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Retraction

Retracted: Psychological Consultation and Health Analysis Method for Artificial Intelligence Multidecision Support

Security and Communication Networks

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] Y. Jin and A. Liu, "Psychological Consultation and Health Analysis Method for Artificial Intelligence Multidecision Support," *Security and Communication Networks*, vol. 2022, Article ID 8957082, 9 pages, 2022.

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Research Article

Psychological Consultation and Health Analysis Method for Artificial Intelligence Multidecision Support

Ye Jin and Aheng Liu [ID]

Yunnan Normal University, Kunming, Yunnan 650000, China

Correspondence should be addressed to Aheng Liu; 2034010026@user.ynnu.edu.cn

With the increase in market economy and life competition, mental health problems are particularly prominent in today's society. This is also an important reason for the sudden increase in extreme events. The frequent occurrence of violent incidents and depressive incidents is mainly caused by major problems in mental health. They accumulate greater pressure in life or study, which can easily lead to mental health problems. However, mental health problems are difficult to detect up front. When the mental health problem is more serious, they will seek a psychological counselor or a way to release stress to solve the mental health problem. Only a small number of people will take extreme measures, which will cause social or family losses. Artificial intelligence methods have better advantages in dealing with nonlinear relationships of features. This study uses a convolutional neural network (CNN) and long short-term memory (LSTM) methods in artificial intelligence methods to study the characteristics of psychological counseling and health. The research results show that CNN and LSTM methods can accurately predict the characteristics of psychological counseling and health, which can do certain forecasting work for discovering people's mental health problems. The maximum prediction error of CNN and LSTM methods in predicting the characteristics of psychological counseling and health is only 2.64%.

1. Introduction

With the improvement of social productivity and the pace of life, people's psychological pressure has also fluctuated greatly. In this day and age, mental health is an important topic. The incidence of violent incidents as well as extreme incidents has gradually increased with the improvement of living standards [1, 2]. There is a strong correlation between the occurrence of extreme events and mental health. Mental competition is one of the main causes of unhealthy minds. In the 1960s–1990s, extreme events were less likely, mainly because living standards were lower and there was less competition [3, 4]. At the same time, people's sense of life is relatively happy, although the quality of life is relatively low. However, people's lives are relatively satisfactory. There is also less competition between people, and people also have lower psychological stress. This allows people to maintain a relatively healthy mind. From this point of view, a healthy

mind is very important both for an individual and for a country. Students are also a relatively large group in life. Students may have depression or other extreme behaviors, which are mainly caused by greater academic pressure and employment pressure. The life of games and comparisons can easily lead to extreme unhealthy behaviors in students. These two are also sources of lower learning pressure for students [5, 6]. In previous years, students rarely come into contact with so many kinds of life and games. For employees of large enterprises, the timeliness pressure of work and the pressure of life can easily cause greater psychological pressure [7, 8]. In order to improve the productivity of products, enterprises often increase production efficiency by squeezing the time of employees. For employees, the pressure of life, the pressure of enterprise production, the pressure of children's education, and other issues lead to poor mental health problems. Enterprises in previous years will not face the pressure of life and market competition in

today's era, and it will reduce the pressure on employees. Middle-aged people, they have to face the pressure of children's education and starting a family, and they also have to face the pension problem of the elderly. This requires them to put in more labor in exchange for a return. In the process of labor, they will spend more time and energy to labor for more rewards, which also reduces their rest time. This is also the source of their mental health problems. It can be seen from the above description that different groups will face different pressures, whether it is young people or middle-aged people. These pressures come from different sources. Once they get more stress, it can cause them to have unhealthy psychological problems. Unhealthy psychological problems can easily lead to some extreme events. This is also the phenomenon of a surge in extreme events. Therefore, people's mental health is a focal issue that deserves attention. The best way is to reduce people's mental health problems through psychological counseling or stress reduction.

