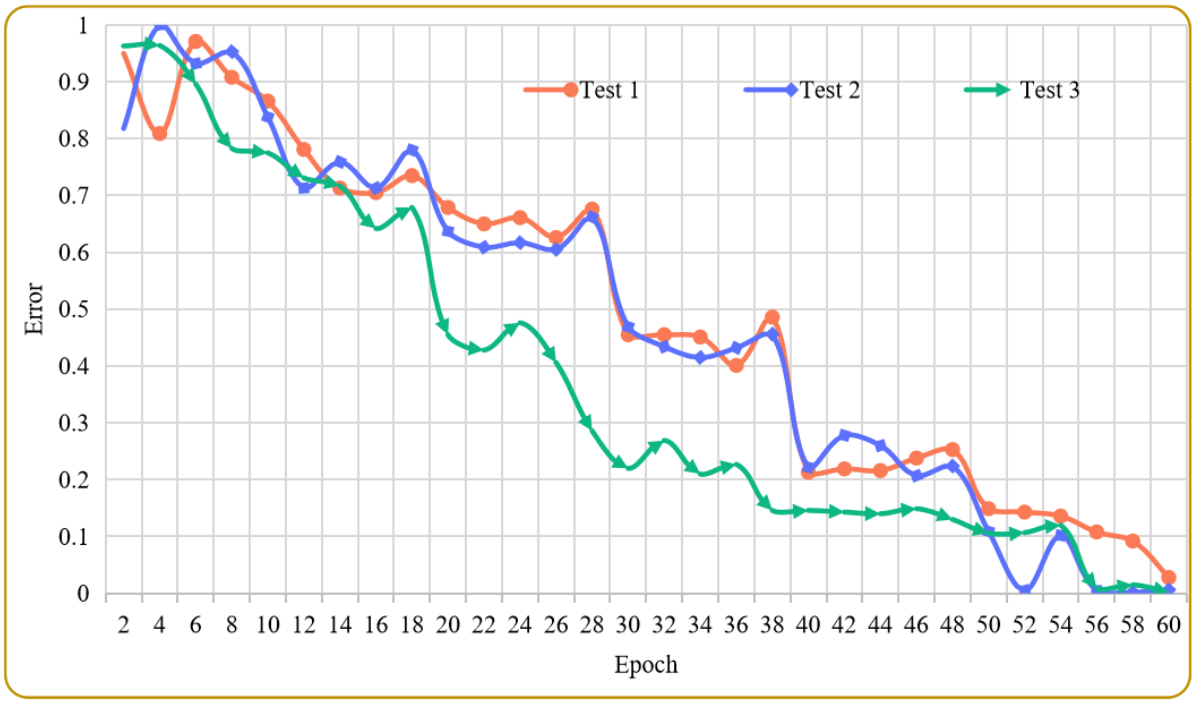

Figure 3: Schematic diagram of network training error

Figure 4: Schematic diagram of experimental error

Figure 5 shows the changes in training MSE (Mean Square Error) in the training iteration stage of the algorithm for this study.

