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Understanding Teacher Mental Health in Odisha: A Multidimensional Analysis of Stress and Support through Design of AI Innovations

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ABSTRACT: This research investigates teacher mental health in Odisha using a multidimensional paradigm that encompasses work-related stress, support mechanisms, and the possibilities of AI-driven therapies. Data have been collected using a quantitative study approach from a stratified probability sample of 300 instructors selected from public and private schools from various demographic backgrounds. A systematic Likert-scale questionnaire assessed essential dimensions such as occupational stress, institutional and social support, teachers' mental wellness, and impressions of AI-based solutions. Statistical analyses have been performed using SPSS for reliability, factor loading, and descriptive statistics, while AMOS is used for Structural Equation Modelling (SEM) to investigate correlations among variables and evaluate the research hypotheses. The instrument's reliability and validity were confirmed using Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). The results indicate that excessive work-related stress considerably diminishes teachers' psychological wellness and job satisfaction, whereas robust administrative, peer, and institutional support systems have a protective function in alleviating stress. The research emphasizes the increasing significance of AI-driven systems in detecting stress signs, providing tailored assistance, and facilitating early intervention measures in educational settings. The study emphasizes the need for structured stress management strategies, reinforced support systems, and the deliberate incorporation of AI advancements to improve teacher mental health and overall educational efficacy.

1. INTRODUCTION

Mental health is the capacity to harmonize our wants, emotions, aspirations, and thoughts in everyday life. Mental health is a cognitive framework characterized by a relative absence of anxiety symptoms. Mental health is characterized by good functioning, including self-acceptance, effective communication, self-direction, environmental mastery, and the establishment of life and personal development objectives. Online learning utilizes various devices and an internet connection, allowing students of all ages to study and interact with teachers and peers in synchronous (real-time, structured interaction) or asynchronous (self-paced) settings (G Radha, 2022). Key aspects include two-way communication, real-time interaction, instant feedback, mobile accessibility, and the option to view recorded lectures. Google provides several tools to facilitate online learning, such as Gmail and Google Classroom. Teachers' and students' emotional health is also vital to the success of this new approach to education in creating supportive classroom environments and raising student achievement.

The global education industry is evolving due to competition, market openness, higher education privatization, and technological advancements, increasing pressure on universities to remain competitive (Snigdha Mohapatra , et al., 2025). Teachers face extreme work stress because of existing situations which particularly impact female teachers working in regions with traditional cultural practices because they must handle both school duties and gender-based expectations. The study examines how work-related stress impacts the mental health and work performance of female educators who teach at both private and public higher education institutions in Odisha. Chronic stress results in mental health problems which cause decreased job satisfaction and deteriorating physical health. The work experiences of women in Odisha differ from those of men because social expectations and gender roles create distinct needs that must be addressed through dedicated support programs.

Artificial Intelligence (AI) technology causes deep changes in human society which affects multiple sectors but especially impacts education. People now have a new method to create knowledge and engage with information through Generative AI which combines Large Language Models (LLMs) with Generative Adversarial Networks (GANs) (Ciubotaru, 2025). The field of intelligent rehabilitation uses AI technology to improve human abilities through its development of superior human-machine interfaces. The system's broad industrial reach produces effects equivalent to the previous three industrial revolutions, transforming many industries like healthcare and financial services. AI technology in education will create personalized learning experiences while increasing teaching effectiveness and distributing resources fairly and assessing mind functioning through precise methods which will transform education into intelligent systems (T Rasheed, A Bashir, S Hanif, 2025). The current technological developments create new challenges for teaching professionals. Educators experience work-related stress and psychological challenges because of rapid technology adoption which results in their 'educational anxiety' symptoms. The phenomenon endangers teachers' mental well-being which affects their work performance and threatens the long-term stability of the education system (Zhang & Cao, 2025). Teachers who function as primary educational leaders in their courses create beneficial learning spaces through their instructional approaches which demonstrate their need to maintain physical and mental health for future teaching development.

The ideal of having a sound mind already exists in society since it requires people to treat both mental health and physical health equal. The term physical health describes how well a person can function without experiencing any discomfort, whereas mental health defines how well someone can handle their life's difficulties and opportunities through their physical, emotional, and social capabilities. The nation requires teachers who possess both physical strength and mental strength to create a healthy environment because students need to learn emotional control while they study their personal development and acceptance of reality (Menaha & Reddy, 2018). The definition of mental health exists because people need to demonstrate they have no mental disorders which would disrupt their daily activities and cause them distress. A person achieves mental health when all their personality traits and mental health abilities work together to help them manage stress and perform their duties and contribute to society. Educators need to maintain their mental health because it directly affects their psychological well-being.

The educational system of Odisha is undergoing significant changes because of better teaching methods and increased student enrollment. The development has created extra work for teachers because they must perform duties that go beyond their regular teaching responsibilities. Teachers experience increased stress through their new responsibilities which need schools to establish effective methods for helping teachers manage their stress while protecting their health and maintaining academic standards (Kalpana Sahu, et al., 2024). The teaching profession exists as a worldwide accepted noble vocation which serves as the cornerstone for educational institutions to attain their learning objectives. The teaching profession exists because teachers need to help students develop all three essential competencies of knowledge and skills and attitude development. People experience stress as a complex dynamic phenomenon which develops throughout their lives because they encounter various challenges that impact their mental health and educational experiences.

