2024
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Empirical Analysis-Based Investigation on Legal Protection of Employees' Mental Health

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ARTICLE INFO

Received: 10 Feb 2024
Accepted: 27 Apr 2024

ABSTRACT

The outbreak of COVID-19 has highlighted the significance of workplace safety and health. Because work-related stress, burnout, despair, and anxiety are growing increasingly widespread, employees' mental health is receiving more attention. Although these issues have been highlighted in recent research, the COVID-19 outbreak has brought them to light. In this study, the mental health of industrial employees is investigated in the context of the COVID-19 pandemic. To begin, the mental health datasets of the employees are obtained and preprocessed using the Min-Max normalization approach to remove unrelated or repeated data. In addition, empirical research is used to analyze the employees' mental health using the chi-square test and the McNemar test. The process of improving the mental health of such employees entails ensuring that workplace safety rules are updated to reflect changing circumstances. The government, businesses, and employees have all been given legal power to put in place workplace safety procedures in order to preserve industrial workers' mental health. To achieve the utmost efficiency in the evaluation of employees' mental health, the performance of this study is analysed and compared with that of other studies. Using the origin tool, the results of this study are shown as a chart.

Keywords: COVID-19, Mental Health, Chi-Square Test, McNemar Test, Legal Protection, Origin Tool, Min-Max Normalization.

INTRODUCTION

Mental health refers to a positive state of mind, condition of very well, calmness in conduct, and behaviors toward others and the surroundings. While excellent MH (mental health) may be defined as a happy mood that influences positive reactions and the environment, bad mental health can be seen as a deficit in MH. Mental health has an impact on a person's view, response, and approach toward objects, emotions, and surroundings (Nwaogu, Chan, Hon, & Darko, 2019). **Figure 1** shows predominant mental health, such as depression, sleep problems, and anxiety disorders, are classed as "neurotic, stress-related, and somatoform diseases" and "mood disturbances" by the World Health Organization (WHO). These mental and behavioral problems have a significant impact on public health since disorders are one of the primary causes of illness worldwide. Mental health has a substantial impact on health promotion because it can lead to job-related consequences such as absentee, poor performance at work, and a high incidence of turnover, which are all detrimental to both employer and employees. The link between the work environment and employee mental health is complicated. Although employment may improve a person's well providing a feeling of job stability, social interaction, and abilities, a highly stressful environment can create workers' mental health to deteriorate, lowering production and disrupting work (Tran et al., 2019). During the national crisis reaction to the epidemic of Coronavirus Disease, a contagious epidemic where no vaccine has ever been discovered, health personnel is under immense and intense strain. Loss of protective clothing, restricted rest time, tiredness, variations in interactions with patients, associates, and relatives, and physician dishonesty with their journey when conducting evaluations, along with being turned down when returning to their residence, are all issues that are susceptible health care workers must experience. Violence towards employees occurs frequently regularly, making the presence of regulations on employees' legal

protection increasingly necessary under the authority of the relevant legislation. In conformity with the appropriate legal order, a thorough regulation. Violence against employees will have a severe impact on their job quality, impacting our goal of pursuing health establishments more difficult to achieve. Because no application rule governs legal protection for workers, there are disagreements over the content of the legislation, which can be referred to as a legal void. This judicial void inside the deployment order has the potential to affect law enforcers in form of regulatory compliance certainty, affecting the functionality of law as an agent of social growth. This state will make it more difficult to realize the aim of a new approach in the community (Purwadi & Sukarman, 2022). For years, the subject of workplace safety and health was a hot topic, and we are always trying to improve working conditions and safeguard people. Given the clear progress in the field of workplace safety over the last several years and the continuous improvement of working conditions, we can also see that employment conditions and safety precautions have not progressed in a range of enterprises. As a result, to find a solution, it is critical to think about this issue thoroughly. Workers' legal protection is divided into three categories: financial, social, and professional legal protection. Financial protection refers to adequate earnings depending on a job contract, social protection refers to migrant insurance provider social welfare, and professional protection refers to a secure immigration procedure. The community gives data on work contracts, insurance, and the procedure. Concerning constitutional recourse for employees, it was also stated that must safeguard its inhabitants, especially workers. Workers' legal protection, with or without the support of the International Labor Organization, tries to safeguard the losing party via rules. It indicates that legal protection for employees is a safeguard against uneven treatment among migrant employers and employees, and the government must prevent this from happening (Rahayu, 2018; Mody & Bhoosreddy, 1995). Legal protection for employees (including freelancers and everyday workers) entails debating the rights of workers/laborers after they have completed their duties. It includes legal protection for employees that also applies to gig workers, such as protection for individuals who have to be regarded individually (those with impairments), restriction on child labor, and particular rights for women workers. The labor contract should be written and include additional data: the personal details of the worker, as well as the contact information of the firm, the type of work performed, the remuneration paid, and each party's rights and duties, including any facilities provided as allowances (Mustiko, Rahayu, and Fajar, 2019).

