Understanding stress and satisfaction of private teachers: A correlation analysis and *K*-means clustering

Leomarich Fortugaliza Casinillo[1*], Jonecis Adolfo Dayap[2],
Melbert Odo Hungo[3], Eduardo Estobio Lleve, Jr.[4]

[1]Visayas State University, Baybay City, Leyte, Philippines
[2]University of San Jose-Recoletos, Cebu City, Philippines
[3]Southern Leyte State University-Tomas Oppus, Southern Leyte, Philippines
[4]Western Philippines University-Main Campus, Aborlan, Palawan, Philippines
[*]Corresponding author: leomarichcasinillo02011990@gmail.com

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ABSTRACT

Stress is caused by weariness at work due to unpleasant experiences, adversely affecting job satisfaction and well-being. This article study focuses on elucidating the level of job stress and satisfaction of private teachers in Abuyog and Jaro, Leyte, Philippines. Additionally, the study investigated the association between stress and satisfaction across different levels. A cross-sectional study was employed to gather primary data through a census of private teachers. Data was collected through a constructed questionnaire and summarized with standard descriptive metrics in statistics. The *K*-means clustering approach determined the relationship among variables (stress and satisfaction) across different levels. Results disclosed that, on average, private teachers are moderately stressed and satisfied at their work. In addition, it is shown that the higher the stress level at work, the lower their satisfaction is based on their correlation. Moreover, the *K*-means clustering approach has portrayed that private teachers can be categorized into two clusters. The first cluster (Cluster 0) comprises teachers with a lower level of stress and a higher level of satisfaction. The second cluster (Cluster 1) comprises teachers with moderate stress and satisfaction levels. Conclusively, teaching in a private institution can be stressful due to the high demand for work, which can negatively affect the well-being of teachers. Hence, the study suggests that school heads must consider adjusting the work assignments and provide enough incentives to boost teachers' satisfaction and promote productivity and well-being.

1. Introduction

The literature examining internal job stress among private school teachers reveals multifaceted challenges that impact various dimensions of their professional lives. Regarding skill-set stress, studies by Bhattacharya and Tandon (2023) highlight the pressure teachers feel to constantly update their pedagogical skills to meet evolving educational standards, often contributing to a sense of inadequacy. Psychological stress is explored by Kim and Asbury (2020), emphasizing the emotional toll of managing student behaviors academic expectations,

and balancing personal and professional life. Capital stress, as investigated by Ravi et al. (2021), delves into financial concerns and the strain of navigating limited resources within private school settings. Health issues, such as burnout and fatigue, are extensively discussed in the work of Chan et al. (2021), emphasizing the need for strategies to promote teacher well-being. External job stress among private school teachers encompasses a range of factors. Family and relationship issues, as studied by García-Moya et al. (2019), delve into the impact of personal life on professional performance, shedding light on the delicate balance teachers must maintain. Organizational rules and work environment stress, explored by Mwakasangula and Mwita (2021), highlight the challenges of adapting to institutional policies and addressing issues related to the physical and social aspects of the workplace. Incentive stress, as analyzed by van Velzen and Helbich (2023), underscores the importance of recognizing and addressing discrepancies in motivational factors and rewards within private school systems.

Regarding job satisfaction, the literature emphasizes the significance of various factors. Studies by Dholkawala (2023) examine the impact of school and administration policies on teacher satisfaction, highlighting the importance of transparent communication and collaboration. As explored by King et al. (2022), working conditions focus on the physical and logistical aspects of the workplace that influence teacher well-being. As Dicke et al. (2020) discussed, work achievement satisfaction highlights the connection between goal attainment and overall job satisfaction.