In today's society, most of the commonly used decompression methods are through psychiatrists or looking for some ways to release pressure. The way to release stress is different for different groups of people. Psychological counseling is also a common method. It will slowly find the factors that cause more stress through the guidance of the psychological counselor, and then people will use certain methods to avoid the occurrence of stress or reduce the damage caused by stress to mental health. However, in most cases, it can be found that when people's mental health problems reach extremes, they will seek psychological counselors or decompress through some stress-releasing methods. This is equivalent to the late stage of mental health problems [9, 10]. This stage of mental health problems is already a relatively serious stage. It can only solve short-term stress problems by relying on psychological counselors or stress-releasing methods, but in the long run, It is also a potential mental health problem. When people encounter a flashpoint for a mental health problem, that long-standing mental health problem can easily trigger extreme events. When it comes to mental health issues, the best way to do this is to stay in a good mood all the time. When a mental health problem is found, it needs to solve the problem in a reasonable way to reduce the occurrence of mental health problems.

It is difficult for people to discover their psychological problems in time through their own cognition and habits. Most people have little awareness of mental health problems. This can easily lead to an advanced state of mental health problems. Artificial intelligence technology has developed rapidly, and it may be helpful for psychological counseling and health problems. Artificial intelligence technology is good at dealing with huge amounts of data, and it can also mine correlations between related data from huge amounts of data [11, 12]. The development of mental health problems is related to many factors, and the initial performance of mental health problems is also related to many factors [13, 14]. Artificial intelligence technology can look for the relationship between these factors and mental health problems. Although the relationship between these data is complex, however, artificial intelligence technology can

extract deeper features by deepening the network layer, which is also allowed by the technology. Artificial intelligence technology can deal with spatial features, temporal features, and features related to the environment. These three features can basically meet the needs of people's life and production feature extraction. There are already many kinds of algorithms in artificial intelligence technology, which allow people to build different artificial intelligence frameworks with fundamentally different data characteristics and different research objects, which is a more flexible and convenient way. Among artificial intelligence methods, CNN and LSTM methods are the two most common methods. They can deal with the spatial and temporal characteristics of the research object, respectively. These two methods have relatively high stability that benefits from a wide range of applications.

This study uses artificial intelligence technology to explore the problems of psychological counseling and health. The artificial intelligence algorithms used in this study include CNN and LSTM, which can efficiently extract the temporal and spatial characteristics of factors related to psychological counseling health problems. In active mental health and counseling tasks, artificial intelligence methods can extract more mental reference content for people. It can also help people to predict mentally relevant feature data. It can look for mental health relationships that cannot be established by artificial means. This study demonstrates the feasibility of applying artificial intelligence algorithms in psychological counseling and health through 5 sections. Section 1 introduces the research background of mental health issues and the development of artificial intelligence technology. Section 2 describes the current state of research on mental health issues. The scheme design of artificial intelligence methods for mapping and prediction of mental health and counseling-related features is studied in Section 3. Section 4 focuses on the prediction accuracy of CNN as well as LSTM methods in terms of mental health-related features. In Section 4, this study analyzes the accuracy of the CNN-LSTM approach to mental health and counseling features using mean error plots, prediction error scatter plots and prediction box plots. This is the core part of the research. Section 5 summarizes the research and analysis of the full text.

2. Related Work

Mental health problems not only affect the life and work of an individual but also affect the overall development of a country. However, there is a certain degree of uncertainty about mental health problems, which leads to a potential crisis of mental health problems. Numerous researchers have explored the characteristics and discovery strategies associated with mental health problems. Skinner et al., [15] conduct research and simulations on students' mental health issues. It mainly analyzes students' perceptions of mental health problems and it studies the prediction of students' mental health problems. It uses statistical learning methods as well as tests of independence and linear regression to analyze mental health issues between students and exams.