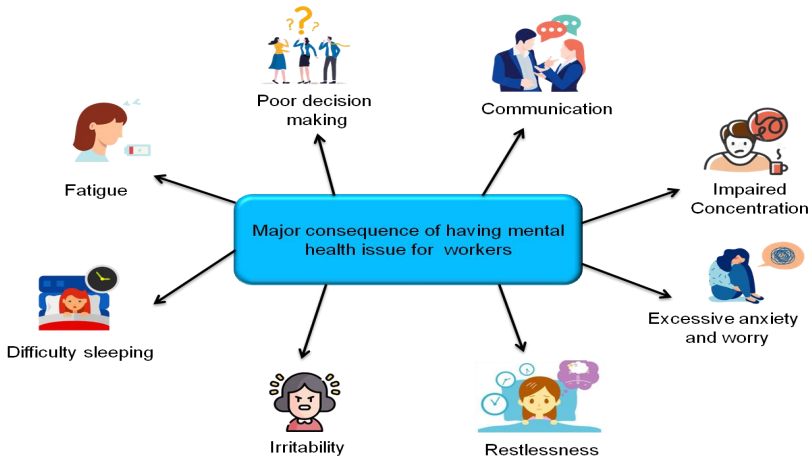

Figure 1. Major Consequence of Having Mental Health Issues for Workers

The remaining sections of this work are broken up into the following five sections: The literature review and problem description, the technique, results and discussion, and the conclusion.

RELATED WORKS

Kotera, Green, and Sheffield (2020) look at the connections between work-life balance [WLB], mental health, perceptions regarding mental health problems, and working time. One hundred and forty-four project workers conducted the measurements again for three configurations. WLB was linked to mental health issues and mental health behaviors in a bad way. The goal of the study by Chan, Nwaogu, and Naslund (2020) is an existing corpus of evidence on mental health in construction projects to be carefully reviewed in this study. A total of 16 published papers satisfied the eligibility requirements, yielding 32 risk factors (RFs). One of the most common RFs concerns works demand and management. To help better grasp those RFs, a proposed model and evaluation were created.

The Depression AnxietyStress Measure was the major tool used to measure mental health. The findings of this research contribute toward a more in-depth understanding of appropriate methods for evaluating mental health, as well as related RFs and resilience factors in the construction company. The practice of customized healthcare makes use of information with a finer texture to isolate particular variations (Garg, 2020). Using investigations among 101 men industrial workers, the goal of the research by Heerr et al. (2018) was to investigate the efficacy of stress management programs designed to minimize stress reactions for mental health and insomnia issues a decade later. Sequential regression analysis was used to approximate the adapted consequences of differences in stress responses overall, including its six sub-dimensions (work accumulation, social tension, societal pressures, difficulty at the job, and predictive and long-lasting reaction) on the disorder, anxiety, and difficulty sleeping eight years later. Danendra et al. (2021) examined the legal rights of nonmonetary workers' entitlements following the passage of the Reconciliation Act. The study method employed is doctrinal legal study. By gathering data from libraries and other locations, the prescriptive legal opinion emphasizes library research. The findings of the study show that now the legal protection of nonmonetary employees' rights following the Consolidated Law is relatively limited but does not match the stipulations of Article 28 D phrase (2) of the Constitution Act. Ariningsih, Yulifa, and Santoso (2021) used an empirical legal mechanism using primary and secondary data collected by a random sample selection. The gathered data is examined using a qualitative approach. According to the findings of this study, legal status entails both rights and duties. The government has issued 2020 Statute No. 11 to provide constitutional immunity to the employees. The use of elevated brachytherapy eliminates the need for radiation, enables outpatient treatment, and also shortens the length of time necessary for diagnostics and sociological legal research method raw data to examine the efficiency of enforcement agencies in the society (Afrita, Yetti, Hum, & Arifalina, 2021). Depending on the statement, it is reasonable to conclude that occupational disasters are occurring among individuals who could be protected from numerous occurrences that might happen and impede the execution of their task. AlKrisheh et al. (2021) discusses the Labor Rights to identify the processes created to protect victims from abusive behavior, enable them to get reasonable pay and prohibit employers from harassing staff to drive them to quit their jobs. This research offered a method for the cleaning of home wastewater and the equipment necessary to implement this therapy. In the study by Adillah (2022), soil samples were taken from various vegetable fields located around the Zamfara States of Nigeria. These soil were then evaluated for the presence of physical and chlorpyrifos herbicides. The legal technique and techniques to answer questions are used in this research technique, which employs prescriptive legal research to investigate positively legal provisions, constitutional precedents, and judicial theory. Secondary data was employed, which also included main legal resources, secondary legal resources, and third legal components. Secondary data gathering approaches based on the literature review, as well as data analysis based on the qualitative analysis methods, were used. Giorgi et al. (2020) explore further into the psychological forces linked with workplace factors to answer upcoming mental essential difficulties in the job due to the epidemic expansion of COVID-19. Stress, anxiety, post-traumatic stress disorder (PTSD), and sleeping problems are more common among health professionals, especially those in front ranks, workers, or those who interact with customers. Rising unemployment, lengthy periods of isolation, and future uncertainty exacerbate mental harm, especially among young individuals and those with a better academic background. Several organizational and job actions, such as co-working infrastructure, adopting appropriate and shared pro methods, such as periodic personal gear provision, and instituting resiliency skills training, can all assist ameliorate the issue. The research by Laily, Syarief, Fitri, and Sudisno (2021) is an empirical study that's also dependent on observes, discussions with responsible government leaders, and small & mid firms in the working sector, and is dependent on events that have taken place in the field on the application of the law. The wages earned by the majority of Small and Medium Businesses employees in the industry in China City are unsustainable, as evidenced by the lack of employment agreements as required by labor law. This can happen so because Labor Law does not specifically address the concerns of SME employees in the industry, as well as the administration's poor awareness in charge of planning competent people and the poor quality of employee instruction. World Health Organization (2009) emphasizes the importance of the "United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)" and the relevance of rehabilitation approaches in mental care. which outlines the legal and regulatory causes which have led to such developments in practice. Then it examines the effectiveness of the legislation and judgment in this domain using chosen research. The second paragraph of this paper uses the knowledge and experience of the research in the area of psychiatric social work and also the law in four different states to determine the role that mental health social staff members can play in helping legal capacity. To meet this fundamental change in legislation, legislation, and practice, mental health and other social services must develop their skills, expertise, and beliefs.