When secondary school teachers are mentally healthy, it lays the groundwork for a strong educational system. The academic progress and psychological development of students depend on educators who face extreme stress that damages their mental health (Rojas et al., 2024). The present situation shows that teaching requires extreme dedication because teachers face constant work-related stress and they experience emotional exhaustion and burnout. The increasing requirements of curriculum development, student involvement, administrative duties, and the obligation of oversight Student behavior contributes to the declining emotional well-being of educators (Austin et al., 2025). Mental health difficulties among secondary school instructors are unique from those of other professions due to the unique set of challenges they face. Workload overload, lack of institutional

support, job insecurity, and performance expectation pressure are all problems (Tikader, 2025). And since they may not have the proper training, many teachers often end up acting as informal therapists for their pupils who are struggling with mental health issues. Stress levels rise, and mental health issues like burnout and depression become chronic as a result of all this extra emotional labor.

In the changing educational environment, artificial intelligence (AI) is revolutionizing teaching and learning by integrating emotional support systems that identify and react to emotional signals. These systems use data from facial expressions, vocal modulation, biometric feedback, and textual analysis to assess emotional states and provide tailored responses, including stress-reduction suggestions and mental health resources (Tang & Liao, 2025). These AI solutions may assist educators by alleviating emotional labor via insights into well-being and indicators of burnout, hence facilitating self-care and assistance. AI-aided emotional support enables schools to establish a responsive educational atmosphere which detects student anxiety and disengagement to initiate immediate intervention.

The rising competition among academic institutions has created increased academic stress which now stands as the main research focus that studies its effects on teenage mental health (Ning et al., 2026). The students who need academic assistance experience greater emotional fatigue and social integration problems when they face resource shortages. Educational systems transform through digitalization which enables artificial intelligence (AI) technology to control how students access educational materials and their methods of stress relief. The digitalization process creates academic pressure because it establishes an "always-on" learning environment which permits students to access their assignments at any time while they compare themselves to their classmates (Liwei Ding, 2025). The system enables students to acquire practical skills about AI technologies which they will need for their academic studies. The psychological effects of this transition need essential knowledge to be understood.

2. MATERIALS AND METHODS

The Role of AI Learning Support

The educational environment now depends on technology resources as primary educational tools which support student learning. Students use AI-based educational systems which include adaptive tutoring platforms from Yuanfudao and Zuoyebang and generative feedback agents which operate like ChatGPT and Deepseek as essential components for their daily study routines (Yim & Jiahong Su, 2025). To meet the crucial criteria of Self-Regulated Learning theory, educational technologies provide students with tailored learning experiences that promote autonomous learning (SRL). AI technologies enable students to develop independence by providing them with tools for setting goals and tracking their progress and learning at their own pace. The system features help students manage their learning process while increasing their motivation to finish schoolwork. According to empirical research AI systems help students understand their skills better which results in their emotional resilience improvement and enhanced learning results (Biju et al., 2024). The technical support area has a monopoly in the AI learning industry.

Literature Review

(Sahu et al., 2013) The researchers assessed secondary school teachers' mental health in Odisha scheduled areas with the help of Dr. S.P. Anand's mental health scale and Dr. P.K. Tripathy's placement assessment tool. The educational system they developed through their teaching work established the foundation for both human development and civilizational progress. A teacher's mental health was vital for fostering creativity in students because it depended on two factors professional satisfaction and appropriate placement. The research found that male teachers display superior mental health compared to female teachers who showed similar mental health symptoms that originated from their biological characteristics. Teachers who work in accessible areas experience greater job satisfaction and better mental health than their counterparts who work in remote regions.

(Bridi et al., 2025) The study investigated the factors which determine how primary school teachers maintain their psychological health. As a result of job overload, insufficient support, and bad working circumstances, Research examining articles from the Virtual Health Library indicated that among educators, 27.6% experience anxiety, 14.08% depression, and 35.6% extreme stress. The results showed that educational institutions require immediate policy changes to establish a safe environment which supports teacher mental health because this practice is essential for creating better educational conditions which benefit student growth. The review found that teachers experience a critical mental health crisis while schools which provide basic education operate without proper mental health policies.

(Prabhu et al., 2021) The research team conducted an evaluation of mental health literacy through testing 460 high school teachers from southern India who worked with students. The study used semi-structured questionnaires which revealed that teachers possessed inadequate knowledge about depression mental health literacy. Nonetheless, 62.6% of teachers recognized adolescents with mental health concerns, and 59.72% of these individuals were directed to specialists. Educational attainment, marital status, class size, prior mental health training, and self-efficacy in knowledge retrieval were identified as predictors for mental health literacy by logistic regression. The results indicate a need for training programmes and referral networks to facilitate early intervention for adolescents.

Work-related stress: Workplace stress is on the rise across the world and has a detrimental effect on workers' health and productivity. It happens when a person's capacity to cope with job obligations is inadequate. It ranks second among compensated illnesses in Australia, only behind musculoskeletal ailments. Work-related stress develops when workers face both excessive demands and ongoing conflicts while their job security undergoes continuous changes. Different people experience stress differently because their job responsibilities and mental health status determine their stress response.

Support systems: Support systems include people and institutions and resources which deliver both assistance and motivational support and they provide care to others. The support systems consist of two types of relationships which include official professional services and organizations as well as informal relationships between family members and friends and members of the community. The two entities function as essential components because they help people develop resilience while they provide support for mental health improvement.

Teachers' mental health: Because teachers are twice as likely as workers in other professions to suffer from stress and burnout on the job, teaching is considered a high-stress occupation. The three main problems for educators need immediate institutional changes combined with enhanced mental health resources and improved work-life balance solutions.

AI-based interventions: A variety of medical conditions, including mental health diseases, may be detected and monitored by digital technology driven by artificial intelligence (AI), and treatment can be provided appropriately. Existing methods which enable patients to receive customized treatment while they work with healthcare professionals lead to improved health outcomes.