The results of the study showed that there was a relatively large correlation between anxiety characteristics and mental health problems in exams. This simulation method can guide students' anxiety relationship with exams, allowing them to discover the specific meaning of mental health problems in time. Xiao et al., [16] believed that traditional psychological counseling and health problems are mainly focused on the treatment of psychiatric disorders, which involves the privacy of patients. This study used a two-factor model to investigate the relationship between mental health problems and psychiatric pathology. It explores the applicability of two-factor models to mental health issues. Its research objects are mainly aimed at college students. The results show that the two-factor model has a higher fitting coefficient in dealing with college students' psychological counseling and health problems. At the same time, this model can also propose a screening scale for mental health problems. This method can bring a certain sense of happiness to the psychology of college students. Bjornsen et al., [17] considered mental health education an important part of the school's practical curriculum. This study mainly analyzed the relationship between positive mental health literacy (PMeHL) and students' mental health. It explores this relationship between mental health using a multiple linear regression approach along with an associated covariate approach. Its research objects are mainly from adolescents, mainly because adolescents' psychology is prone to greater fluctuations. The findings found smaller gender differences in mental health problems. The regression model has certain feasibility in exploring the mental health problems of adolescents. This study provides a certain method for mental health education in schools. Seo et al., [18] studied the benefits of nonservice programs for mental health issues in the community and remediation issues in the mental health community. It selected multiple patients with mental health problems to study the issue. It mainly measures characteristics such as social communication aspects and clinical variables of these individuals. It uses the method of structural equations to test this hypothesis. The findings suggest that community resources are easier to access, which means less mental health problems. The festive mood can also affect symptoms in people with mental health conditions. McAlpine et al., [19] believed that self-assessment of mental health problems is a better way to improve quality of life and reduce morbidity. This method has certain advantages over traditional mental health treatment, which is also due to the fact that people have less awareness of mental health knowledge. The results of the study found that 62% of the mentally ill are relatively positive. In the absence of mental health treatment, positive things can promote the improvement of their mental health problems. Javed et al., [20] considered mental health issues to be an emerging global health problem. 80% of mental health problems are found in low- and middle-income countries. This study analyzes factors contributing to mental health problems in low- and middle-income countries. Culture, as well as socioeconomics, contribute to varying degrees of mental health problems. Individual behaviors and attitudes and inadequate health systems can also contribute to mental health

problems. Primary treatment systems for mental health problems as well as interventions in public places can reduce the occurrence of mental health problems. Most of the researchers mainly explored the related factors of mental health problems, and a few researchers explored the initial findings of psychological counseling and health. There has been less research on artificial intelligence approaches to mental health issues.

3. Application Design and Introduction of Artificial Intelligence Methods in Psychological Counseling and Health

3.1. Implications of AI Methods for Psychological Counseling and Health. Mental health problems are a relatively hard-to-find symptom in the early stages. Many people are also reluctant to admit the disease. However, mental health problems are also relatively easy to occur, which are mainly related to the pressure of work and life. In today's fast-paced world, there is an even greater need to pay attention to mental health issues [21]. Mental health problems are closely related to people's behavior, speech, and pulse. However, people's awareness of mental health problems is relatively low. This can easily lead to the accumulation of mental health problems, which can then lead to extreme events. This has a negative impact on individuals as well as society. How to predict the occurrence of mental health problems based on people's behavior or speech is important research. Artificial intelligence methods are an advantageous way of predicting mental health problems. It can look for the relationship between people's behavior, speech, and mental health problems. With enough data, artificial intelligence methods can find the relationship between people's behavior and mental health problems. Not only can this predict the occurrence of mental health problems it can also estimate the level of mental health problems.

3.2. Psychological Resources and Health Intelligence System Design and CNN Introduction. This study is mainly to explore the prediction and grade prediction of mental health problems based on people's behavior, speech, and pulse. This will design an intelligent psychological consultation and prediction system. This system can not only predict the occurrence of mental health problems based on people's daily behavior, but it can also prevent the occurrence of mental health problems. This system can also provide psychological counseling services. It can provide some knowledge related to psychological counseling according to the needs of different groups of people with psychological problems. Most people are reluctant to go to a psychologist for psychological counseling because of their privacy habits. The psychological counseling and health system designed in this study can not only predict people's psychologically related health problems but also provide psychological intelligent counseling according to people's needs. After the data set of mental and health counseling is collected, this study will digitize these characteristics. Then, the data preprocessing algorithm will divide the dataset into three

feature datasets according to the distance correlation. Figure 1 shows the design of CNN and LSTM methods for psychological counseling and health prediction. For CNN and LSTM algorithms, it requires a large amount of data to learn psychological counseling and health-related features. As a first step, this requires providing the intelligent system with a large amount of mental health data about people's behavior, speech, and pulse. Once these data have undergone relevant preprocessing, they need to be input into the CNN. CNNs can learn the relationship between these characteristics of people and mental health characteristics. The characteristics of mental health mainly include the occurrence of psychological problems and the level of health. After these data are learned by CNN, they need to be input into the LSTM algorithm. This is because mental health issues are a problem that builds up over time, and it has a strong relationship with time.