Problem Statement

A mental condition affects an estimated 450 million workers globally. Basically, at any given moment 10% of individuals are now dealing with mental health, and 25% will acquire one in the future. Throughout their lives.

Mental health may be found in all nations, in both men and women, and at any age. Lives in both rural and urban environments, among the affluent and poor. Mental health presently contributes to 13 percent of the global burden, with that figure anticipated to rise to nearly 15percent by 2030. Depression is most likely the second-largest contributor to the global burden of disease. Excessive work, prolonged shifts, a fast pace, a loss of actual or cognitive safety, quandaries, perceived job protection, and workplace harassment are all variables that lead to increased stress among workers. Mental health issues, such as depression, anxiety, and stress-related illnesses, have been increasingly common in the workplace in recent decades. Absences and incapacity at work are mostly due to mental health issues, with 40% of those who miss work having a mental health issue.

METHODOLOGY

In this study, industrial employees' mental health is examined in the context of the COVID-19 pandemic. To begin this inquiry, the psychological health datasets of the employees are obtained and normalized to remove the irrelevant features or repeated data using the Min-Max normalization method. In empirical studies, chi-square and McNemar tests are used to analyze the mental health of workers. **Figure 2** represents the overall methodology used.

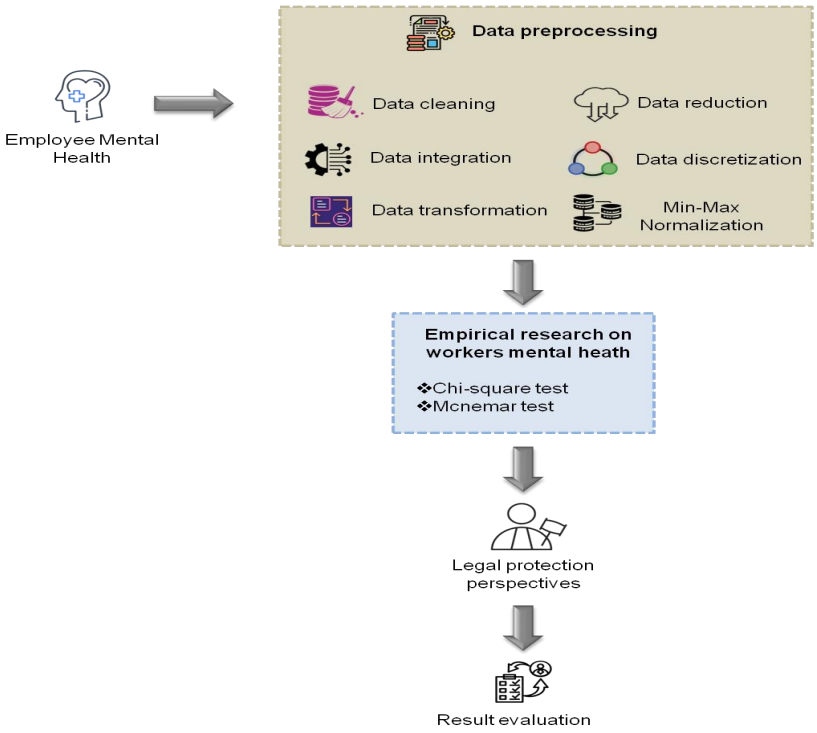

Figure 2. Proposed Methodology

Dataset Collection

The workers' socio-demographics There were 135 (64.3%) men and 75 (35.7%) females among the 210 respondents, with 116 (55%) employees under the age of 30 and more than one-third of them being single. The bulk of the employees had only completed junior school (5-8 levels of schooling), and 139 (65.7 %) were part-time workers. The industrial sector employed 86.7 percent of these individuals, while the service industry employed 7.6 percent. **Table 1** shows the frequency of key socio-demographic factors according to the kind of employment (Chen et al., 2012). **Table 1** presents workers' mental health, and duration of COVID-19: a study of workers in eastern China.