Moreover, salary and benefits, interpersonal relations, supervision, and recognition are explored in-depth by Denhardt et al. (2018), shedding light on the interconnections of these factors and their role in shaping the overall job satisfaction of private school teachers. Despite the wealth of research on internal job stress, external job stress, and job satisfaction among private school teachers, several notable research gaps persist. Firstly, in the realm of internal job stress, there is a need for further exploration of the inter-sectional of stressors, mainly how skill-set stressors may interact with psychological, capital, knowledge, and health-related stressors. Existing studies often examine these factors in isolation, and a more nuanced understanding of their cumulative impact on teacher well-being is warranted (Hungo & Sescon, 2018; Tran et al., 2023). Secondly, the literature on external job stress highlights the importance of family and relationship issues, organizational rules, work environment, and incentives. Still, a dearth of research examines the interplay among these external stressors (Weber et al., 2019). Understanding how family and relationship issues may be exacerbated or alleviated by organizational rules, work environment conditions, and incentives would contribute to a more comprehensive understanding of the external stress landscape for private school teachers (Hungo & Casinillo, 2023; Kezar et al., 2019). In the context of job satisfaction, there is a need for more nuanced investigations into the specific elements of school and administration policy that impact teacher satisfaction. While studies touch on this aspect, a deeper analysis of the implementation and communication of policies and their alignment with teachers' professional needs is essential for developing targeted interventions.

Additionally, the literature often emphasizes general working conditions, but there is a gap in research that delves into specific aspects of the work environment. Understanding the nuanced factors within the work environment can inform practical improvements that enhance teacher satisfaction. Furthermore, research exploring the long-term effects of job stress on teacher health is limited. While studies acknowledge health issues as a stress outcome, there is a gap in understanding the trajectory and potential chronicity of health problems arising from sustained job stress among private school teachers.

Future research in private school teachers' job stress and job satisfaction should focus on the interplay among various internal and external stressors and provide a more detailed examination of specific elements within these domains. This will contribute to developing targeted interventions and policies that address the nuanced needs of private school teachers, ultimately fostering a healthier and more satisfying work environment. Although there are studies regarding teachers' job stress and satisfaction, investigation using *K*-means clustering is scarce, especially for private institutions. Hence, given the existing literature and identified research gaps, this study aims to investigate job stress and satisfaction among private school teachers. The study uses clustering analysis to explore the relationship between job stress and job satisfaction at different levels. Specifically, the researchers have sought the following goals: (1) to estimate the level of teachers' stress in terms of internal and external aspects; (2) to measure the level of teachers' satisfaction at work; (3) to determine the association of stress and satisfaction of private teachers; (4) to cluster the private teachers regarding their stress and satisfaction level. This research is fundamental because the findings of this study have practical implications for educational institutions, policymakers, and administrators, providing evidence-based insights to enhance the working conditions, support systems, and overall satisfaction of private school teachers. This research has the potential to contribute positively to the teaching profession, promoting a healthier and more fulfilling professional environment for educators and, consequently, improving the quality of education provided in private school settings.

2. Theoretical basis

The study by Barrows et al. (2019) depicts that private schools are the choice of some parents since they are satisfied with the environment, treatment of students, climate, and school communications. Huayascachi et al. (2020) portrayed private schools as aiming to provide quality and competitive education that contributes to human development. With that, private school teachers must double their efforts and perform as best as possible to accomplish their goal of quality education. Banal and Ortega-Dela Cruz's (2022) study has portrayed that private school teachers are encountering a higher demand for work and pressure from their school heads regarding their performance. Hence, these teachers face job stress and burnout, which affects their teaching ability and satisfaction (Malquisto et al., 2023a; Shah et al., 2023). Zhao et al. (2022) explained that job stress is an emotional and physical difficulty in work that occurs when expectations are unmet.

Job stress is caused by exhaustion due to unpleasant experiences, resulting in poor health or well-being and even burnout (Li et al., 2021). According to Khan et al. (2012) and Kang et al. (2022), teachers' job stress has two components: internal and external. The internal aspect involves the teachers' skills, psychological capital, knowledge, and health issues. Meanwhile, external aspects involve teachers' family relationships, organizational rules, work environment, and incentives. Moreover, the study also dealt with the teachers' job satisfaction in a private school. In the study of Malquisto et al. (2023b), it is stated that job satisfaction refers to work fulfillment or subjective well-being toward their assigned task. However, Malquisto et al. (2023a) portrayed that satisfaction in teaching is adversely affected by stress and burnout in their job. In that case, the study presumed that the stress level negatively influences the satisfaction level of private teachers in work assignments. Hence, the framework of this study investigates the relationship between internal and external stress and the satisfaction of private teachers. Moreover, the study focused on clustering teachers with similar levels of stress and satisfaction to derive an argument that addressed the well-being of teachers in a private institution.