Mental health problems are not simply triggered by one thing, which is related to a change in time. The CNN algorithm can better map the relationship between people's behavior, speech, and mental health characteristics, but it cannot extract time-related features. Therefore, this study considers the use of LSTM methods to extract the temporal features of mental health and the temporal features of people's speech. The LSTM method has been successfully applied in the field of speech recognition. In the intelligent system of psychological counseling and health, people's mental health problems are also long-term accumulation problems. People will have normal behavior and speech in the beginning. However, it experiences greater stress over time. This can slowly lead to the emergence of mental health problems. Different people also have different attitudes to stress, which also affects the emergence of mental health problems. Therefore, this study needs to use the LSTM method to extract the temporal features of mental health features. If the LSTM method is not adopted, this will result in inaccurate extraction of mental health features. Figure 2 shows the workflow of the LSTM method for predicting and extracting features for counseling and health. It mainly contains multiple gate structures. In Figure 2, the input layer of the LSTM will feed the data of the output layer of the CNN. This data will be fed into the LSTM as a time series. The output data is mental health and counseling-related information. The most important thing about the LSTM method is the four-gate structure. It will select and filter historical information and current information through the gate structure. After passing through different gate structures, it will input the historical information with a greater weight to the next layer of the network.

3.3. CNN Algorithm and Corresponding Formula Introduction.
Mental health problems are more specifically related to people's behavior, speech, and pulse. It is a nonlinear mapping relationship between x and y. CNNs have good performance in mapping features. It can first complete the feature extraction task, and then it can complete the feature mapping relationship. In this study, this refers to the discovery of mental health problems and the

relationship between ratings and behavioral traits such as people's behavior, speech, and so on. The CNN method has been successfully applied in many fields of mapping relations, no matter how complex these relations are, it can complete the mapping of relations. If there is an overly complex relationship between mental health-related features and the features of people's behavior and speech, it can complete the extraction of deep features by deepening the number of network layers.

First, this study introduces the relevant computational pipeline of the LSTM method. Equation (1) shows how the forget gate of LSTM works. The forgetting gate is mainly aimed at the selection of information at the previous moment. It can select the information of the previous moment according to the weight and enter the next stage of learning through the neural network.

$$f_t = \sigma\big(w_f \bullet [h_{t-1}, P_t] + b_f\big). \tag{1}$$

Equations (2) and (3) show the method of the input gate of the LSTM method. The input gate can input two kinds of data, which are the data of the previous moment and the current moment. It is also selected by the size of the weights.

$$i_t = \sigma\big(W_{xi} * x_t + W_{hi} * h_{t-1} + W_{ci} \circ C_{t-1} + b_i\big), \tag{2}$$

$$f_t = \sigma\big(W_{xf} * x_t + W_{hf} * h_{t-1} + W_{cf} \circ C_{t-1} + b_f\big). \tag{3}$$

The output of the output gate will be connected to the next LSTM layer. This also outputs some data related to the next moment. Equations (4) and (5) show how the output gate is calculated. This gate structure also contains layers of activation functions. ht is the output layer of the LSTM layer and it represents the nonlinear relationship. C_t contains linear relationship data, and its data are transformed into data with nonlinear relationship through the excitation function.

$$o_t = \sigma\big(W_{xo} * x_t + W_{ho} * h_{t-1} + W_{co} \circ C_t + b_o\big), \tag{4}$$

$$h_t = o_t \circ ELU\,(C_t). \tag{5}$$

Equations (6) and (7) show the equations of the CNN's loss function. The loss function mainly calculates the predicted and actual eigenvalues of mental health predictive features. The MSE loss function is a relatively common loss function, which has high stability and convergence performance. And the MSE method is more suitable for the distribution form of psychological and health counseling characteristics.