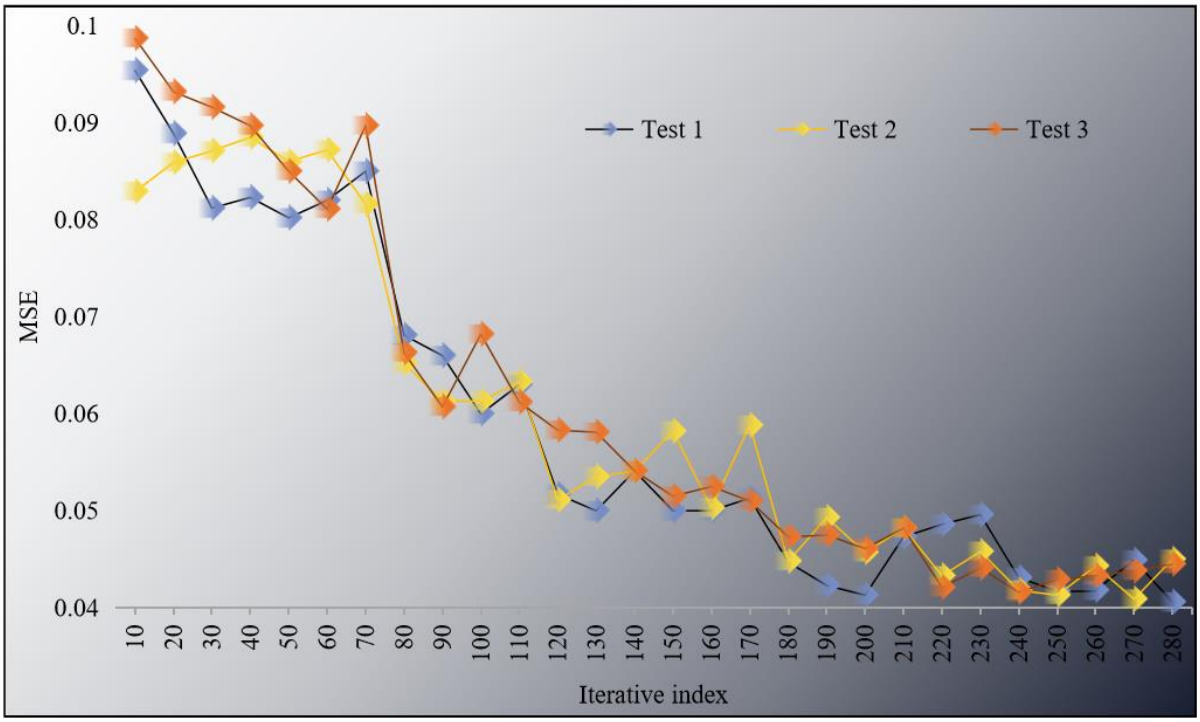

Figure 5: MSE changes in the algorithm training

Figure 5 shows that the MSE of the algorithm of the present paper has a decreasing trend from about 1 at first, and it converges after 180 iterations. The MSE at the convergence point is 0.04. The algorithm can achieve convergence at a faster speed. Figure 6 shows the changes in training MSE in the training iteration stage of three different algorithms.