3. Methods

3.1. Research design

The study gathered and analyzed data sets and evaluated the relationship between variables. In that case, this study employed a descriptive correlational research design, which explains the description and association of at least two variables of interest and elucidates the cause and effect between them (Seeram, 2019). Hence, this research design was used to explain the level of stress and satisfaction of private teachers and its relationship, which may provide insights to improve the well-being of private teachers.

3.2. Research respondents, sampling, and ethical procedure

The research survey took place in Leyte, Philipines, particularly in the municipalities of Jaro and Abuyog. These two places were selected because of the notable presence of the topmost performing private sectarian secondary schools, the Oblates of Notre Dame (OND). Hence, the researchers are interested in the two schools, namely (i) Notre Dame of Jaro, Inc. (NDJI) and (ii) Notre Dame of Abuyog, Inc. (NDAI). Figure 1 presents the location of the two private schools on the map of the Philippines.

Figure 1

Survey Research Locale
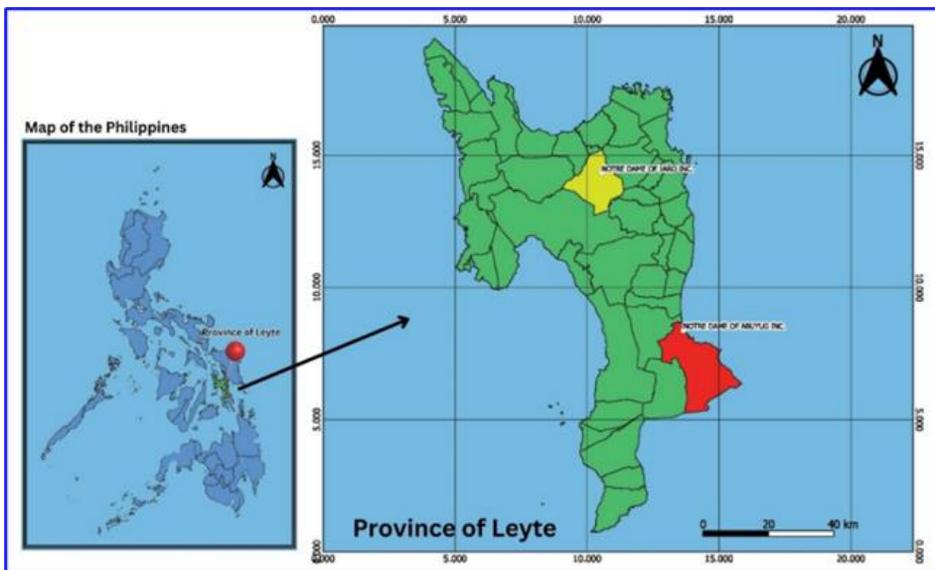
Note. Data analysis result of the research

Moreover, due to the noticeable employee turnover rate over the years, the two secondary schools are investigating the teachers' well-being, particularly their stress level and subjective satisfaction as workers in the private sector. Hence, in this study, the desired respondents comprised the private teachers working in the schools NDAI and NDJI for the academic year 2022 - 2023 during the research survey. At the time of the study, there were 12 NDJI teachers and 22 NDAI teachers. Hence, the total number of desired teachers is 34, and the study used a complete enumeration due to a small number of respondents. As for the research ethics, the authors secured a consent letter from the higher officials in the two secondary schools, particularly the school heads. After the favorable response from the school heads, the researchers constructed another letter for the respondents, informing them about the study and its purpose. In addition, they were enlightened that the survey does not force them, but their participation is voluntary and anonymity guaranteed. Moreover, the respondents were informed that their data

would be treated as confidential and intended only for this research. Lastly, the construction of the research instrument was reviewed thoroughly to ensure that it does not contain offensive and sensitive topics that may harm the respondents' reputations and well-being.