$$L = MSE\big(q^{\text{real}}, q^{\text{pre}}\big) = \frac{1}{nm} \sum_{k=1}^{N} \sum_{j=1}^{M} \big(q_{kj}{}^{\text{real}} - q_{kj}{}^{\text{pre2}}\big), \tag{6}$$

$$E = \frac{1}{2}\big\|d - y^L\big\|_2^2. \tag{7}$$

Equation (8) shows how the input layer of the CNN is computed. The input layer of CNN is different from other neural networks. It requires a convolution operation, and the
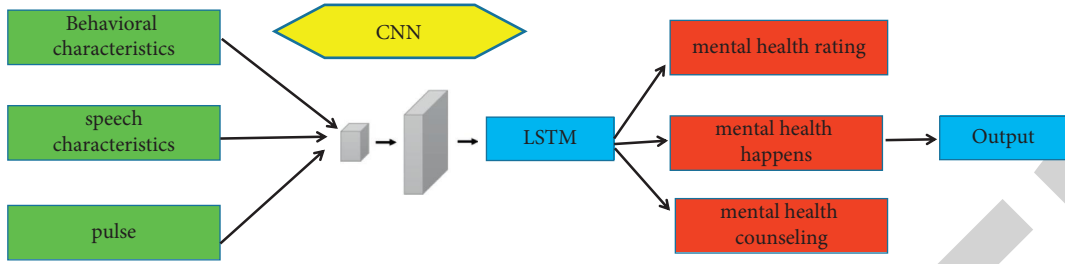
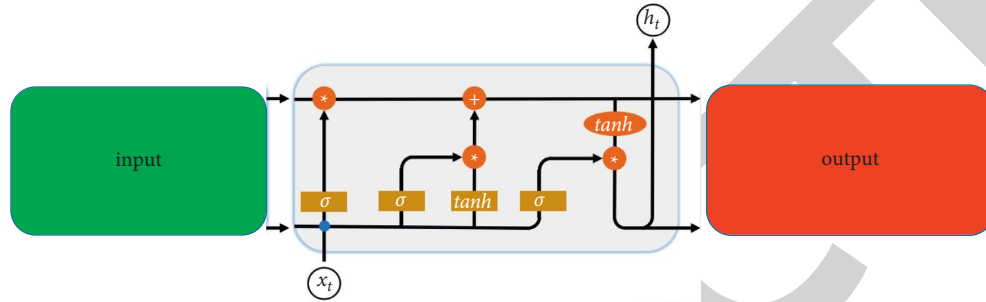Figure 1: Solutions of CNN and LSTM in psychological counseling and health system.

Figure 2: Introduction to the working principle of the LSTM method.

convolution operation also means that the factors of some hidden layers do not participate in the calculation of parameters.

$$a^2 = \sigma(z^2) = \sigma(a^1 * W^2 + b^2). \tag{8}$$

Equation (9) shows one calculation of the pooling layer, which is also deformed from Equation (8).

$$a^l = \text{pool} a^{l-1}. \tag{9}$$

Activation functions are an integral part of every neural network. Equation (10) shows the calculation formula of the activation function. It can nonlinearized the number of mental health traits.

$$a^l = \text{Re}LU(z^l) = \text{Re}LU(W^l a^{l-1} + b^l). \tag{10}$$

If there is a certain probability selection in the output of CNN, this requires the use of the softmax function of Equation (11), which is for classification problems. Activation functions are an essential part of artificial intelligence methods. If the activation function is not used in the prediction of psychological and health counseling-related features, it is difficult to obtain the correlation between psychological and health counseling features, which is only an expression of a linear relationship.

$$a^l = \text{softmax}(z^l) = \text{softmax}(W^L a^{L-1} + b^L). \tag{11}$$

4. Result, Analysis, and Discussion

This study makes full use of CNN and LSTM methods to explore the characteristics and applications of psychological counseling and health intelligence systems. It is mainly based

on people's behavior, speech, and pulse changes to find the emergence of mental health and the level of mental health problems. At the same time, it can timely push psychological counseling-related knowledge according to people's needs, which are customized and pushed according to each person's needs. This involves the mapping relationship between people's behavior, speech, pulse, mental health level, and psychological counseling methods, and it also involves the relationship between people's psychological change characteristics and time. This requires the use of CNN and LSTM methods. The LSTM method mainly extracts the temporal features of mental health features. This study collected data on behavioral characteristics and mental health of 2000 groups of people in Shenzhen. Shenzhen is an area where life and work pressure are relatively high, so it can be relatively simple to collect relevant data. After the data collected, the data need to be preprocessed according to the relevant characteristics.