Table 1. Workers' Mental Health, Duration of COVID-19: A Study of Workers in Eastern China

Gender	Men	135	64.3
	Women	75	35.7

Age Groups	<20	25	11.9
	21-30	91	43.3
	31-40	60	28.6
	>41	34	16.2
Marital Status	Single	72	34.3
	Married/Cohabiting	122	58.1
	Divorced/Widowed	16	7.6
Education	<5 Years Or Illiteracy	24	11.4
	5-8 Years	98	46.7
	9-11 Years	62	29.5
	>11 Years	26	12.4
Type Of Job	Shoe Industry	91	43.3
	Grasses Industry	48	22.9
	Closing Industry	41	19.5
	Mechanical Industry	2	1.0
	Catering	16	7.6
	Others	12	5.7
Region Of Origin	Jiangxi Province	48	22.8
	Anhui Province	36	17.1
	Hunan Province	39	18.6
	Henan Province	24	11.4
	Sichuan Province	25	11.9
	Other Provinces	38	18.1

Data Preprocessing

Data preprocessing is a technique in data mining of putting raw information into a convenient and practical state.

Data Integration

Data integration is the process of combining datasets to give users a sense of viewpoint. Connectivity is founded on the concept of making data more freely available, and also easier for gadgets and humans to consume and analyze. The "tight coupling technique" and the "loose coupling approach" are the two most common ways to integrate data. ETL - Extraction, Transformation, and Loading - is used in tight coupling to bring together data from several locations into a single physical place. In loose coupling, just the data from the source databases is preserved. A query from the user is sent to an interface, which then changes it into a form the source database can comprehend before sending it straight to the source databases for a response.

Data Transformation

Techniques used to turn raw data into a format that facilitates effective and rapid data mining are known as "data transformations." Because raw data is difficult to track or comprehend, it must be preprocessed before any information can be retrieved from it. When it comes to transforming data, there are a variety of methods available. Data transformation is a crucial data pretreatment method that must be applied to the data before data preprocessing in order to produce patterns that are simpler to interpret. There are many different ways of transforming data. Mental health data change is required for most database systems and data functional domains, including system integration and data management.

Data Reduction

For analysis, a lot of data from a lot of different data warehouses needed. A data analyst has a tough time dealing with this much information. A large volume of data makes it even more difficult to conduct complicated searches, which might take a long time and occasionally fail to find the needed information. Data reduction approach decreases the amount of data while retains the integrity of the data. The outcome of data mining is unaffected by data reduction, therefore the results acquired before and after data reduction are same. There are various techniques to minimize mental health data, however, the concept is simple: fit as much data as possible into storage space to maximize capacity.

Min-Max Normalization

Typically, healthcare databases are made up of a range of heterogeneous data sources, and the data extracted from them is different, partial, and redundant, all of which have a significant impact on the final mining outcome. As a result, healthcare data must be preprocessed to guarantee that it is accurate, full, and consistent, as well as having privacy protection.

Normalization is a preprocessing approach in which the data is scaled or altered to ensure that each feature contributes equally to the total. It is possible to construct a new range from an existing one using the normalisation procedure. Predictions or forecasts based on this information may be very valuable. Each feature contributes the same amount of data whether the raw data is rescaled or transformed. Outliers and dominant features, two significant data problems that impede machine learning algorithms, are addressed here. On the basis of statistical measurements from raw (unnormalized) data, several ways for normalising data within a specified range have been devised. We normalised our data using the Min-Max and Z-score methods. According to the way raw data statistical characteristics are used to normalise the data, these techniques are categorised.

Min-Max normalisation is a technique for converting data linearly at the start of the range. Using this method, the relationship between different pieces of information is preserved. Pre-defined borders with pre-defined boundaries are a crucial strategy that can correctly fit information.

In accordance with this approach to normalisation,

$$P_{'} = \left(\frac{P-\text{minvalue of P}}{\text{maxvalue of P}-\text{minvalue of P}}\right) * (S - J) + J \quad (1)$$

Min-Max data is included in $P_{'}$, and

One of the boundaries is [J, S].

The range of the real data is denoted by P, while the mapped one data is denoted by P.

In the Z-score normalisation procedure, the mean and standard deviation of the data are used to obtain a normalised value from unstructured information. As can be seen in Eq.(2), the unstructured data may be normalised using the z-score variable.

$$f_m^{'} = \frac{f_m - \overline{A}}{\text{std}(A)} \quad (2)$$

Where,

$f_m^{'}$ shows the standardised Z-score values

f_m shows which kth column's row Z the value is in

$$\text{std}(A) = \sqrt{\frac{1}{(N-1)}\sum_{m=1}^{n}(f_m - \overline{A})^2} \quad (3)$$

$$\overline{A} = \frac{1}{n}\sum_{m=1}^{n} f_m \text{ or mean value} \quad (4)$$

In this example, the variables or columns that begin with 'J' are found in each of the five rows E, F, G, H through I. It is thus possible to use the z-score technique to calculate the standard data in each of the rows already mentioned every value in a row is equal, hence the standard deviation of that row is zero, and every value in that row is set at 0. Min-Max normalisation is similar in that it shows the range of values between 0 and 1, as is the z-score.