3.3. Research questionnaire and data collection process

The research instrument contains two parts: the stress and satisfaction questionnaire. As for the stress instrument, the questions are adapted from the paper of Fliege et al. (2005), which dealt with the perceived stress questionnaire. In that case, the questionnaire involved two aspects of stress: internal and external. The teachers' internal stress is categorized with the following: (a) skillset (03 questions), (b) psychological capital (03 questions), (c) knowledge (04 questions), and (d) health issues (06 questions). Moreover, the teachers' external stress is categorized with the following: (i) family and relationship aspects (03 questions), (ii) organizational rules (03 questions), (iii) work environment (04 questions), (iv) benefits or incentives (03 questions). Each question follows a 5-point rating scale in which 01 indicates no stress, and 05 indicates very stress. Table 1 depicts the stress interval perception scores that the mean score might fall and its corresponding linguistic description.

Table 1

Teachers' Job Stress Interval Mean Score and Its Description

Interval mean score	Response	Description
4.21 - 5.00	Strongly agree	Very stressful
3.41 - 4.20	Agree	Stressful
2.61 - 3.40	Neutral Response	Moderate stress
1.81 - 2.60	Disagree	Slight stress
1.00 - 1.80	Strong disagree	No stress

Note. Data analysis result of the research

The job satisfaction research instrument was adapted from the paper of Toropova et al. (2020) and Malquisto et al. (2023b), which dealt with the subjective well-being of teachers. In this instrument, the private teachers were asked to rate the following satisfaction aspects in their jobs: school and administrative policies (08 questions), supervision (05 questions), salary and benefits (06 questions), interpersonal relations (03 questions), work conditions (04 questions), work itself (03 questions), achievement (04 questions), recognition (04 questions), responsibility (04 questions), and advancement (04 questions). Again, each satisfaction question follows a 5-point rating scale in which 01 indicates not satisfied, and 05 indicates very satisfied. Table 2 presents the satisfaction interval perception scores that the mean score might fall and its corresponding verbal description.

Table 2

Teachers' Job Satisfaction Interval Mean Score and Description

Interval mean score	Response	Description
4.21 - 5.00	Strongly agree	Very satisfied
3.41 - 4.20	Agree	Satisfied
2.61 - 3.40	Neutral Response	Moderately satisfied
1.81 - 2.60	Disagree	Dissatisfied
1.00 - 1.80	Strong disagree	Very dissatisfied

Note. Data analysis result of the research

The stress and satisfaction instrument has undergone a validity test wherein it is evaluated by social scientist experts (Ph.D. holder), and found that the stress and satisfaction questionnaire can capture the teachers' well-being and experiences in their teaching career in a private institution. Moreover, a reliability test was also executed using STATA software to elucidate the consistency of the questions using Cronbach's Alpha (Cronbach, 1951). In that case, the research instruments are reliable, as shown in Table 3.

Table 3

Reliability Test for the Stress and Satisfaction Questionnaire

Instrument	Items	Reliability coefficient
Internal stress	16	0.89
External stress	13	0.89
Satisfaction	45	0.97

Note. Data analysis result of the research

3.4. Data analysis

After the survey, the data were encoded in Microsoft Excel and formatted into statistical programs for statistics computation. Descriptive statistics techniques were used to summarize and describe the data: mean average, Standard Deviation (SD), and Spearman's rank correlation. Calculations for descriptive aspects were done using STATA software. Moreover, the researchers employed *K*-means clustering to group private teachers based on their levels of job-related stress and job satisfaction. The *K*-means algorithm, a well-known unsupervised machine learning technique, involves the initial random selection of *K* centroids or means. *K* represents the user-defined number of desired clusters. Recognized as a popular partition algorithm, *K*-means clustering is widely employed in various applications due to its simplicity of implementation, as highlighted by Windarto et al. (2019). The crucial step of determining the optimal number of clusters to comprehend the underlying dataset structure is addressed using two widely recognized methods: the elbow method and silhouette analysis. The implementation of *K*-means clustering is carried out using Python and the Scikit-learn library.