In this study, first compares the accuracy of two neural networks in mental health feature extraction. It first uses a neural network without LSTM layer to extract the characteristic relationship between mental health and people's behavior, which can find out whether there is a certain correlation between changes in mental health and time. Figure 3 shows the prediction errors for three related features of mental health using a neural network without LSTM layers. V1 represents the prediction error of people's speech information. V2 represents the prediction error of behavioral information. V3 represents the prediction error of people's pulse-related features. Of the three errors, the prediction error for the first two features has exceeded 2%. However, it is all within 3%. From the perspective of mental health-related characteristics, this error is also adequate. However, the errors in these three behavior-related
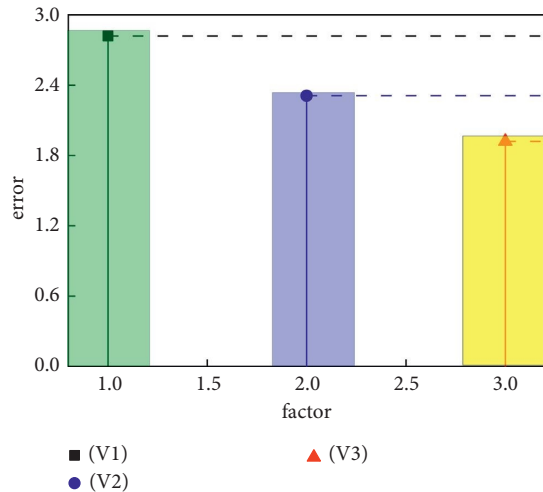
Figure 3: Prediction errors of three features associated with mental health problems using neural networks without LSTM layers.

characteristics of people are also too large. Especially for people's verbal information, this error has reached more than 2.8%. There are large temporal characteristics of people's speech behavior, which have an important impact on the behavior of mental health problems. This may be the reason for the large error in this part of the feature.

The LSTM layer can extract the temporal features of mental health and counseling-related features, which is a more favorable idea. This study also investigated the prediction error of a hybrid neural network algorithm for mental health and counseling-related characteristics. Figure 4 shows the prediction errors for three characteristics of mental health using a hybrid CNN and LSTM approach. Overall, the prediction errors of people's behavior, speech, and pulse characteristics are significantly improved relative to the use of no LSTM. This is more favorable for the prediction of mental health and counseling. This also shows that the characteristics of mental health and counseling problems have obvious temporal characteristics, which have been effectively proved. This also shows that mental health and counseling problems are a result of the accumulation of time. The characteristics of mental and health counseling contain more time characteristics. It is difficult for CNN to extract temporal features of research objects. The LSTM method has specific and obvious advantages in extracting the characteristics of psychological and health consultation time, so this part of the error has been significantly reduced. Speech features, which are some of the mental health features with larger temporal features, their prediction error reduced from 2.8% to 2.13%. The error of behavioral characteristics information related to mental health was reduced from 2.29% to 1.94%. The prediction error of the pulse feature was reduced from 1.87% to 1.41%. This part of the reduction is also relatively large. This shows the effectiveness of the LSTM method in predicting mental health characteristics. Prediction errors of people's behavior and pulse characteristics were reduced to less than 2%. The prediction error distribution of these three characteristics is

extremely beneficial for timely detection of mental health and accurate psychological counseling matching. Therefore, temporal characteristics need to be fully considered when predicting characteristics related to mental health and counseling.

Through the abovementioned description, it can be found that people's speech characteristics are the characteristics that affect mental health and counseling intelligent systems. In this study, the prediction errors of 20 groups of speech features were selected for prediction accuracy analysis. Figure 5 shows the distribution of prediction errors for psychological counseling and healthy speech characteristics. In Figure 5, the green area represents the prediction error of mental and health counseling within 2%. In this way, the prediction error distribution of language features can be seen more intuitively. In Figure 5, the red dashed line represents the data with a larger prediction error for the verbal characteristics of mental and health counseling. The red dotted line can clearly see the distribution of large prediction errors. Overall, CNN and LSTM methods have high feasibility in predicting speech features. Most errors in speech features are distributed within 2%. Only 3 sets of data exceeded the 2% prediction error, as shown in red in Figure 5. This occupies a relatively small part of all test sets. Overall, CNN and LSTM methods can better predict the verbal characteristics of mental health and counseling. There is also a small part of the error distribution within 1%, which also shows that CNN and LSTM methods can better grasp the verbal characteristics of mental health and counseling.