Scaling by decimal points is the method that allows for the range of -1 to 1. In line with this strategy,

$$f^m = \frac{f}{10^S} \quad (5)$$

Here,

f^m indicates the values scaled

f represents the value range

s denotes the smallest integer $\text{Max}(|f^m|)<1$

Empirical Research on Workers' Mental Health

Empirical research on workers' mental health using Chi-square test and MCNemar test.

Chi-square test

When the components are small, as they are in medical trials, Chi-square analysis is one of the most effective

statistical methods for testing a hypothesis. Unlike other statistics, the Chi-square may reveal not only the significance of any significant variability but also which groups are accountable for those differences.

$$\sum x_{i-g}^2 = \frac{(q-T)^2}{T} \tag{6}$$

Where: q = present point

T = real point

x2= Chi-square value

∑ x2 = To total all of the cell Chi-square values, use the equation.

Whether or not they had been treated. Expected Chi-Square values are determined as follows:

$$T = \frac{N_D \times N_S}{V} \tag{7}$$

Where: T = reflects the work value of the unit,

M_S= denotes that cell nucleus row edge,

M_D = denotes that cell's row edge, and

V = reflects the sample group as a whole.

The sample size is split by the product of the row marginal and the column marginal for each cell.

$$x^2 = \frac{(q-T)^2}{T} \tag{8}$$

Correlation measures are statistical assessments of the strength of a relationship. The Cramer's V test is the most often utilized Chi-square strength test. Using the formula below, it's easy to calculate out:

$$\sqrt{\frac{x^2/v}{(b-1)}} = \sqrt{\frac{x^2}{v(b-1)}} \tag{9}$$

The Chi-square statistic is a powerful data tool that may disclose a lot well about the nature of this study information.

McNemar test

McNemar's test is a coupled minimal statistical data test. It can be used to test whether the mental health data matrix relative probabilities are similar in contingency tables with the variable characteristic and matching sets of participants Quinn MCNemar, first presented it in 1947, and is its name. A transmitting dispersion test for finding connection instability is one use of the test in linguistics. The null and alternative hypotheses are essential for any statistical test to be effective. The null hypothesis Ho says that there is no substantial difference between these two groups and any disparity is attributable to selection or testing mistakes. On either side, the alternative explanation claims that the variation group is important and not random. When establishing whether Ho should be rejected or retained, we should calculate the p-value and compare it to the significance level that must be chosen before performing the test. If a null hypothesis is accepted, the chance of getting a response equivalent to, even more, severe than, the data is the p-value. The null hypothesis will be rejected if a p-value is smaller than that of the conventional significance threshold, and it is concluded that the gap across groups is significant.

$$p(n_{00})+p(n_{01})=p(n_{00})+p(n_{10}) \tag{10}$$

$$p(m_{10}) + p(m_{11})=p(n_{01})+p(n_{11}) \tag{11}$$

Here q (p) is the likelihood of the unit. The null and alternative hypotheses are formed by cancelling out all the q (n_{10}) and q (n_{11}) from of the preceding equations.

$$K_V: P(n_{01}) = p(n_{10}) \tag{12}$$

$$K_a: p(n_{01}) \neq p(n_{10}) \tag{13}$$

We explore four statistics from McNemar's test to get the p-value of the null hypothesis and explain their upsides and downsides in hypothesis testing. Mostly under the null hypothesis, McNemar's exponential assumption implies that n_{01} performance can be predicted scattered with q = 0.5 and variables $n = n_{01} + n_{10}$. McNemar's exponential statistics are produced including one level of flexibility. For $n_{01} = n_{10} = 0$, is testing is invalid.

$$x^2 = \frac{(n_{01}-n_{10})^2}{n_{01}+n_{10}} \tag{14}$$

The test needs a considerable quantity of data ($n_{01}+ n_{10}$) to reject a null hypothesis because it may exceed the

minimal significance threshold study has several limitations size. If a limited sample size is provided, it is often recommended to utilize McNemar's exact test to avoid exceeding the nominal significance threshold. The q-value for this test is calculated by comparing m01 to something like a probability density with variable $n = n_{01} + n_{10}$ and $q = 0.5$.

$$\text{exact} - \text{p} - \text{value} = \sum_{x=n_{01}}^{n} \binom{n}{x} \left(\frac{1}{2}\right)^2 \quad (15)$$

A two-sided q-value is obtained by dividing the one-sided q-value by two. Data test ensures that the category error rate is less than the minimum considerable threshold.

The fundamental disadvantage of McNemar's exact test, although keeping the formal significance level, is centrism: it yields big q-values needlessly, preventing the null hypothesis from being rejected. It estimated the precise q-value using the below consistency adjusted statistics as a cure for conservative.

$$x^2 = \frac{(|n_{01}-n_{10}|-1)^2}{n_{01}+n_{10}} \quad (16)$$

This is one level of flexibility spread. For m01 = m10 = 0, is testing is also negative.