4. Results and discussion

4.1. Descriptive statistics

Table 4 presents comprehensive descriptive statistics concerning job stress among private teachers, categorizing the data into internal and external factors. Examining internal stressors, the mean values indicate a slightly stressful level for skillset (2.51), psychological capital (2.32), knowledge (2.38), and a moderately stressful level for health issues (2.97). Combining these factors yields an overall internal job stress mean of 2.61, placing it within the moderately stressful range. External stressors include family and relationship issues (mean: 2.11), organizational rules (mean: 3.19, characterized as moderately stressful), work environment (mean: 2.57, slightly stressful), and incentives (mean: 3.24, moderately stressful). The overall external job stress, calculated by totaling these categories, has a mean of 2.76, categorizing it as moderately stressful. Considering internal and external factors, the mean value for overall job stress is 2.68, indicating that, on average, private teachers face a moderate stress level in their profession (Toropova et al., 2020). These findings provide a different understanding of the specific stressors impacting private teachers, laying the groundwork for targeted interventions and support mechanisms (van Hees et al., 2021). These findings provide a varied understanding

of the stressors influencing private teachers and imply that addressing health issues, organizational rules, and incentives could alleviate overall job stress (Caligiuri et al., 2020). The insights garnered from this analysis lay the foundation for targeted interventions and support mechanisms, fostering a proactive approach to enhance the well-being of private teachers in their professional pursuits (Priestley et al., 2021).

Table 4

Descriptive Statistics for Private Teachers' Job Stress

	Job Stress Category	Mean	SD	Verbal Description
Internal	Skill-set	2.51	0.75	Slightly stressful
	Psychological Capital	2.32	0.91	Slightly stressful
	Knowledge	2.38	0.84	Slightly stressful
	Health issues	2.97	0.74	Moderately stressful
	Total	*2.61*	*0.65*	*Moderately stressful*
External	Family and relationship issues	2.11	0.83	Slightly stressful
	Organizational rules	3.19	1.02	Moderately stressful
	Work environment	2.57	0.77	Slightly stressful
	Incentives	3.24	1.04	Moderately stressful
	Total	*2.76*	*0.71*	*Moderately stressful*
Overall job stress		**2.68**	**0.62**	**Moderately stressful**

Note. Data analysis result of the research

Table 5 presents data that comprehensively examines job satisfaction among private teachers, utilizing descriptive statistics to convey mean values, Standard Deviations (SD), and verbal descriptions for distinct job satisfaction categories. These categories encompass diverse aspects of the teaching profession, shedding light on varied insights into private teachers' experiences. Noteworthy findings include high satisfaction levels in school and administration policies, working conditions, the nature of the work itself, and achievements, all falling under the "Satisfied" range. However, there are moderate satisfaction levels in categories like salary and benefits, interpersonal relations, supervision, responsibility, advancement, and recognition, with mean values categorizing them as "Moderately Satisfied." The overall job satisfaction mean of 3.34 indicates a moderate satisfaction level across various facets of private teachers' roles, offering a holistic perspective on their professional contentment (Srivastava et al., 2019). This differentiated analysis provides valuable information for educational policymakers and administrators seeking to understand and enhance the job satisfaction of private teachers (Baroudi et al., 2020). These findings suggest a generally positive perception of the teaching profession among private teachers, with a moderate level of satisfaction (Cheung et al., 2021). The variation in satisfaction levels across categories emphasizes the multidimensionality of job satisfaction, with interpersonal relations, supervision, responsibility, and advancement falling within the "Moderately Satisfied" range (Pollnac et al., 2019). This intricate analysis implies that while private teachers find contentment in several aspects of their work, there exist areas, such as recognition and salary, where satisfaction could be improved (Buonomo et al., 2020). Such insights hold implications for educational administrators and policymakers aiming to enhance teacher well-being, suggesting

targeted interventions to address specific areas of concern (Viac & Fraser, 2020). This differentiated understanding of job satisfaction among private teachers contributes to the ongoing discourse on teacher welfare. It provides a foundation for future research and initiatives to improve educators' satisfaction and work environment (Sato et al., 2023).