Hypothesis Development

H1: Work-related stress has a significant negative effect on teachers' mental health.

(Asaloei et al., 2020) aimed to elucidate work-related stress and its subsequent correlation with the job performance of primary school teachers in the Boven Digoel area of Indonesia. Both the efficiency of schools and the effectiveness of individual instructors are impacted by stress. To achieve this objective, two surveys were carried out. The study's participants and data were 352 primary school teachers who were inadvertently selected. We used Pearson's correlation analysis to do statistical analysis on the data. The data analysis results indicated a substantial negative link between work-related stress and the job performance of teachers in the elementary schools of the Boven Digoel area.

(Bogaert et al., 2014) investigated the mental, physical, and occupational health of Flemish secondary school teachers, taking into account demographic and pedagogical aspects as well as several forms of physical exercise. One thousand sixty-six teachers were polled using the short form 36 and the International Physical Activity Questionnaire (mean age 40, 68% female). The results of the research demonstrate that teachers face more health issues than members of the general public. The research found that female teachers who experience high work-related stress and take sick leave have more severe health problems than their male counterparts. People who do more physical exercise during their free time experience better health results. People who need to work should understand that their job tasks together with extended periods of sitting will create health problems for them. The research demonstrates that regular exercise during free time protects people from health problems. The researchers propose additional studies to investigate how physical exercise benefits teachers' health.

(Schonfeld et al., 2017) The researchers examined how teachers experience work-related stress because they wanted to understand its impact on their mental health through testing depressive symptoms and burnout and mental disorders. The research shows that student disruptive behavior leads to negative mental health effects on teachers, who experience higher rates of mental disorders according to epidemiological research, although some findings remain contested. The results of extensive research studies show that teachers encounter an increased danger of workplace violence, which creates additional problems

for their mental health. Teaching-related stress research demonstrates its impact on mental health through its connection to depressive symptoms and psychosomatic disorders and burnout. The research about workplace coping mechanisms remains unexplored because recent studies discover that burnout functions as a depressive syndrome instead of standing as an independent medical condition.

(Kamal et al., 2021) Finding out how common mental health issues like anxiety, depression, and stress are among teachers at Kobri El Koba was the driving force for this study. The research identified administrative support shortages as anxiety risk factors while the single status of individuals produced lower anxiety levels. Research showed that school grade attendance decreased depression levels but administrative decision-making exclusion from school activities led to higher depression rates. The research showed that these problems affected almost all individuals which created an urgent requirement for research and immediate solutions that include increasing teacher salaries and establishing committees to develop coping strategies and improving communication between teachers and school management.

(Mérida-López et al., 2017) The research investigated the effects of Effective Resilience Assessment (ERA) on teacher depression and anxiety and stress levels through a study that involved 336 Spanish teachers who showed a 40% participation rate. The results demonstrated that mental health symptoms emerged from role ambiguity and conflict while ERA produced a negative relationship which extended beyond these two factors. The research demonstrated that role ambiguity and ERA interacted to predict depression outcomes. The study shows that teachers maintain their mental well-being through the combination of work stressors and personal resources which require scientists to investigate this topic further through longitudinal studies.

H2: The help systems are usually found beneficial for the mental health of the teachers.

(Rahmi, 2024) Both the lives of teachers and their students' academic success are affected by mental health disorders among educators, according to the study's examination of the crucial link between the two. The research showed that teachers who experienced mental health issues delivered negative outcomes to their students' mental well-being while the study recommended mental health improvement programs as a solution to enhance teachers' mental health which would result in improved student academic performance. The Indonesian education system needs an all-encompassing approach which combines mental health literacy programs with ongoing teacher training and development and establishment of secure educational spaces. The colleagues and community members provided essential social support which helped to improve mental health literacy skills. The Indonesian educational system can create a health-promoting environment for teachers and students through the adoption of successful strategies utilized by other countries.

(Ball & Anderson-Butcher, 2014) Researchers examined how teachers assessed two parts of student mental health requirements together with their related support systems and stress patterns which emerged from these requirements. Schools need to expand their mental health programs because students require social and emotional development support which teachers should deliver to reach their service goals. When educators have a deeper comprehension of students' mental health requirements, they are better able to execute programmes, according to the study's findings. The research study found that different factors which affect student mental health together with their support system evaluations create a major effect on teacher stress levels. The study's results demonstrate that schools need to create and execute plans which will meet the complete mental health requirements of their students.

(Li et al., 2022) The study surveyed 573 teachers to determine their levels of social support and their proficiency in mental health literacy. The findings demonstrate that social support as well as mental health literacy are mediated by each other via two main channels: life satisfaction and coping tendencies. Support from friends and family did not significantly improve mental health literacy. The findings emphasize the importance of incorporating social support alongside enhancing coping strategies and life satisfaction in mental health literacy promotion programs for teachers.

(Silvia Salinas-Falquez et al., 2022) investigated the impact of emotional intelligence, inclusiveness, resilience, and unsatisfied psychological needs on 542 instructors who specialize in therapeutic pedagogy and special education. Teaching was a very demanding job, significantly affected by the COVID-19 epidemic. Employing several measures, such as the Psychological Need Thwarting Scale and the Maslach Burnout Inventory, findings indicated that annoyance has a positive correlation with burnout, but emotional intelligence and resilience are associated with elevated inclusion indices. The results indicated that teacher

resilience acts as a protective mechanism against emotional weariness and the frustration of psychological demands while assisting kids with unique educational requirements.

