



Research Paper

# WORKPLACE MENTAL HEALTH SUPPORT-SEEKING BEHAVIOR PREDICTION USING DEMOGRAPHIC AND ORGANIZATIONAL FACTORS

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## Abstract

Mental health has become a critical concern in modern workplaces, where employees frequently experience stress, heavy workloads, and organizational pressures that can negatively impact their psychological well-being. Although many organizations provide mental health support systems, a significant number of employees hesitate to seek help due to stigma, lack of awareness, or insufficient workplace support. This project, titled “Workplace Mental Health Support-Seeking Behavior Prediction Using Demographic and Organizational Factors,” aims to address this challenge by leveraging machine learning techniques to predict whether employees are likely to seek mental health support.

The system analyzes a range of demographic and organizational attributes, including age, gender, family history of mental illness, work interference, company size, availability of mental health benefits, remote work options, and workplace support programs. These features are used to train a predictive model capable of identifying patterns associated with support-seeking behavior.

Data preprocessing techniques such as data cleaning, handling missing values, encoding categorical variables, and feature selection are applied to ensure high-quality input for the model. A Logistic Regression algorithm is employed for classification due to its effectiveness and interpretability in binary prediction tasks. The trained model is then integrated into a user-friendly web application developed using Streamlit, enabling real-time predictions based on user inputs.

## I. Introduction

Mental health is a vital component of overall well-being and plays a significant role in maintaining productivity and efficiency in the workplace. In recent years, factors such as workplace stress, long working hours, organizational pressure, and poor work-life balance have contributed to a rise in mental health issues among employees. Conditions like anxiety, depression, and burnout not only affect individual health but also reduce job performance, satisfaction, and overall organizational growth. Although many organizations have introduced mental health support systems and wellness programs, a considerable number of employees still hesitate to seek professional help due to stigma, fear of discrimination, and lack of awareness.

With the advancement of technology, particularly in data analytics and machine learning, it has become possible to analyze large volumes of employee-related data and uncover patterns influencing mental health support-seeking behavior. Machine learning models can process various demographic and organizational factors such as age, gender, family history of mental illness, work interference, company size, availability of mental health benefits, and workplace support programs to predict whether an employee is likely to seek treatment.

This project, titled “Workplace Mental Health Support-Seeking Behavior Prediction Using Demographic and Organizational Factors,” focuses on developing a predictive system that utilizes these attributes to assess the likelihood of employees seeking mental health support. The system applies machine learning algorithms to analyze the data and generate accurate predictions.

## II. Literature Survey

Workplace mental health has become a significant area of research due to the increasing levels of stress, anxiety, and depression among employees in modern organizations. Researchers have extensively studied the factors influencing mental health conditions and the behavior of employees in seeking professional support. This section reviews previous research related to workplace mental health challenges, support-seeking behavior, and the application of machine learning techniques in this domain.

Many studies highlight that workplace stress is primarily caused by heavy workloads, long working hours, job insecurity, and poor work-life balance. These factors negatively impact employee productivity, job satisfaction, and overall well-being. Research also shows that organizational culture plays a crucial role in shaping employees’ mental health. A supportive work environment that promotes open discussions about mental health encourages employees to seek help when needed.

Several researchers have explored the demographic and organizational factors influencing mental health support-seeking behavior. Demographic factors such as age, gender, education level, and family history of mental illness significantly affect individuals’ attitudes toward seeking treatment. Organizational factors such as company size, availability of mental health benefits, flexible work policies, and employee assistance programs also play an important role. While supportive environments encourage help-seeking behavior, stigma and fear of negative career consequences often discourage employees from seeking assistance.

With the advancement of data science, machine learning techniques have been widely applied to analyze mental health datasets. Algorithms such as Logistic Regression, Decision Trees, Random Forest, and Support Vector Machines have been used to predict mental health conditions and treatment-seeking behavior. These models are capable of identifying hidden patterns in large datasets and generating accurate predictions based on historical data.

Predictive systems developed using machine learning can assist organizations in understanding mental health trends among employees. By analyzing workplace data, these systems can identify risk factors and provide early warnings, enabling

organizations to take preventive measures. Such systems also help HR departments design effective policies that promote mental well-being and reduce stigma in the workplace.

### III. System Analysis

Workplace mental health prediction systems require accurate analysis of employee data to support better decision-making. Traditional approaches fail to capture complex relationships between demographic and organizational factors. System analysis focuses on identifying relevant features such as age, gender, family history, work interference, company size, and availability of mental health benefits. The system must handle structured datasets with missing and categorical values. Data preprocessing and feature engineering are essential for improving model performance. The system should provide reliable predictions with high accuracy. Scalability is important to process large employee datasets. Real-time prediction capability enhances usability. The system must also ensure data privacy and ethical use. Overall, the analysis aims to build an intelligent and data-driven predictive solution.

#### Existing System

In the existing system, organizations rely on surveys, manual assessments, and HR observations to understand employee mental health. These methods are subjective and often lack accuracy. Data collected through surveys is not fully utilized for predictive analysis. There is no automated system to identify employees who may need support. Traditional methods cannot handle large datasets effectively. Decision-making is often based on assumptions rather than data insights. Stigma and lack of awareness further reduce the effectiveness of existing approaches. The system does not provide real-time insights. There is limited integration of technology in mental health prediction. Overall, the existing system is inefficient and lacks predictive capabilities.