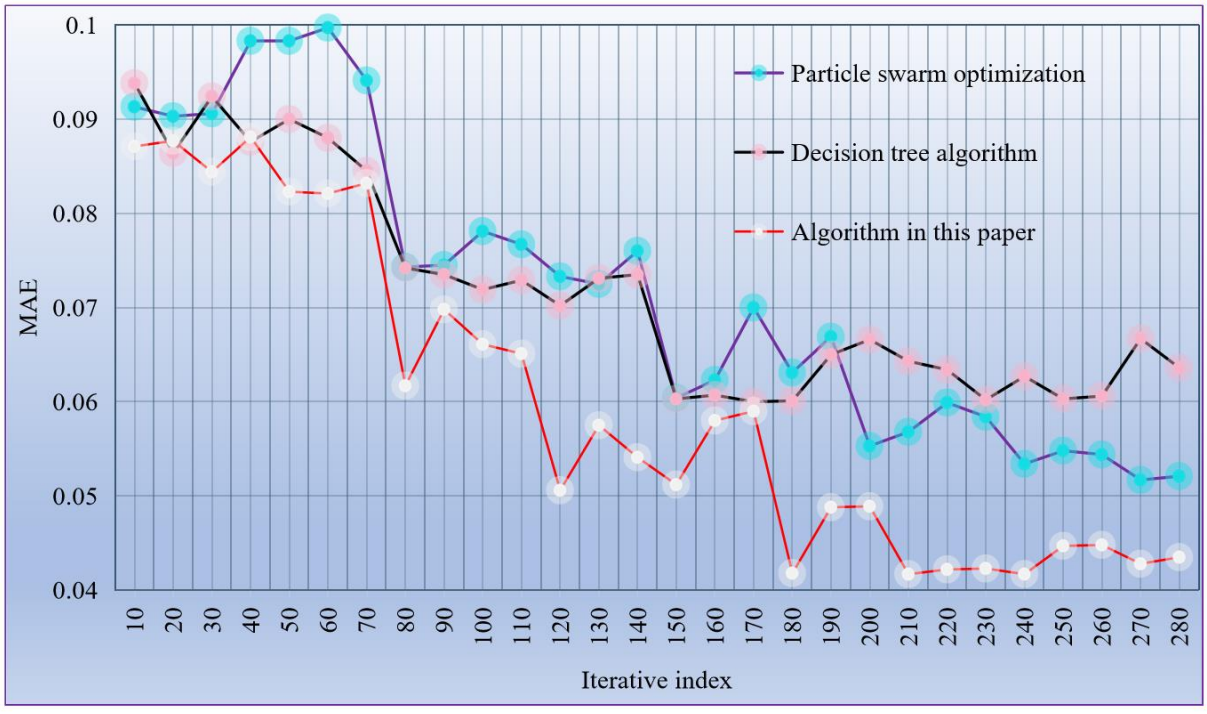

Figure 6: MSE trained by different algorithms

It can be seen from the changes in training MSE in the training iteration stage of three different algorithms that the MSE of this algorithm is lower while its accuracy is higher compared to the two other algorithms. Figure 7 compares the F1 values of various algorithms.