H3: AI-based interventions significantly moderate the relationship between stress and mental health, reducing the negative impact of stress.

(Leightley et al., 2026) Global organizations now recognize workplace mental health as an international issue yet existing traditional methods fail to attract workers while maintaining operational control. The research review of 17 articles published between 2018 and 2024 shows that AI solutions which use cognitive behavioral therapy chatbots result in improved mental health outcomes for employees and better program participation. The current stage of these interventions remains unfinished because they require complete outcome reports and solutions to essential issues concerning operational impacts and ethical requirements. The review requires clinicians and occupational health teams to evaluate AI solutions through detailed testing while upcoming research needs to focus on creating superior studies and extended research projects and standardized presentation methods which will facilitate safe AI use in workplace mental health settings.

This review (Liu et al., 2024) The researchers examined the operational methods used by artificial intelligence systems designed to discover and treat mental health disorders that result from stress. Advanced artificial intelligence systems developed during the past thirty years created a transformational change which revolutionized mental health treatment. The research studied two areas which include how artificial intelligence uses machine learning to detect stress through biomarker analysis and how AI-based stress interventions create personalized resilience programs through decoded neurofeedback. The review demonstrated how AI technologies show both effective results and operational difficulties which create major impacts on mental health treatment in modern mental health systems.

(Mohanty et al., 2026) The research employed a mixed-methods design to examine 225 workers who worked at medium-sized and large-sized companies. The 6-month pilot showed that burnout metrics experienced significant improvements because emotional exhaustion reduced by 25.8% and depersonalization decreased by 31.1% and personal accomplishment increased by 22.2%. With an accuracy rate of 91%, the Deep Neural Network model outperformed all of its competitors. The study found that high-risk employees experienced a 42.1% reduction in burnout which showed the effectiveness of specific treatment methods. The AI-based mental health support systems enable companies to identify and address workplace burnout which results in improved employee health outcomes and better organizational performance. The researchers suggest that ethical AI practices should be implemented together with longitudinal studies to examine how different sectors will use AI across extended time periods.

Research gap

Current research uses newly developed mental health information about teachers to study their stress levels and support systems and mental health literacy and resilience skills as separate research components which lack an integrated research framework. The research shows that traditional elements including work duties and administrative assistance and personal coping strategies help to maintain the research process which examines all studied elements. Recent literature underscores the promise of AI-driven mental health interventions in workplace environments; however, few studies have examined their use by teachers or examined how they mediate the connection between stress on the job and psychological consequences. Research in India particularly studies resource-limited areas and scheduled regions through the use of native knowledge systems which indigenous people develop. The researchers employed integrated methods to investigate how work-related stress affects teacher mental health through their support networks and AI-based therapies.

Methodology

Research design

Using AI-based study design techniques for multidimensional analysis of stress and support, this research looked at the mental health of Odisha's teachers using quantitative analytic approaches. The researchers ensured statistical reliability and validity by collecting data from 384 respondents who were representative of the population using organised procedures. Using a standardized questionnaire with Likert-scale questions to gauge respondents' levels of work-related stress, support systems, mental health among teachers, and treatments based on artificial intelligence, data was collected. Statistical Package for the Social Sciences (SPSS) was used for descriptive statistics, reliability analysis, as well as factor loadings in the study's dataset

analysis. To test the assumptions and look at how the primary variables were related to each other, structural equation modelling (SEM) used AMOS (Analysis of Moment Structures).

Conceptual framework

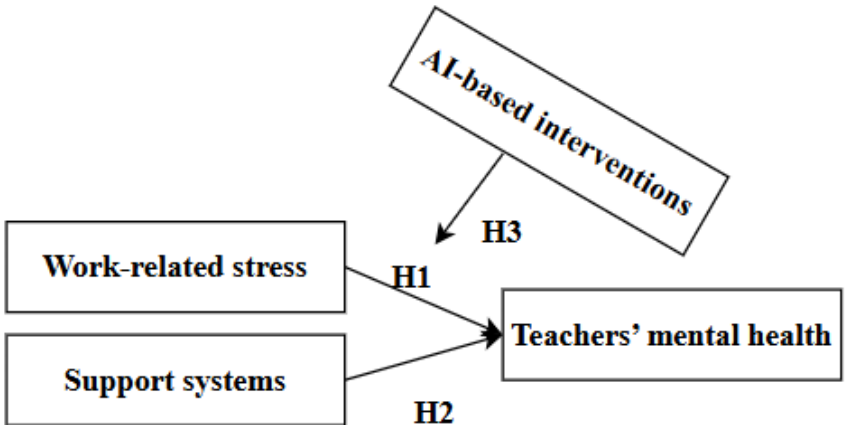

Figure 1 Conceptual framework

Objectives of the Study

- To examine the impact of work-related stress factors (workload, institutional pressure, and student behavior) on teachers' mental health in Odisha.
- To evaluate the role of support systems and AI-based interventions in improving teachers' mental well-being.

Hypotheses of the Study

H1: Work-related stress has a significant negative effect on teachers' mental health.

H2: Support systems have a significant positive effect on teachers' mental health.

H3: AI-based interventions significantly moderate the relationship between stress and mental health, reducing the negative impact of stress.

Sample Selection

The researchers selected 300 teachers from public and private schools in Odisha through a stratified selection technique which used probability to select participants. The sample selection process achieves total demographic coverage because it selects participants from different important demographic categories which include gender and age range and teaching experience and school type. The study achieved balanced representation of public and private schools because it included teachers from both groups who had between five and twenty years of teaching experience. The results would be more applicable to a wider audience since this stratification makes sure that diverse groups of educators are fairly represented.

