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## EDITED BY

José Matias Alves,  
Faculdade de Educação e Psicologia da  
Universidade Católica Portuguesa, Portugal

## REVIEWED BY

Maura Pilotti,  
Prince Mohammad bin Fahd University,  
Saudi Arabia  
Gareth Morris,  
The University of Nottingham Ningbo, China

## \*CORRESPONDENCE

Sariakin Sariakin  
✉ sariakin@bbg.ac.id

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# Fostering a productive educational environment: the roles of leadership, management practices, and teacher motivation

Sariakin Sariakin<sup>1\*</sup>, Manovri Yeni<sup>2</sup>, Musliadi Bin Usman<sup>3</sup>,  
Aman Simare Mare<sup>4</sup>, Munzir Munzir<sup>5</sup> and Muhamad Saleh<sup>6</sup>

<sup>1</sup>Department of English Language Teaching, Universitas Bina Bangsa Getsempena, Banda Aceh, Indonesia, <sup>2</sup>Department of Civil Engineering, The Muhammadiyah University of Aceh, Banda Aceh, Indonesia, <sup>3</sup>Department of English Language Teaching, Asian Development for Education and Research Studies, Banda Aceh, Indonesia, <sup>4</sup>Department of Education Management, State University of Medan, Medan, Indonesia, <sup>5</sup>Department of Sports Education, Universitas Bina Bangsa Getsempena, Banda Aceh, Indonesia, <sup>6</sup>Department of Mathematics Education, Universitas Serambi Mekkah, Banda Aceh, Indonesia

This study explores the relationships between Principal's Leadership, School Management Practices, Teacher Motivation, and Teacher Performance. This study uses a quantitative methodology and takes the form of the questionnaires as the data collection instrument. The teacher served as the focus of this investigation, while the leadership and administration skills of junior high school principals served as the study's target. This study employed using Smart Partial Least Squares (PLS) to analyze how these factors interact and influence educational outcomes. The research employed Smart PLS to model and evaluate the complex relationships between these variables, highlighting the significant roles of leadership and management in shaping teacher effectiveness and overall school performance. The findings reveal that Principal's Leadership significantly enhances both Teacher Motivation and Teacher Performance, underscoring the critical role of effective leadership in inspiring and improving teacher performance. In contrast, School Management Practices were found to significantly impact Teacher Performance but did not significantly affect Teacher Motivation, suggesting that management practices alone may be insufficient to boost motivation levels among teachers. Teacher Motivation was identified as a key driver of Teacher Performance, emphasizing that motivated teachers are more likely to perform at higher levels. The study advocates for a comprehensive approach that integrates strong leadership, effective management practices, and targeted strategies to enhance teacher motivation and performance. The research provides valuable insights and guidance for educators and administrators aiming to foster a productive educational environment.

## KEYWORDS

teacher performance, principal leadership, teacher motivation, school management, educational environment

## 1 Introduction

### 1.1 Education in Indonesia and Aceh

Education in Indonesia is greatly influenced by diverse geographical conditions, covering thousands of islands, mountainous areas, forests, and remote islands (Astari et al., 2024; Amin and Hermanto, 2022). Urban areas such as Java Island have better access to education due to the availability of infrastructure, technology, and qualified educators. In contrast, remote areas

in eastern Indonesia face access challenges due to difficult transportation and lack of educational facilities. To reduce this gap, the government launched programs such as scholarships for disadvantaged areas and the construction of distance schools (Harahap et al., 2024; Idris and Suroto, 2023). The leadership of educational institutions in Aceh is a strategic factor in answering geographical challenges. In urban areas such as Banda Aceh, leadership can focus more on technology integration and curriculum innovation. Meanwhile, in inland areas, school principals are required to overcome the limitations of facilities by building collaboration networks, finding creative solutions to transportation constraints, and motivating teachers to be willing to work in remote areas. Leadership that is adaptive to local needs is the key to success.

In Aceh, education has unique characteristics that are influenced by a history of conflicts, natural disasters, and a strong Islamic culture. The post-tsunami reconstruction of 2004 brought significant progress in educational infrastructure, especially in Banda Aceh as a major education center (Mujiburrahman, 2012). However, inland areas still face limitations in access to educational facilities. Religion-based education is a characteristic in Aceh, where educators play an important role in educating the community. However, challenges such as teacher distribution, limited infrastructure, and uneven Internet access are still major concerns.