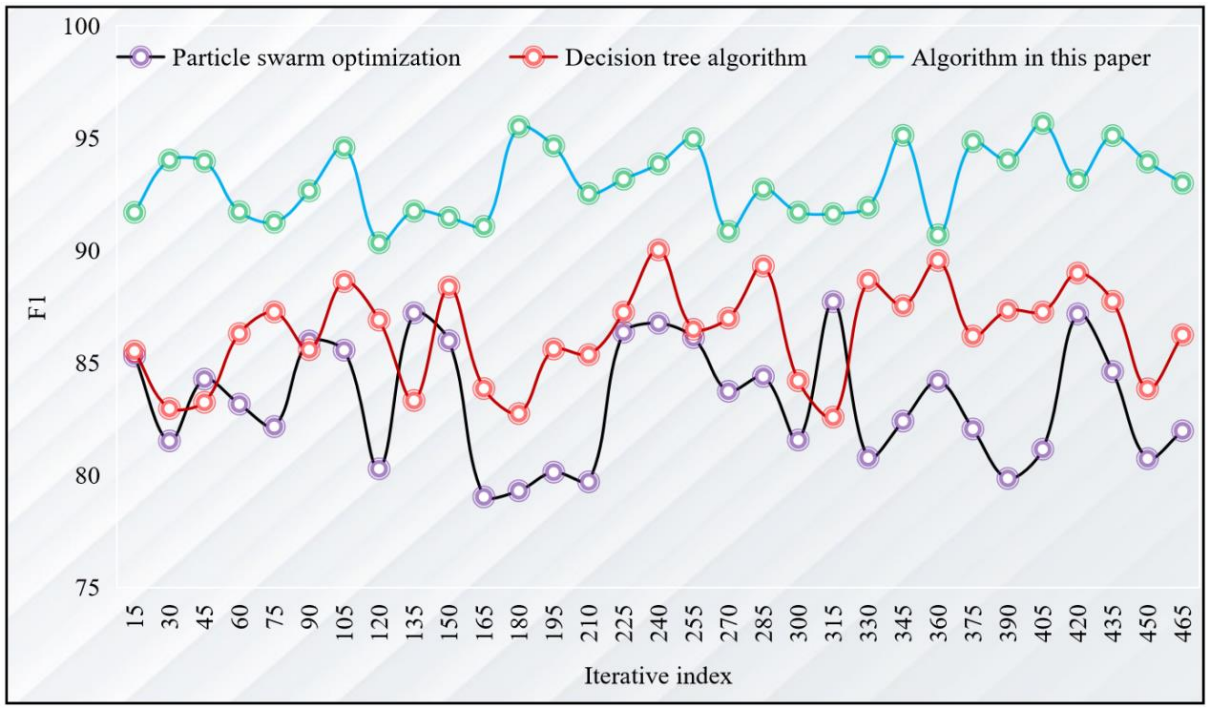

Figure 7: Comparing F1 values for various algorithms

Based on the knowledge representation of the DM scheme, the data set used by DM is formed. Data objects can be represented from three aspects, namely, training data set, testing data set, and assessment data set. However, data preparation needs some operations to improve data quality and make the existing form of data set suitable for DM. In this paper, each tuple in the predetermined data set has a class label. That is, it belongs to a predetermined class. The assessment results after network training and expert assessment results are provided in Table 1. Comparing the test results of the test set and the actual assessment results is represented in Table 2.

Table 1: Assessment results after network training and expert assessment results

Serial number	Expert assessment	Network assessment in the current paper
1	0.786	0.791
2	0.859	0.863
3	0.954	0.948
4	0.866	0.869
5	0.809	0.803
6	0.934	0.927
7	0.883	0.876
8	0.827	0.828
9	0.936	0.931
10	0.917	0.914

Table 2: Comparing the test results of the test set and actual assessment results

Serial number	Expert assessment	Network assessment in the current paper
11	0.869	0.863
12	0.854	0.851
13	0.936	0.934
14	0.858	0.860
15	0.911	0.907

Table 1 compares the evaluation results of the model on the test set after online training with the expert evaluation results. Table 2 further compares the results of model evaluation with the actual results of expert evaluation on the test set. Similarly, accuracy is used as the evaluation metric here. The evaluation metric used here is accuracy, which refers to the proportion of correctly classified samples in the model to the total number of samples. By comparing the data in Tables 1 and 2, we can see that the model can achieve or approach expert evaluation accuracy in most cases. This indicates that the network model we trained has good classification

ability and accuracy. However, on some samples, the performance of the model is slightly inferior to that of experts, which may be due to data noise, insufficient model complexity, or incomplete feature extraction. In future work, we can further optimize the model structure, adjust parameter settings, and attempt to use richer features to improve the performance of the model. After the training, the weights and thresholds of the network can be obtained, and the classification results can be obtained. Then, input the data to be identified into the identification system for identification, output the result, and evaluate the relationship between the error of the result and the number of learning times. Figure 8 illustrates the running efficiency for different algorithms. Figure 9 shows the accuracy of several different algorithms.