Data collection

The research collected its main data through a structured questionnaire which assessed four key areas including workplace stress and social support and teachers' mental health and artificial intelligence based solutions. Using a Likert scale, researchers were able to quantitatively quantify participants' opinions and perceptions in the study. The validity and reliability of the instrument were confirmed using Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). Then, the hypothesis testing process began. With the help of SPSS and AMOS, the data was examined. We used modelling using structural equations, moderation analysis with adjusted interaction variables, regression, and descriptive statistics to evaluate our theoretical framework.

Measures

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A planned survey was used to get the information. In order for individuals to voice their opinions on the many study topics being studied, a survey with a five-point Likert-scale (ranging from "strongly disagree" to "strongly agree") has been created. You may find both closed-and open-ended questions on the survey. Each question has been carefully crafted to elicit information pertinent to the chosen research variables. Each of the five categories of responders will have its own questionnaire tailored to their specific needs. The quantity of factors and things taken into account in the research is summarised in this table.

Constructs	**Code**	**No. of items**
Work related stress	WRS1–WRS5	5
Support systems	SS1–SS5	5
Teachers' mental health	TMH1–TMH5	5
AI based interventions	AIBI1–AIBI5	5

3. RESULTS AND DISCUSSION

Results

The section describes the research findings which were obtained through studies conducted with school teachers in Odisha to examine their mental health conditions and work-related stress levels and institutional support systems and their use of AI-based solutions. Starting with the respondents' demographic profile, the results are organised in a systematic way. Next, the measurement model's robustness is determined by studying reliability and validity. The researchers present descriptive data which shows the primary stress patterns together with their support systems and mental health conditions and their attitudes toward AI technology. Educator mental health is assessed through hypothesis testing which uses regression analysis to examine relationships between work-related stressors, support mechanisms, and AI-driven solutions. Research objectives and conceptual framework elements receive full understanding through the structured presentation method.

Demographic variables

Table 1 Demographic variables

		Frequency	**Percent**
Gender	Male	143	47.7
	Female	157	52.3
	Total	300	100
Age Group	20–30 years	72	24
	31–40 years	82	27.3
	41–50 years	66	22
	Above 50 years	80	26.7
	Total	300	100
Teaching Experience	Less than 5 years	80	26.7
	5–10 years	82	27.3
	11–20 years	73	24.3
	Above 20 years	65	21.7
	Total	300	100
Type of School	Private	153	51
	Government	147	49
	Total	300	100

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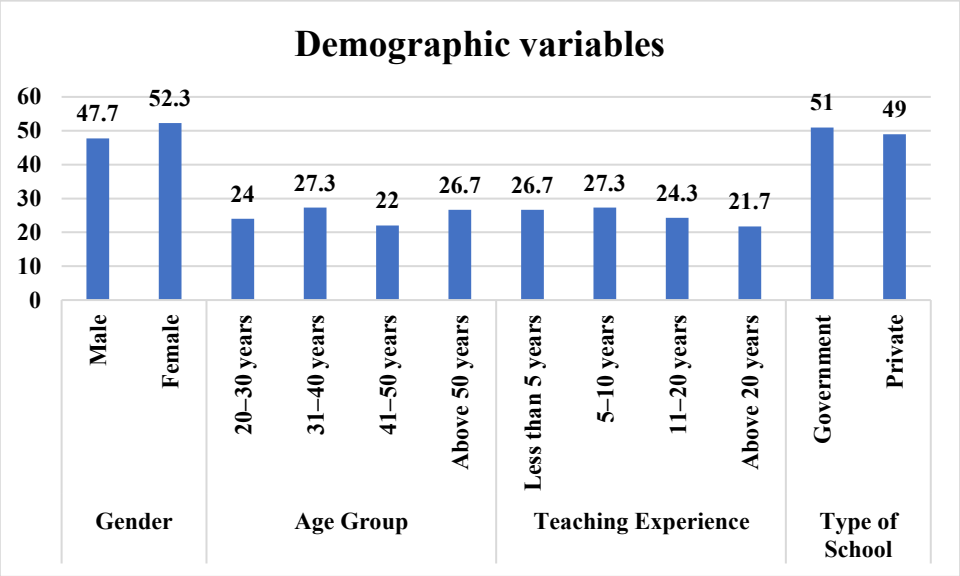

A reasonably even distribution of responders across demographic groups is shown in the data. Female teachers constitute a marginally higher percentage of the teaching staff than male teachers in the educational institution. The age distribution shows all age groups which includes the majority of people between 31 and 40 years and those who are above 50 years. Nearly the same percentage of educators have 5–10 years of experience in the classroom as do those with fewer than 5 years of training, which includes both novice and more seasoned educators. The study population consists of respondents who work at private schools while public school employees make up a smaller segment of the study.

Table 2 Reliability and Validity

Constructs	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Work related stress	0.815	0.783	0.587
Support systems	0.903	0.845	0.722
Teachers' mental health	0.893	0.839	0.706
AI based interventions	0.896	0.843	0.718

The findings of the validity and reliability analyses make it quite evident that all of the constructs have shown adequate levels of validity and reliability. Cronbach's Alpha for stress in the workplace is 0.815, for social support systems it's 0.903, and for educators' emotional well-being it's 0.893, and 0.896 for AI-based interventions exceed the suggested level of 0.70, and thus the constructs can be considered reliable. Composite Reliability (CR) ratings for all variables range from 0.783 to 0.845, which is more than the cutoff of 0.70 and provides further proof of the measurement model's consistency. Finally, below the cutoff of 0.50, all constructions have AVE values between 0.587 and 0.722.