Behavioral characteristics are also an important part of the characteristics that affect mental health and counseling systems. This is because mental health problems are often manifested through people's behavioral characteristics. For the intelligent system of mental health and counseling, it is crucial to accurately predict people's behavioral characteristics, which is crucial for accurately predicting the occurrence and level of mental health. Figure 6 shows the distribution of predicted and actual values for behavioral characteristics of mental health and counseling. This study uses the form of box plots to display, which can show the distribution and value of mental health-related data. From the overall perspective of the box, the predicted value of behavioral characteristics of mental health is larger than the actual behavioral value. However, this error is also relatively small. CNN and LSTM methods can better predict the distribution characteristics and size of data values of behavioral characteristics of mental health. The distributions of the peaks and medians of the behavioral characteristics are almost identical. Errors were mostly found in the trough portion of mental health behaviors. There is a small deviation here. The predicted value of the behavior characteristic is close to the mean of the actual value. Overall, CNN and LSTM methods are feasible solutions in intelligent systems for mental health and counseling. In Figure 6, it can be clearly seen that the predicted value of the behavioral feature value of psychological and health counseling is larger than the actual value, mainly because the training process of the CNN-LSTM method is more ideal than the actual environment, and it has less noise impact.
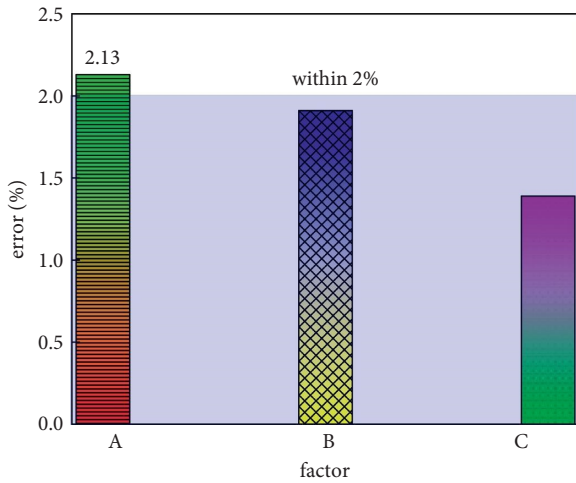
Figure 4: Prediction errors of three features associated with mental health problems using neural networks with LSTM layers.
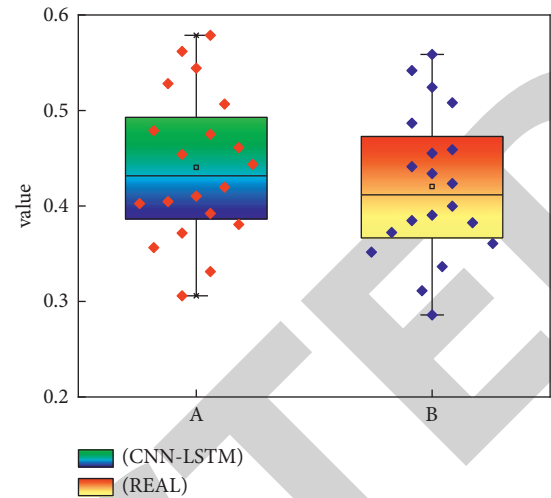

Figure 6: Distribution of predicted and actual values of behavioral traits in mental health and counseling.
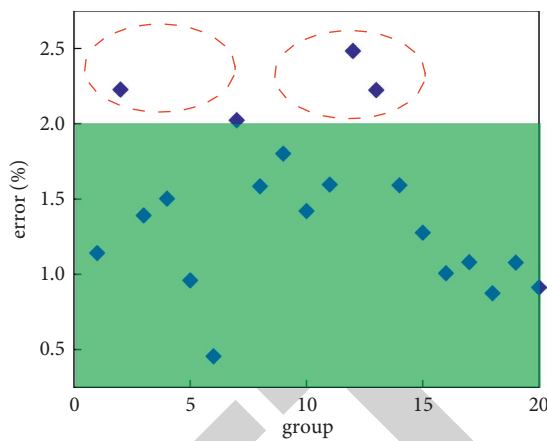