Table 5

Descriptive Statistics for Private Teachers' Job Satisfaction

Job satisfaction category	Mean	SD	Verbal description
School and administration policies	3.72	0.79	Satisfied
Working conditions	3.47	0.88	Satisfied
Work itself	3.81	0.77	Satisfied
Achievement	3.78	0.72	Satisfied
Salary and benefits	3.04	0.79	Moderately satisfied
Interpersonal relations	3.31	0.74	Moderately satisfied
Supervision	3.17	1.03	Moderately satisfied
Responsibility	3.10	0.87	Moderately satisfied
Advancement	3.14	0.92	Moderately satisfied
Recognition	2.75	0.92	Moderately satisfied
Total	**3.34**	**0.67**	**Moderately satisfied**

Note. Data analysis result of the research

4.2. Correlation analysis

Table 6 provides the Spearman correlation matrix and unveils the interrelationships between job stress and job satisfaction among private teachers. The matrix indicates the strength and direction of these associations, providing valuable insights for interpretation. Notably, the correlation coefficient between job internal and external stress is highly significant at 1%, with a strong positive correlation of 0.704. This suggests a strong connection between internal and external stressors, indicating that as one type of stress increases, the other also tends to increase. Furthermore, the negative correlation coefficients between job internal stress and job satisfaction (-0.434) and job external stress and job satisfaction (-0.771) are highly significant at the 1% level. These findings suggest an inverse relationship between stress levels (both internal and external) and job satisfaction among private teachers. As job stress intensifies, job satisfaction tends to decrease. This analysis underscores the intricate dynamics between stress and satisfaction in the private teaching profession, providing empirical evidence for addressing and mitigating stressors to enhance overall job satisfaction in educational settings (Persad, 2020). The substantial significance levels lend credibility to these findings, offering a foundation for future research and practical interventions to improve private teachers' well-being (Kun & Gadanecz, 2019). The empirical evidence suggests that as internal and external job stress intensifies, job satisfaction among private teachers decreases (Harish Raj, 2018). This finding holds crucial implications for the well-being of private teachers and highlights the pressing need for interventions addressing stressors to enhance overall job satisfaction (Weiland, 2021). The matrix quantifies these relationships and substantiates them with high statistical significance, providing a strong foundation for future research endeavors (Fan et al., 2023). The findings invite further exploration into the stressors influencing satisfaction and the potential moderating

factors that could mitigate these effects (Singh et al., 2020). Through its rigorous statistical underpinning, this analysis offers valuable insights for educational policymakers, administrators, and researchers seeking to optimize private teachers' working conditions and overall satisfaction (Pedro et al., 2019). The highly significant correlation coefficients underscore the reliability of these findings, positioning them as a pivotal contribution to the ongoing discourse on teacher well-being and the improvement of educational environments (Cardoso-Pulido et al., 2022).

Table 6

Spearman Correlation Matrix for Job Stress and Satisfaction

|	**Job internal stress**	**Job external stress**	**Job satisfaction**
Job internal stress	1.00*	0.704*	-0.434*
	(0.000)	($<$ 0.001)	(0.010)
Job external stress	0.704*	1.00*	-0.771*
	($<$ 0.001)	(0.000)	($<$ 0.001)
Job satisfaction	-0.434*	-0.771*	1.00*
	(0.010)	($<$ 0.001)	(0.000)

Note. * - highly significant at 1% level. Data analysis result of the research

4.3. K-means clustering

From the analysis of the Elbow curve, as shown in Figure 2, it is observed that the curve starts to exhibit an "elbow" at $K = 2$. At this point, the Within-Cluster Sum of Squares (WCSS) rate decreases and slows down, suggesting that two clusters are the optimal number. Similarly, the Silhouette analysis, illustrated in Figure 1, corroborated the findings from the Elbow method. The study indicated that the highest average silhouette score, an impressive 0.39, is achieved when the number of clusters is set at $K = 2$. This substantial score underscores the efficacy of the clustering solution, highlighting well-defined groups with minimal overlap and robust internal cohesion.