Legal Protection Perspectives

The Law on Occupational Safety and Health, as well as ordinances, provide occupational safety and mental health as a constitutional right category. Workers have the opportunity to work in a safe and healthy environment, according to the Labor Legislation. A few of the legislative rules can be construed in terms of pandemic preparedness. As a result, the legislation includes the option of working at home as being one of the employment options. In an emergency, the worker has the option to set up work at home arrangements that clearly define mutual roles and obligations. In addition, the Labor Law specifies when workers are allowed to paid time off. This implies that businesses might decide to enable a group of workers to undertake paid absence to guarantee the safety and mental health of their workers. Unpaid leave is another legal option, but we feel it goes against the principle of preserving employees' total honesty, which encompasses their well-being. Further legal protections may be used to safeguard workers in the case of a pandemic.

In the event of a working interruption/reduction that necessitates a lengthier leave, the employers may pay the worker the indicated remuneration for more than 45 days of work with the previous agreement of the line minister. In addition, during a disruption of a job ordered by a proficient public authority or the properly maintain of the organization due to an inability to make sure mental health and safety comply with the law, the worker has the right to a wage in the amount specified by the bylaw and employment contract. Such legislative requirements suggest that workers will be paid for a specific amount of time even though the company's operations are temporarily halted, which can occur in a crisis.

Workers have the opportunity to safety practices and the preservation of their life and health in the workplace, according to the Employment Act. Workers must understand all rules to protect not only their mental health and wellbeing but also the safety and mental health of others. Employees possess additional responsibilities in addition to those imposed by the law upon bosses, the first is to notify the supervisor of any possible hazard or risk that could jeopardize their and other workers' safety and mental health. This clause could also be used in the event of pandemic or other mental health-related difficulties. Workers work together with their organization and the individual in the responsibility of mental health and safety to ensure that all relevant safety and health measures are put in place.

RESULTS AND DISCUSSION

In this part of the report, we evaluate the effectiveness of the proposed scheme based on a variety of mental health characteristics, and we contrast the model with the other systems that are already in use. The traditional model includes "Artificial Intelligence (AI) (Molala & Makhubele, 2021), Machine learning techniques (Sujal et 2022), deep learning techniques (Zhang & QI, 2022), Adaptive Neuro-Fuzzy Inference Systems (ANFIS) (Yadegaridehkordi et al., 2018)". To begin, datasets on workers' mental health are obtained and normalized to remove unnecessary or repeated data using the Min-Max normalization approach. Additionally, the chi-square and McNemar tests are used to do an empirical study on the workers' mental health.

Mental Health Analysis of Workers

Mental health is a condition of well-being in which a human is capable of coping with daily challenges, working efficiently, reaching his or her highest capability, and contributing to society. **Figure 3** shows the mental

health analysis of workers. It includes the parameters of depression, anxiety, anger fatigue, and difficulty in sleeping. **Figure 3** shows the mental health analysis of workers.

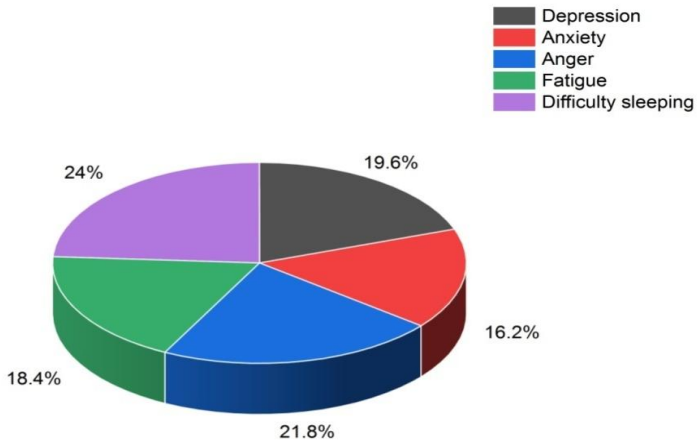

Figure 3. Mental Health Analysis of Workers

Efficiency

The term efficiency is defined as the maximum degree of effectiveness that requires the fewest resources to provide the greatest result. Efficiency entails minimizing all use of unneeded materials, such as individual effort and time, to accomplish a particular product. It is a quantifiable notion that may be calculated by comparing the desirable output to the total input. It reduces the wastage of resources, including raw objects, energy, and labor, while still achieving the desired outcome.

$$\text{Efficiency} = \text{Output} \div \text{Input} \tag{17}$$

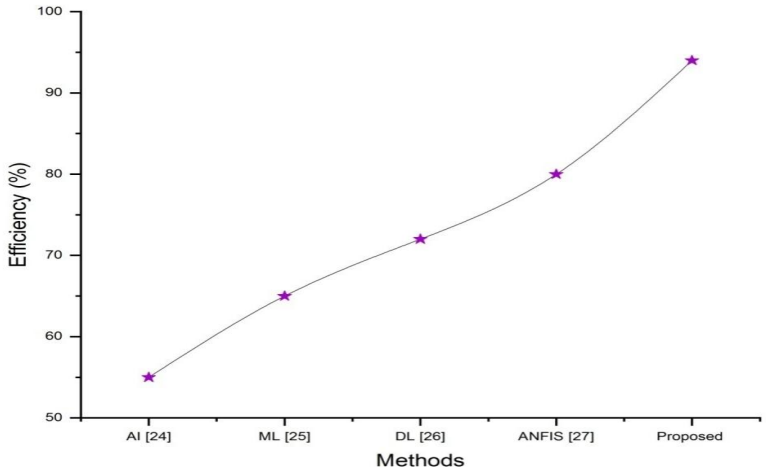

Figure 4. Comparison of Efficiency (%) for the Existing and Proposed Technique

Figure 4 depicts the comparison of efficiency for the existing and proposed techniques. When compared to the existing works, the proposed work has higher efficiency.