In the geographical context, Aceh Besar Regency has a strategic position to support the development of a productive educational environment. The district is directly adjacent to Banda Aceh City, the center of education in Aceh province, as well as covering rural and coastal areas that present different challenges. Urban areas in Aceh Besar can take advantage of their proximity to Banda Aceh to support educational development, while rural and coastal areas need more attention in terms of resource distribution and infrastructure development. A combination of local strategies and national support is a way to improve the quality of education evenly throughout Aceh.

## 1.2 The importance of the role of teachers and challenges in improving the quality of education

Teachers play a central role in determining the success of education (Alvaré, 2018), both in the context of Indonesia in general and in Aceh. As agents of change, teachers not only transfer knowledge but also shape the character and skills needed by students to thrive in society. In Aceh, where education is heavily influenced by geographical, cultural, and social factors, teachers have a greater responsibility in bridging the various challenges that exist. One of the key tactics believed to be effective is the use of evidence to encourage experimentation and teamwork (Ainscow, 2023). According to Indonesian Government Regulation Number 74 of 2008, the main responsibility of teachers includes educating, teaching, guiding, training, assessing, and evaluating students based on formal education levels. To become a professional teacher, criteria such as teaching talent, deep expertise, mental and physical health, and extensive experience are required. However, the quality of teachers at various levels of education is still a major challenge that affects the overall quality of education. The relationship between low teacher quality and low student educational outcomes reflects a stagnant education system that is difficult to adapt to reform.

In addition, the leadership factor of the school principal who is less innovative also worsens the situation. Therefore, it is important to recruit and retain high-performing teachers who have a high attitude of discipline, responsibility, and dedication to their work. Professional teachers must have talent as educators, expertise as teachers, superior and integrated competencies, healthy mentality, physical fitness, and extensive experience and knowledge (Rechsteiner et al., 2022). Various trainings, upskilling programs, and teacher certifications will continue to support this initiative. A teacher who performs well must have a positive attitude toward his work, such as being disciplined, maintaining the quality of his work, being responsible, and having high dedication (Yada et al., 2021).

The improvement of teacher performance is influenced by several key factors. Continuous professional development, supportive leadership, and access to adequate resources enable teachers to enhance their skills and effectiveness (Iqbal and Ali, 2024). Additionally by Harris and Muisj (2005), motivation, job satisfaction, collaboration with peers, and constructive feedback from students contribute significantly to improving teaching practices. Reflective practices also play an important role, allowing teachers to assess and adapt their methods for better outcomes. Together, these factors create an environment that fosters growth, engagement, and continuous improvement in teaching. It is important to find solutions so that the challenge of improving the quality of education, especially at the junior high school level in Aceh Besar, can be overcome immediately. This study highlights that one of the keys to improving the quality of education is to increase the efficiency and effectiveness of teachers through the support of school principals and good education management.

## 1.3 School-based education reform

Education reform in Indonesia aims to shift the education quality management system from a centralized approach to a school-based system (Jihan et al., 2023). This approach prioritizes autonomy and democratic decision-making, which allows principals and administrators to make optimal use of available resources. In this system, school principals are expected to be able to function as effective leaders and managers by emphasizing efficiency, productivity, and creativity in education management. The goal of education reform is to move from a centralized quality management system to school-based quality control. The School-Based Quality Improvement Management System, which aims to improve educational standards, is based on autonomy and democratic decision-making (Rini et al., 2020).

The success of the implementation of this reform depends on the active participation of school principals, teachers, administrators, parents, and the community (Zamili, 2021). In addition, education supervisors need to adopt new practices and attitudes that support the success of these programs. School principals who have good managerial skills are expected to improve the quality of education through efficient and effective resource management, as well as provide inspiration and direction for educators. This understanding suggests that schools have greater authority to manage themselves because they are more aware of the strengths, weaknesses, opportunities, and threats they have, so that they can utilize the resources available to improve their schools (Pont et al., 2008).

Principals, teachers, administrators, parents, and community members must attend, understand, and be involved in its implementation (Rechsteiner et al., 2022). Furthermore, for implementation in schools to be successful, supervisors who conduct monitoring and evaluation must change their behavior and practices (Moreno-Casado et al., 2022).