Figure 2

Optimal Number of Clusters
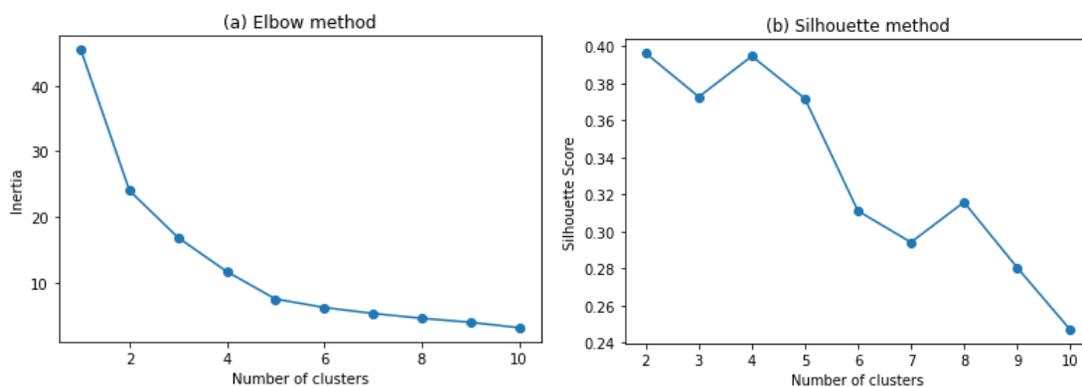
Note. Data analysis result of the research

Table 7 presents the final partition of private teachers based on their levels of job-related stress and job satisfaction, using K-means clustering with two clusters ($K = 2$). In Cluster 0, there are 17 observations, with a WCSS of 8.6618, an average distance of 0.5095 from the centroid, and a maximum distance from the centroid of 1.8365. Cluster 1 also encompasses 17

observations, featuring a WCSS of 15.3151, an average distance of 0.9009 from the centroid, and a maximum distance from the centroid of 5.3961.

Table 7

Final Partition

Cluster	Number of observations	Within cluster sum of squares	Average distance from centroid	Maximum distance from centroid
0	17	8.6618	0.5095	1.8365
1	17	15.3151	0.9009	5.3961

Note. Data analysis result of the research

Table 8 presents the cluster centroids for the variables included in the analysis: job internal stress, job external stress, and job satisfaction of private teachers. These centroids represent the average values of the variables within each cluster. It is revealed that Cluster 0 exhibits high job satisfaction (3.7477) with low levels of both internal job (2.1218) and external stress (2.2780). Conversely, Cluster 1 illustrates the lowest job satisfaction (2.9307) with high job internal stress (03.0787) and job external stress (3.2497). These distinct clusters are visually pictured in the 3D scatter plot, as depicted in Figure 3.
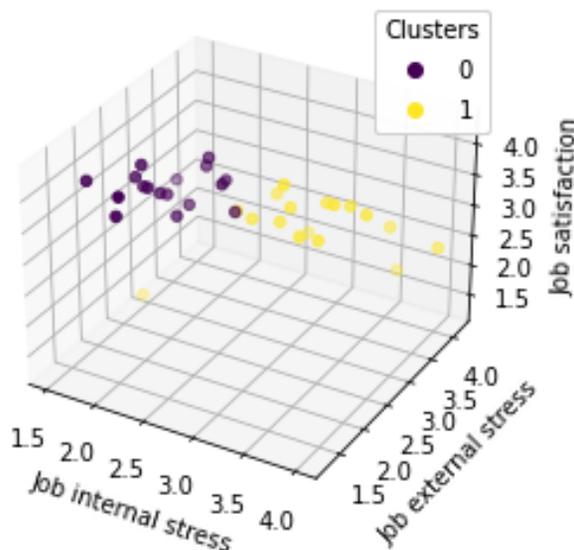
Table 8