The Financial State of Workers

The COVID-19 illness has altered people's employment and earnings. The breakout of the COVID-19

pandemic had posed a slew of issues to the global financial system and health systems. **Figure 5** depicts the worker's financial state has worsened since COVID-19.

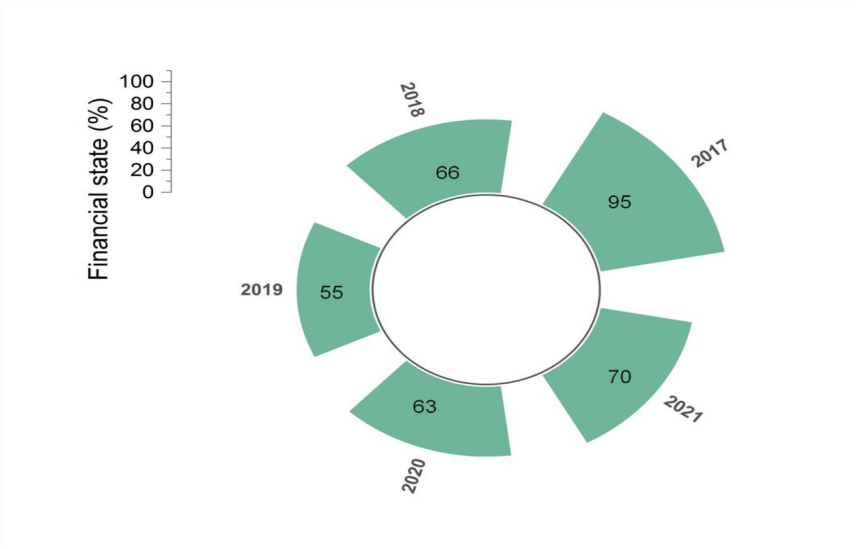

Figure 5. Workers' Financial State has Worsened Since COVID-19

Protection Rate of Workers

Protections are legislation and other governmental actions meant to safeguard folk's freedoms and rights. When compared to the existing works [“artificial intelligence [AI], deep learning [DL], machine learning [ML] and adaptive network-based fuzzy inference system [ANFIS]") the proposed work has a greater protection rate for workers. Laws about work are enacted to safeguard employees from being treated unfairly by the employer. Employees will not be protected from a variety of hazards if there weren't such laws in place. Regulations make it illegal to discriminate, mandating a certain min wage, mandating site safety, or mandating workers' insurance and worker protections are among the most important employee rights. **Figure 6** depicts the comparison of protection rates for existing and proposed work.

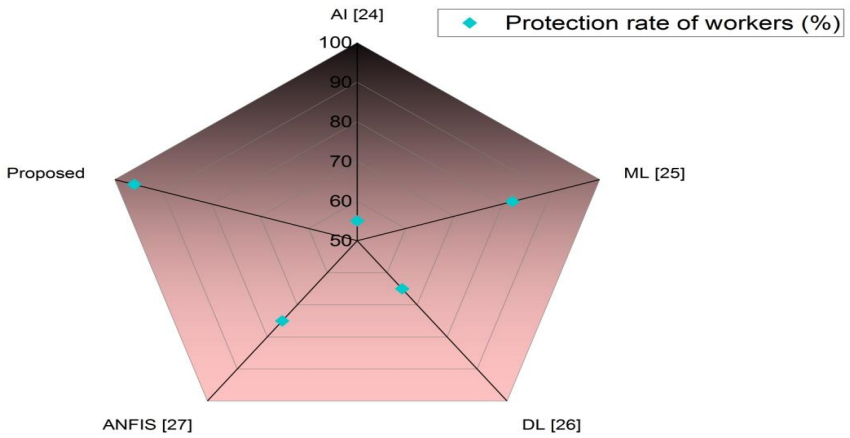

Figure 6. Comparison of Protection Rate for Existing and Proposed Work

Stress Level

Workplace stress may be described as the detrimental physical and emotional reactions that arise when the requirements of the job do not meet the talents, resources, or needs of the person. This might happen when the worker is overworked or underpaid, for example. The stress of one's job may lead to deteriorating health and even

physical harm. When compared to the existing works ["artificial intelligence [AI], deep learning [DL], machine learning [ML] and adaptive network-based fuzzy inference system [ANFIS]") the proposed work has a lower in stress level for workers. Comparison of stress levels between current and proposed methods is shown in **Figure 7**.