Table 3 mean, St. Deviation

Constructs	**Mean**	**St. Deviation**
Work related stress	2.3173	0.80123

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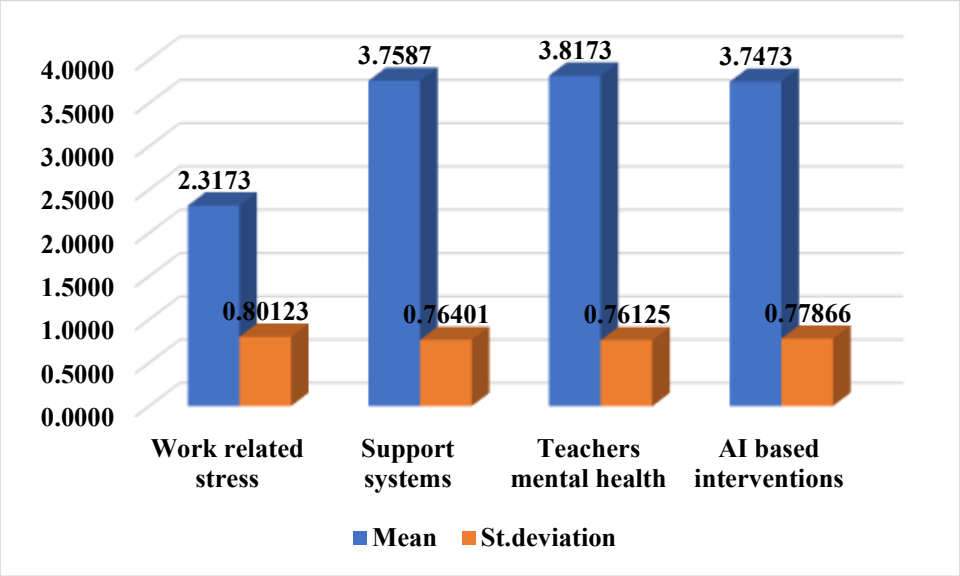
Support systems	3.7587	0.76401
Teachers' mental health	3.8173	0.76125
AI based interventions	3.7473	0.77866

The descriptive statistics present differences in the levels of all constructs. Work stress is measured using a relatively low mean (M = 2.3173, SD = 0.80123). Thus, the level of perceived stress among respondents is relatively low. Conversely, Support systems with high values of the mean (M = 3.7587, SD = 0.76401), Mental health of teachers (M = 3.8173, SD = 0.76125), and AI-based intervention (M = 3.7473, SD = 0.77866) are seen to present positive perceptions toward the discussed constructs. In terms of standard deviation measures, moderate values can be observed. This reflects consistent results without extreme variations from one respondent to another.



Hypothesis Implementation

H1: Stress in the workplace has a devastating effect on educators' mental health.

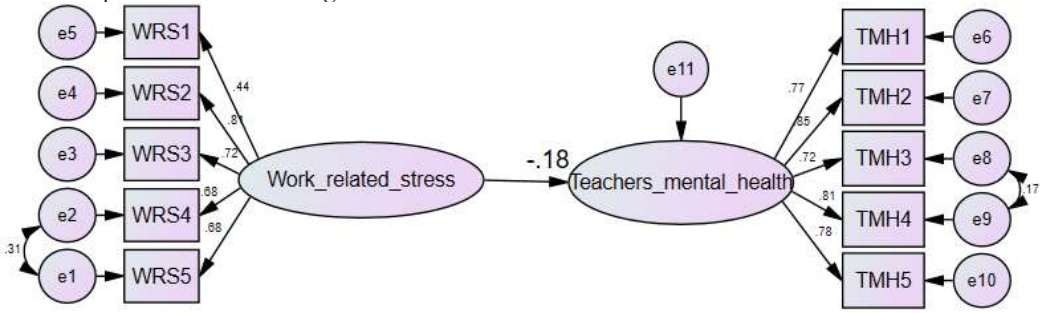


Table 4 Regression weights: (group number 1 - default model)

Path			Standard Estimate	S.E.	C.R.	P
Teachers' mental health	<---	Work-related stress	-0.175	0.062	-2.556	0.011(<0.05)

Teachers' mental health is negatively impacted by professional stress, as shown by the findings. (β = -0.175, C.R. = -2.556, p = 0.011 < 0.05). In turn, this finding supports H1. The fact that β is negative implies that the higher the job stress of teachers is, the lower their mental health is. Since the critical ratio is above the critical value of ±1.96, it confirms the significance of the correlation between the variables under analysis, and since p = 0.011, the probability of obtaining such results by chance can be excluded.

Table 5 Model fit

CMIN	DF	CMIN/DF	GFI	NFI	RFI	IFI	CFI	RMR	RMSEA
43.134	32	1.348	.972	.968	.956	.992	.992	.035	.034

The model fit indices show that the structural equation model well describes the data. The chi-square test statistic (CMIN) produces a value of 43.134 with 32 degrees of freedom, which is much lower than the proposed threshold of 3. The resulting CMIN/DF ratio is 1.348. What this means is that the model was able to fit the data accurately. With all of the fit indices (goodness-of-fit, normed fit, relative fit, incremental fit, and comparative fit) above the minimum needed value of 0.90, it is clear that the model provides an excellent match to the data. Since the RMR and RMSEA are both less than the requirement of 0.08, it seems that the model has tiny residuals and a perfect approximation to the population covariance matrix.

H2: When educators have strong support networks, their mental health improves dramatically.