Figure 5: Prediction error distribution of verbal features in mental health and counseling.
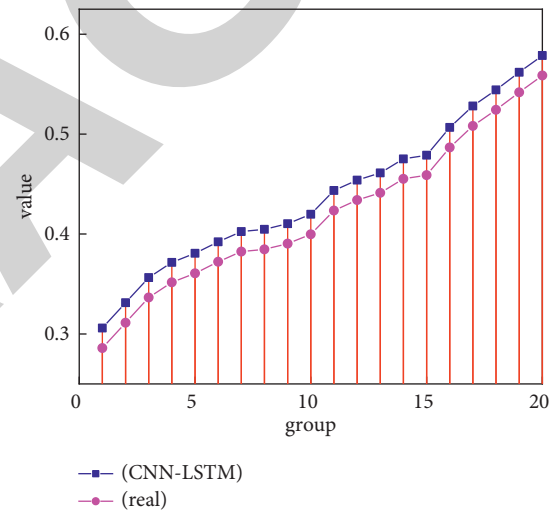

Figure 7: Distribution of predicted and actual values of behavioral pulse in mental health and counseling.

Pulse changes are the most intuitive way to reflect mental health problems. This feature also has the smallest mean error for the three features of mental health. Figure 7 shows the distribution of predicted and actual values of the mental health pulse characteristics. It can also be seen from Figure 7 that the eigenvalues of mental health have relatively small fluctuations compared with speech and behavioral characteristics. In Figure 7, the blue line represents the predicted value of the pulse feature, and the red line represents the actual data value of the pulse feature. The area between the red and blue lines represents the prediction error for this feature. And the prediction errors of the pulse eigenvalues are relatively close to 20 different sets of data. CNN and LSTM can easily predict the pulse characteristics of mental health. This shows that the mental health and counseling intelligent system can predict the occurrence and level of mental health according to the changes in pulse characteristics. For practical situations, this is also the most intuitive way. Overall, through the above research, it can be

found that CNN and LSTM methods can more accurately predict the speech, behavior, and pulse characteristics of mental health. This is beneficial for timely detection and tracking of people's mental health problems, and this intelligent prediction system is also credible.

5. Conclusions

Psychological counseling and health problems have become a hot research topic in today's society, which is mainly related to the frequent occurrence of extreme events. This not only involves some social personnel, but it also involves student groups. This situation is detrimental to the development of the country and society. However, there is a certain incubation period for mental health problems, and the occurrence of extreme events is not caused by temporary mental health problems. However, the mental health and counseling system in today's society is not very sound, which

makes people unable to recognize their own mental health problems in time and get timely and effective release. The development of artificial intelligence technology is relatively rapid, it can efficiently deal with huge amounts of data, and it can also map nonlinear relationships. This study applies artificial intelligence technology to an intelligent research system for mental health and counseling. Traditional methods make it difficult for people to learn about their own mental and health-related knowledge. Everyone's situation is different, and artificial intelligence methods can recommend relevant knowledge about mental and health counseling based on people's behavior and words.

This research mainly adopts two kinds of neural network algorithms, CNN and LSTM, which are popular in the field of artificial intelligence. It can complete the extraction of mental health and counseling-related features and complete the feature mapping task. For this study, it will map the relationship between people's behavior, speech, and pulse and the generation and hierarchy of mental health. These three characteristics are also important factors in identifying mental health problems. This study also explored the effect of the presence or absence of LSTM neural network on the prediction of mental health and counseling-related characteristics. Overall, neural networks with LSTM layers will have higher accuracy in predicting mental health-related characteristics. The main differences emerged in the behavioral characteristics of people related to mental health. For the CNN and LSYTM methods, the maximum prediction error for mental health and counseling is only 2.13%. This is derived from people's speech characteristics. This part of the characteristics is the most difficult for mental health prediction. Prediction errors for behavioral and pulse characteristics were within 2%. This is a favorable error distribution for timely discovery of mental health problems and timely intelligent psychological counseling. Overall, the mental health and counseling intelligent system designed in this study has high feasibility and credibility. The CNN-LSTM method has higher accuracy in predicting the characteristics of psychological and health counseling, it can more accurately guide people to predict mental health problems, and it can also more accurately provide guidance for psychological prevention. This has a certain innovative significance for guiding mental health and counseling. This study uses artificial intelligence methods to predict characteristics related to psychological and health counseling, which has good practical value. It can better guide people to prevent and solve psychological problems.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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