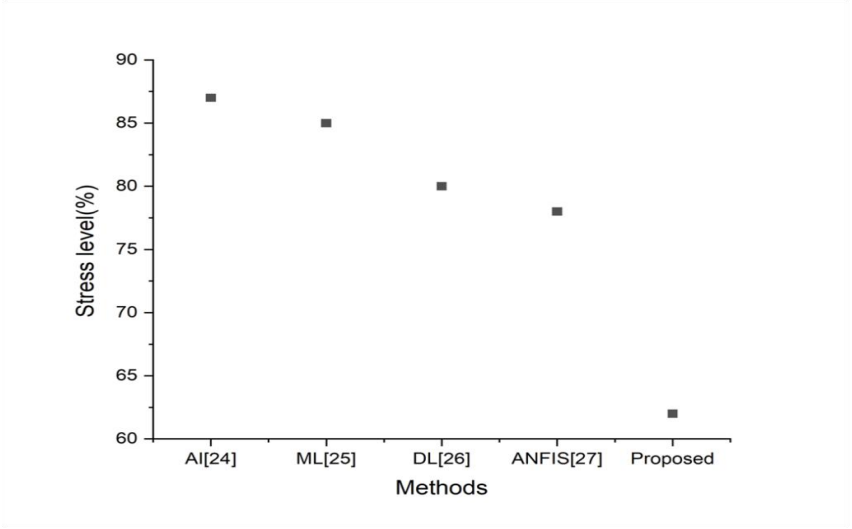

Figure 7. Stress Levels Between Current and Proposed Methods

Likehood of Job Losing

Furloughed employees, as seen in **Figure 8**, are plainly more apprehensive about losing their jobs. They're also becoming unsure about returning to work; in August, 60% didn't know when their furlough would finish, up from 35% in July. Surprisingly, the percentage of furloughed and non-furloughed employees who stated they would likely leave their job in the next 3 months has increased in the previous two months. Furloughed employees made up 23% of the workforce in August, up from 20% in June. There was a smaller increase in non-furloughed employees from June to August.

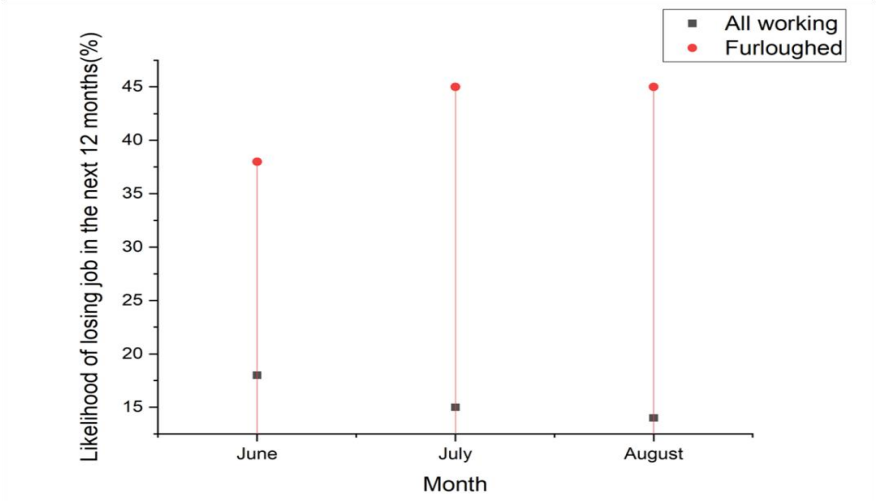

Figure 8. Likewood of Job Losing For Next 3 Months

Discussion

In Artificial Intelligence (AI) (Molala & Makhubele, 2021) numerous variables that the user must understand or define; Typical learned rules are conflicting; inputs are restricted. It is necessary to collect a large number of scientific results; Costly computations; Variable discretization is necessary, and its correctness and dependability are dependent on the system. In machine learning technique (Sujal et al., 2022) Among its significant drawbacks are the expense and time attack batches necessary to create modeling techniques. Additionally, standard models perform badly when applied to complicated substances, rendering them inaccurate for predicting the

characteristics of an array of substances. In the deep learning technique (Zhang & Qi, 2022) a disadvantage of learning a deep convolutional neural network from scratch is the requirement for a sizable labeled training dataset to achieve increased connection speeds through network depth. In Adaptive Neuro-Fuzzy Inference Systems (ANFIS) (Yadegaridehkordi et al., 2018) it may be feasible to increase the effectiveness of the ANFIS classifier by combining it with other feature selection approaches and optimization methods, particularly in terms of computation, which would be a significant drawback when employing this classification with huge data sets. So we present a Min-Max normalization approach. Additionally, the chi-square and McNemar tests are used to do the empirical study on the workers' mental health.

CONCLUSION

In China, laws, and regulations governing disaster prevention and healthcare worker protection have been codified in several statutes. Rules regarding the protection of medical professionals, particularly throughout crises, both environmental and man-made, like the current epidemic, are insufficient. The findings indicated that the proposed methodology might be useful in high fatality research. As the COVID-19 epidemic fades, a rise in the number of workers with psychological disorders may emerge, particularly among healthcare personnel who have been under the most strain throughout this time. As a result, measures to combat this problem must be developed, and efforts to safeguard workers' psychological health must be increased in accord with the capabilities of mental health systems and employers themselves.

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