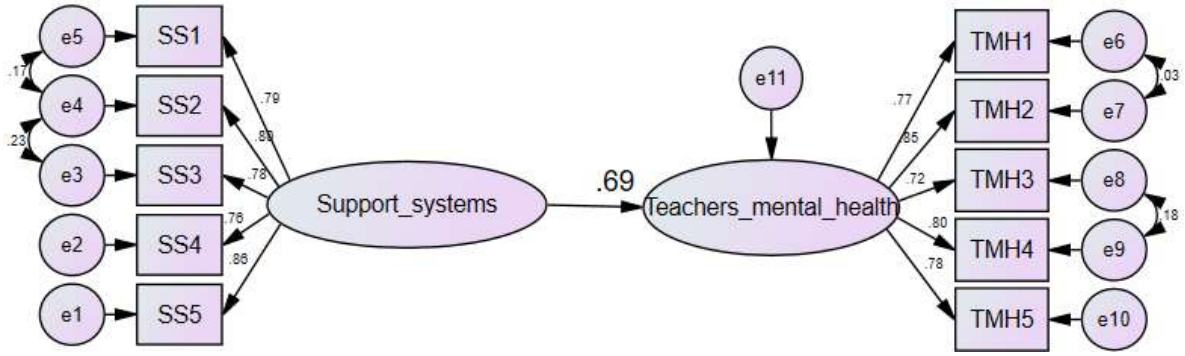


Table 6 Regression weights: (group number 1 - default model)

Path			Standard Estimate	S.E.	C.R.	P
Teachers' mental health	<---	Support systems	0.689	0.062	10.560	***

Support systems significantly affect teachers' emotional well-being, according to the results, which supports H2. According to the estimated standardized regression coefficient (β = 0.689), the relation between improvement in support systems and improvement in teachers' mental well-being is quite large, which implies that enhancement of support systems can lead to considerable improvements in teachers' mental well-being. Moreover, the very statistically significant effect (***, p < 0.001) is shown by the high significance level (C.R. = 10.560), which is much greater than the critical value (1.96), demonstrating that social networks significantly affect psychological health. Moreover, the fairly small standard error (S.E. = 0.062) provides an indication of the accuracy of the estimated coefficient.

Table 7 Model fit

CMIN	DF	CMIN/DF	GFI	NFI	RFI	IFI	CFI	RMR	RMSEA
33.656	30	1.122	.978	.982	.973	.998	.998	.018	.020

The results of the model fit indices demonstrate an excellent general match between the structural model and the data. By dividing 33.656 by 30 degrees of freedom, we get a CMIN/DF = 1.122, which is much lower than the 3 criterion and indicates a satisfactory fit according to the chi-square statistic. Goodness of Fit (GFI) = 0.978, Normed Fit Index (NFI) = 0.982, Relative Fit Index (RFI) = 0.973, Incremental Fit Index (IFI) = 0.998, and Comparative Fit Index (CFI) = 0.998 are all greater than the acceptable cut-off level of 0.90, indicating that the model fits the data well. Similarly, both the RMR and RMSEA are much lower than the recommended cut-off value of 0.08, we may conclude that there is little to no inaccuracy and that the model-to-population approximation is flawless.

H3: Although stress may negatively impact mental health, treatments that are enabled by AI can help alleviate this.

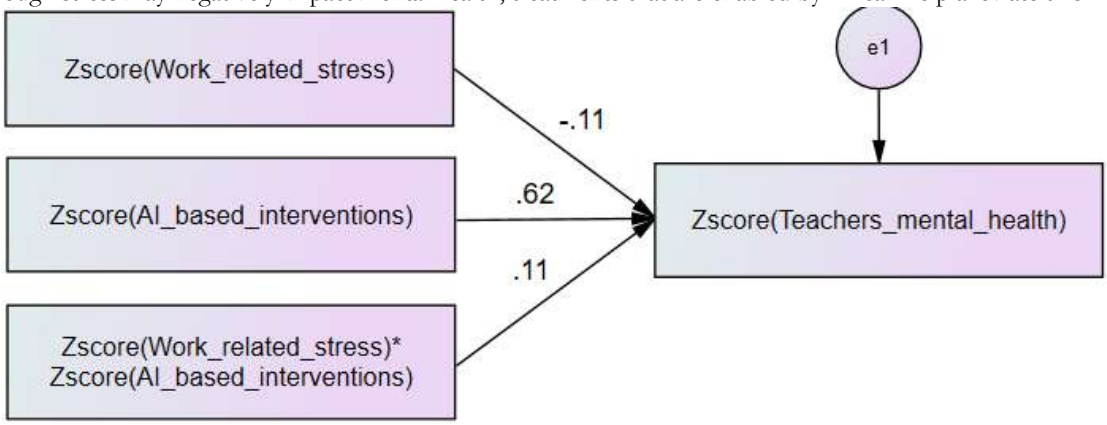


Table 8 Regression weights: (group number 1 - default model)

Path			Standard Estimate	S.E.	C.R.	P
ZTeachers mental health	<---	ZAI based interventions	0.618	0.044	13.865	***
ZTeachers mental health	<---	Zwork related stress	-0.113	0.034	-2.54	0.011
ZTeachers mental health	<---	Interaction(Zwork related stress*ZAI based interventions	0.106	0.031	2.378	0.017

Table 8 shows the outcomes of the Structural Equation Model (SEM) that examined the impact of the Zscore for AI-based interventions on the correlation between teachers' mental health and work-related stress. Incorporating measurement errors and in-model feedback into this comprehensive strategy enables testing of all critical pathways. Zscore (job related stress) is strongly and adversely correlated with Zscore (teachers mental health) (β=-0.113, P<0.05), according to the hypothesis that was derived via path analysis. There is a strong and statistically significant relationship between AI-based therapies and the mental health of instructors (β= 0.618, P<0.05).