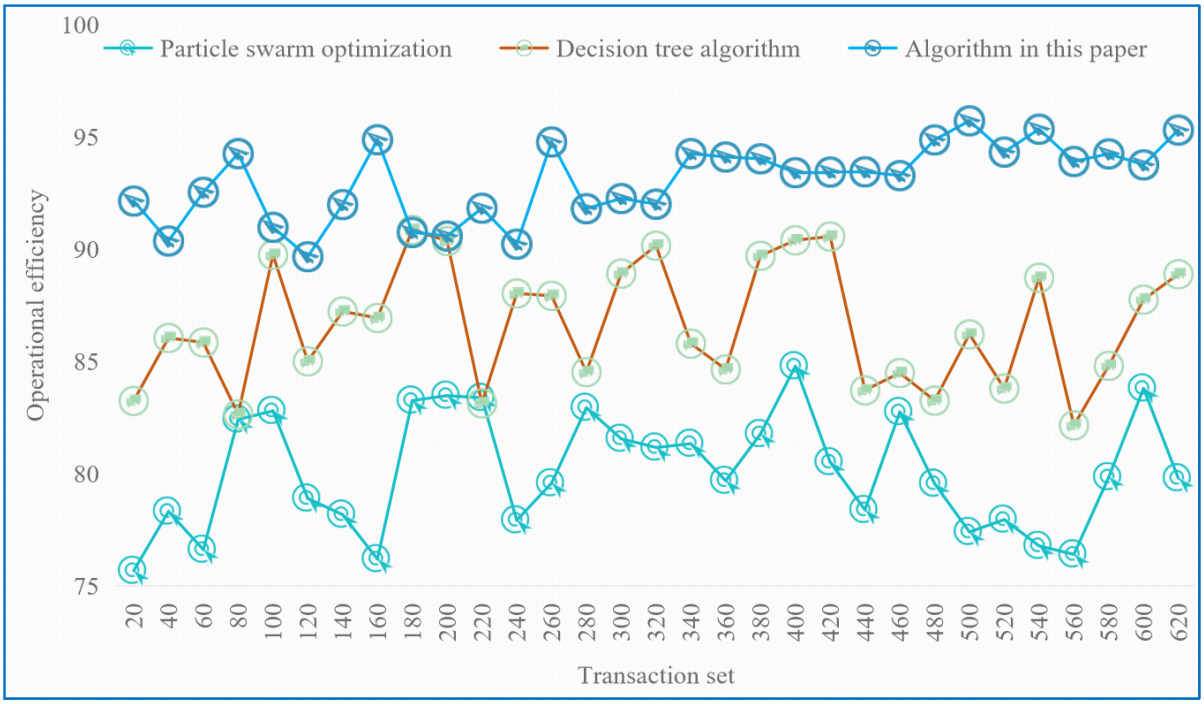

Figure 8: Comparing the running efficiency for various algorithms

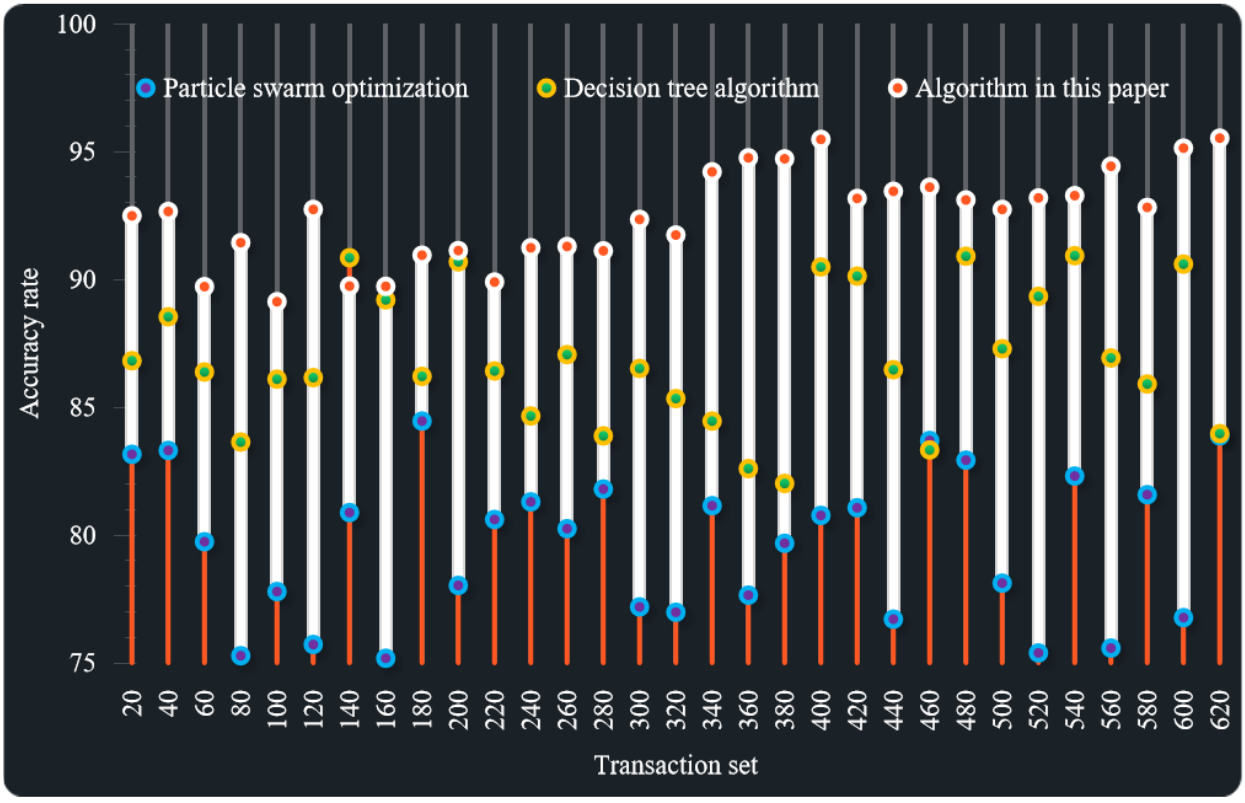

Figure 9: Comparing the accuracy of algorithms

It can be seen that, compared to the other two algorithms, the proposed algorithm is more efficient with better accuracy. In this section, the assessment model of psychological fitness education is used to train and learn a certain amount of psychological fitness instructional data in the MATLAB simulation environment. The training experiment shows that the accuracy of this algorithm can reach 95.97%, which is higher than other comparison algorithms.

5 Discussion

In this article, we propose and evaluate a mental health education evaluation model based on data mining (DM) technology. By carefully selecting and preprocessing the raw data, we have successfully reduced noise and redundancy in the data, thereby improving the accuracy and reliability of the data model. During this process, we adhered to a strict scientific attitude, ensuring the quality of data and the effectiveness of the model.

Firstly, our model performs well in training MSE. After 180 iterations, MSE converges to 0.04, proving the efficiency and accuracy of the algorithm. In addition, compared with the other two algorithms, our model shows superiority in both MSE and F1 values, which further verifies the effectiveness of the model in the field of mental health education evaluation. Secondly, our model was trained and tested in a MATLAB simulation environment, and the results showed that its accuracy was as high as 95.97%, higher than other comparative algorithms. This result not only proves the high performance of the model, but also indicates its enormous potential in practical applications. Especially in university environments, this model can provide valuable mental health assessment results for students and teachers, helping them better understand their own mental health status and take appropriate intervention measures.

Compared with the literature mentioned in the relevant work section, our research exhibits novelty in multiple aspects. Firstly, we significantly improved the performance of the data model through meticulous data preprocessing and feature selection. Secondly, we adopted an efficient algorithm to train the model and verified its effectiveness through experiments. Finally, our research not only focuses on the accuracy of the model, but also on its feasibility and effectiveness in practical applications.

6 Conclusions