#### Disadvantages of Existing System

- Manual and subjective analysis
- Lack of accurate prediction methods
- No automation in decision-making
- Limited use of data analytics
- Cannot handle large datasets efficiently
- No real-time insights
- High dependency on HR judgment
- Stigma reduces data reliability

#### Proposed System

The proposed system uses Machine Learning techniques to predict mental health support-seeking behavior. It analyzes demographic and organizational factors such as age, gender, family history, work interference, company size, and benefits. Data preprocessing ensures clean and structured input. Categorical data is encoded for model training. A Logistic Regression model is used for classification. The system predicts whether an employee is likely to seek mental health support. It provides real-time predictions through a Streamlit web interface. The system supports data-driven

decision-making. It helps organizations identify at-risk employees. The model is evaluated using performance metrics. Overall, it offers an intelligent and automated solution.

### **Advantages of Proposed System**

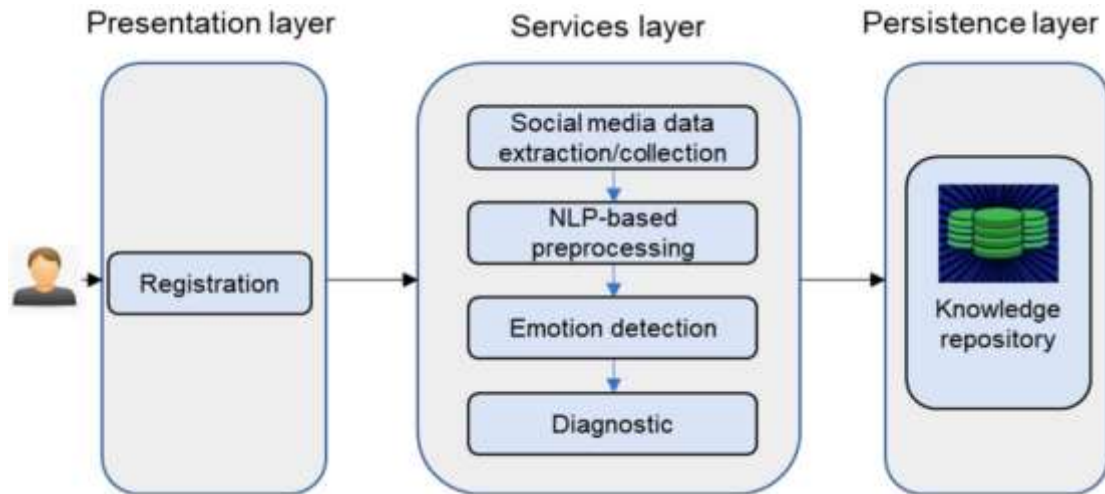
- Accurate prediction using ML models
- Automated decision-making
- Real-time prediction capability
- Efficient handling of large datasets
- Reduces human bias
- Data-driven insights for organizations
- Helps improve workplace policies
- Encourages proactive mental health support

### **IV. Methodology**

The methodology begins with collecting workplace mental health datasets. Data preprocessing is performed using Pandas and NumPy to clean missing values. Categorical variables are encoded for model compatibility. Feature selection is applied to identify important factors. The dataset is split into training and testing sets. A Logistic Regression model is trained on the dataset. The model learns patterns related to support-seeking behavior. Predictions are made on test data. Performance is evaluated using accuracy, precision, recall, and confusion matrix. The model is integrated into a Streamlit application. Finally, real-time predictions are generated based on user input.

### **System Architecture**

The system architecture consists of data input, preprocessing, model training, prediction, and output layers. The input layer collects employee demographic and organizational data. The preprocessing layer cleans and transforms the data. The processed data is passed to the machine learning model. The model analyzes patterns and predicts support-seeking behavior. The classification module categorizes employees into likely or unlikely to seek support. The output layer displays prediction results. The system is integrated with a Streamlit web interface. Real-time processing ensures quick predictions. The architecture supports scalability and efficient data flow. Overall, it provides a structured and intelligent framework.



## V. Result and Output

### Workplace Mental Health Support-Seeking Prediction

Predict whether an employee will seek mental health support.

Age: 18

Gender: Male

Country: United States

Self Employed: Yes

Family History: Yes

Treatment: Yes

Work Interfere: Never

Remote Work: Yes

Tech Company: Yes

Company Encourages Seeking Help: Yes

**Predict**

Employee is likely to seek mental health support

## VI. Conclusion

The project “Workplace Mental Health Support-Seeking Behavior Prediction using Demographic and Organizational Factors” successfully demonstrates the application of machine learning techniques in analyzing and predicting employee mental health support-seeking behavior. With the growing importance of mental health in modern workplaces, identifying employees who may require support has become essential for maintaining a healthy and productive work environment.

In this project, a machine learning-based system was developed using Python and data science libraries to analyze various demographic and organizational factors such as age, gender, family history of mental illness, work interference, availability of mental health benefits, and workplace policies. Proper data preprocessing techniques, including encoding and data cleaning, were applied to ensure the quality and usability of the dataset. The Logistic Regression algorithm was used to build a predictive model due to its effectiveness in binary classification problems.

The model was trained and evaluated successfully, demonstrating its ability to identify patterns that influence employees’ willingness to seek mental health support. The integration of the trained model into a user-friendly Streamlit web application allows users to input employee details and obtain real-time predictions, making the system practical and accessible.

The results highlight that factors such as family history, workplace stress, and organizational support significantly impact support-seeking behavior. By leveraging these insights, organizations can make data-driven decisions to improve workplace policies, reduce stigma, and encourage employees to seek help when needed.

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