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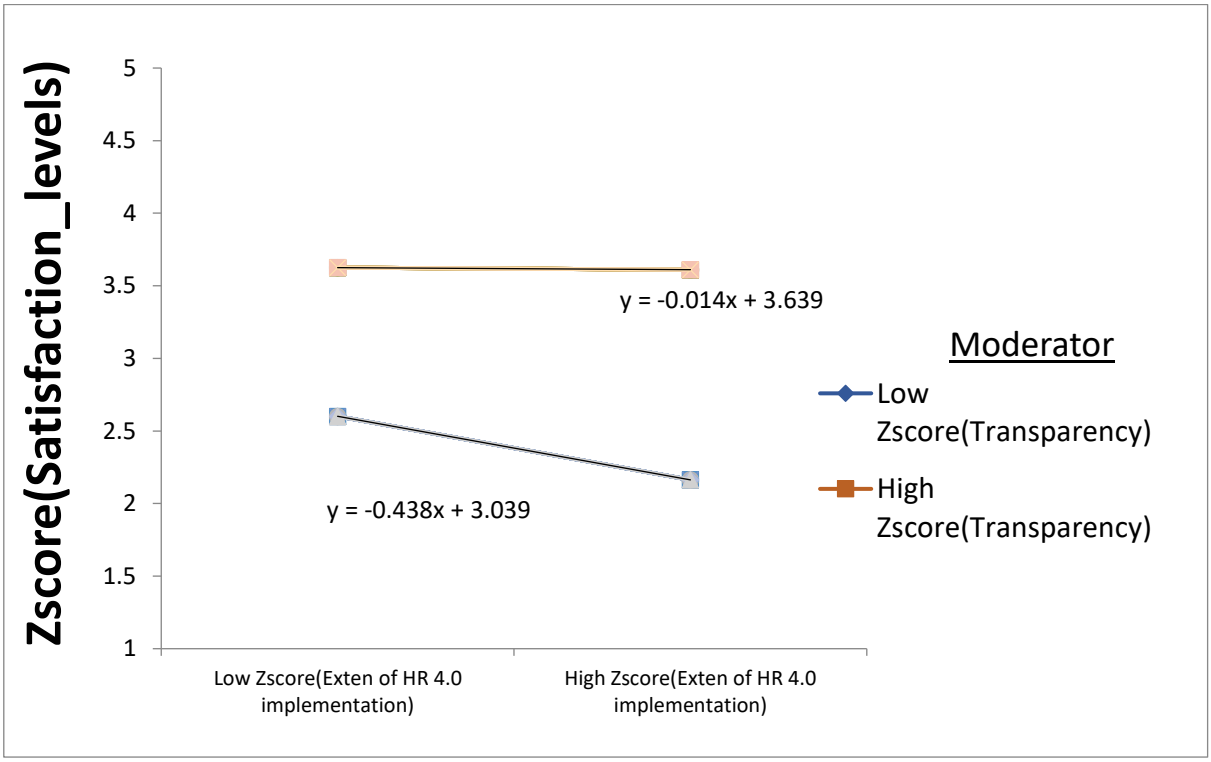
Moderation testing:

Zscore (work-related stress), Zscore (teachers' mental health), and Zscore (AI-based therapies) are treated as independent variables in the moderation analysis. We utilise SPSS to create interaction terms from the variables' standardized scores in order to retrieve the numbers.

Table 9 Regression weights: (group number 1 - default model)

Path			Standard Estimate	S.E.	C.R.	P
ZTeachers mental health	<---	Interaction(Zwork related stress*ZAI based interventions	0.106	0.031	2.378	0.017



Zscore (interventions based on AI) moderating effects were assessed. The results indicate that the Z-score for teachers' mental health is positively and significantly affected by the interaction term between work-related stress as well as AI-based interventions (β= 0.106, P<.05). Zscore (Primary Goals) functions as a moderator, according to our data.

Discussion

According to the results obtained, it can be said that the mental state of teachers in Odisha is affected both by work-related stress and positive institutional support. Stress from occupations, institutions, as well as classrooms may reduce teachers' psychological sensation of comfort and fulfilment, which in turn severely impacts their mental health. Teachers' mental health may benefit from institutional support in the form of administrative aid, peer support, treatment, and a good work environment. What is more important, it has been stressed that AI solutions can help eliminate the negative impact of stress, thus playing a crucial role in teachers' mental state management. Indeed, AI can help detect stress, give personal assistance to teachers, and allow institutions create necessary mental health programs.

4. CONCLUSION

The findings of the research show that the mental wellbeing of the teachers in Odisha depends on such factors as work-related stress, supportive measures, and potential use of AI-driven interventions. Stress at work might undermine teachers' psychological state, decrease their satisfaction from work, and negatively affect their professional activity. Hence, it is crucial to address the excessive workload, institutional pressure, and difficulties connected with teaching practices to ensure the mental wellbeing of teachers. Research also shows that support measures have a favourable effect on teachers' mental wellness, which is worth mentioning. Administrative support, collaboration with peers, counselling, and good conditions at schools might help teachers deal with stress. Using artificial intelligence, educational institutions can then figure out stress signals and provide responses tailored to their unique situations, letting them develop their own first responses to a potential crisis.

AUTHOR CONTRIBUTIONS

Swosti Mohanty: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing.

Dr. Ipseeta Satpathy: Supervision, Review & Editing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICS STATEMENT

Ethical approval was not required for this study.

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