Cluster Centroids

Variable	Cluster 0	Cluster 1	Grand Centroid
Job Internal Stress	2.1218	3.0787	2.6002
Job External Stress	2.2780	3.2497	2.7638
Job Satisfaction	3.7477	2.9307	3.3392

Note. Data analysis result of the research

Figure 3

3D Scatter Plot Diagram with associated Cluster

Note. Data analysis result of the research

Table 9 presents the descriptive statistics of the two clusters (0 and 1). In cluster 0, it shows that the private teachers are internally slightly stressed (M = 2.12, SD = 0.25), externally slightly stressed (M = 2.27, SD = 0.58), and satisfied (M = 3.75, SD = 0.38) with their job. This implies that teachers are likelier to be happy with their work assignments if they are not stressed about doing their jobs. This result aligns with Malquisto et al.'s (2023b) findings, which found that teachers are satisfied and well-being if their workloads are doable and do not cause burnout. However, cluster 1 reveals that private teachers are internally moderately stressed (M = 3.08, SD = 0.57), externally moderately stressed (M = 3.25, SD = 0.45), and moderately satisfied (M = 2.93, SD = 0.65). This implies that the satisfaction of private teachers is adversely affected when they are experiencing a stressful nature of work. The study of Toropova et al. (2020) mentioned that the level of job satisfaction is based on the teacher's experiences in their work assignments and conditions. Likewise, Viac and Fraser (2020) portrayed that the satisfaction level of teachers is directly associated with their physical and mental well-being in their jobs. In that case, if teachers are having difficulty and experiencing mental and physical exhaustion at work, they are likelier to have low satisfaction or well-being.

Table 9

Descriptive Statistics of Each Cluster

Cluster	Descriptive Statistics	Job Internal Stress	Job External Stress	Job Satisfaction
0	N		17	
	Min	1.66	1.23	3.00
	Median	2.12	2.31	3.78
	Mean	2.12	2.27	3.75
	Max	2.62	3.31	4.33
	SD	0.25	0.58	0.38
	Interpretation	Slightly stress	Slightly stress	Satisfied
1	N		17	
	Min	1.50	2.70	1.27
	Median	3.21	3.00	3.11
	Mean	3.08	3.25	2.93
	Max	4.02	4.16	3.80
	SD	0.57	0.45	0.65
	Interpretation	Moderately stress	Moderately stress	Moderately satisfied

Note. Data analysis result of the research

5. Conclusions

The main focus of this article is to provide logical insights into the stress and satisfaction of private teachers and their relationships at different levels. Results revealed that private teachers are moderately stressed and satisfied working in their institution. This implies that private teachers are experiencing moderate mental and physical burnout during their work assignments, directly affecting their job satisfaction. Based on the correlation analysis, stress, and satisfaction levels are inversely proportional, indicating that if teachers are stressed, they are unsatisfied with their jobs and vice versa. Also, the correlation analysis depicted that private teachers' internal and external stress are directly proportional, indicating that they are both

internally and externally stressed at moderate levels. The *K*-means clustering analysis has depicted that private teachers can be categorized into two clusters regarding job stress and satisfaction. The first cluster consists of teachers with a slight level of stress and a higher level of satisfaction, and the second cluster is composed of teachers with a moderate level of stress and a moderate level of satisfaction. Hence, teaching in a private school can be stressful due to the demands of workloads, which negatively affects the satisfaction level of teachers. The study suggests that school principals or heads must adjust the work assignment and provide enough compensation and incentives to boost private teachers' satisfaction. As for future research, one may study the work environment of a private school and the teachers' intention to stay at their jobs to supplement the current findings of this study.

NO CONFLICT OF INTEREST STATEMENT

All authors declare that they have no conflict of interest.

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