For contemporary university students, the social environment they are facing is constantly changing. In this environment, only by grasping students' psychological characteristics, analyzing the factors that affect students' psychological fitness, taking various effective measures, and reasonably arranging the contents of psychological fitness education it is possible to promote the comprehensive and harmonious growth of students' minds and bodies. Once the monitoring and assessment of students' psychological fitness is intelligent and dynamic, the problems of inefficiency, inaccuracy, incompleteness, and so on in the current school psychological fitness assessment can be solved to a great extent.

In order to reflect the information reflected by students' psychological fitness data to the greatest extent, this paper explores the improvement strategy of psychological fitness education and its assessment method driven by AI technology. Moreover, by analyzing the characteristics of psychological phenomenon research itself, the advantages of using NN and fuzzy mathematics to establish an assessment model are drawn. After a brief introduction to NN and fuzzy mathematics, the NN classifier model for evaluating psychological fitness status is established, and then a psychological fitness assessment model based on fuzzy mathematics and NN is put forward. Finally, in the MATLAB simulation tool, a certain amount of training and learning is carried out on the instructional data of psychological fitness by using the assessment model of psychological fitness education. The training experiment shows that the accuracy of the proposed algorithm reaches 95.97%, which is higher than other comparison algorithms. The positive significance of the proposed psychological fitness assessment model was verified for AI-driven psychological fitness education. Under the guidance of AI multidimensional indicators, schools will be able to dynamically monitor students' psychological fitness status in different scenarios under natural conditions. Moreover, with the help of modern processing and analysis technology, students with psychological problems can be screened out in time and efficiently. The screening results will be quickly sent to the person in charge for follow-up treatment, and psychological crisis intervention will be carried out in time.

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Competing of interests

The authors declare no competing of interests.

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Yan Zhang: Writing-Original draft preparation, Conceptualization, Supervision, Project administration.

Data availability

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Not applicable

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