## 1.4 The relationship between principal leadership and teacher effectiveness

In the implementation of educational administration, school principals must consider efficiency, effectiveness, productivity, and creativity. Improving the quality of educational institutions is essential, with a focus on the effectiveness of inputs, the quality of human resources related to the structure, and management efficiency. These factors continue to affect the quality produced. The managerial ability of the principal must be improved to improve the quality of school education and get the necessary support (Schott et al., 2020). Therefore, the principal must be able to carry out his duties and responsibilities to the best of his ability and play his role as a leader and manager accordingly. In addition, the school itself acts as a catalyst for change, meaning that the principal, if he wants the school he manages to be more successful, must first be aware of this fact and then work to improve his ability to implement change (Shen et al., 2020).

Principal effectiveness is one of the important features, and there is a direct link between effective principal leadership and management and overall teacher performance improvement (Denston et al., 2022). Teacher effectiveness includes several indicators, such as the quality of the learning process, the effectiveness and efficiency of learning, the development of professionalism, innovation, productivity in educational activities, professional ethics, and involvement in work. Meanwhile, the leadership performance of school principals is measured based on their ability to provide influence, empowerment, mobility, inspiration, leadership, and commitment to transparent, independent, collaborative, and sustainable management development.

The main focus of this study is the correlation between school principals, management performance, and teacher effectiveness. Performance as a teacher includes characteristics such as the quality of the learning process, effectiveness and efficiency of learning, professional development and teaching innovation, productivity in education, writing, *service learning*, professional ethics, and work engagement. The principal's leadership performance includes his or her functions and duties in elaborating, professionalism, empowerment, mobility, inspiration, leadership, and teaching, as well as developing a commitment to high-level management performance in terms of openness, independence, cooperation, accountability, and sustainability.

## 2 Literature review

The term "teacher performance" refers to the level of work (Merle et al., 2022). In terms of quality and quantity, a teacher produces as a direct result of leadership and management. The school principal provides in order for the school as a whole to meet its objectives. The quality of the school is directly correlated to the quality of the teachers

and the principal's leadership. The principal's role in fostering a positive school culture is crucial for influencing climate, boosting teacher collaboration, and improving student outcomes through trust, respect, and growth. The teacher's primary responsibility is to instruct and direct pupils toward successful student learning; additional duties include community service and research (de Jong et al., 2022).

Meanwhile, the teaching process's quality is a picture of the results of the teacher's implementation of learning activities about the primary job he is carrying out. The case since the learning activities are related to the main task demonstrates how focused and relevant instructional strategies enhance student engagement and support the achievement of learning objectives. The educator's capacity to devise effective instructional plans is a critical factor in determining the level of student achievement (Locke et al., 2021). Alternately, they carry out practice in the form of lesson units, present the program, carry out learning or practice evaluations, compile and implement improvements and enrichment, and maintain discipline while completing their assignments. The degree to which learning goals are accomplished is referred to as learning effectiveness. This efficacy can be shown in several ways, including the fact that students can readily absorb the teachings taught by their teachers, that an improvement in student accomplishment is possible, and that teachers can apply appropriate learning methods. The term "learning efficiency" refers to a comparison between the input and output of the learning process (Yada et al., 2021). This comparison can be seen in savings, effort, time, and costs the instructor experiences when learning to attain the best possible results. This efficiency is characterized by the teacher's capacity to choose the proper means of presenting learning content, students' capacity for lessons, the achievement of subject matter completion after the semester, and efficient use of learning time (Woodcock et al., 2022).

Acquiring a bachelor's degree and being as a model educator are two indicators of success in education and teaching fields. They direct the learning process or practice of other teachers, designing a grid of questions, compiling questions, overseeing and examining final exams, and encouraging innovation in the classroom (de Jong et al., 2022). Making papers on the outcomes of studies or research, presenting papers at scientific discussion events, making textbooks or modules, and translating textbooks that are valuable for education are all indicators of a teacher's productivity in the domain of research. As a comparison, productivity in community service comprises teachers upgrading or teaching-learning packages to the community, teachers being engaged in social events, and instructors being active in religious activities organized by the community (Gullo and Beachum, 2020).

Professional attitude can be defined as the complete sense of individual derives from their employment, the workgroups they belong to, the leaders they report to, the organizations they are a part of, and their surrounding environment. Morality is concerned with people's wellbeing, pleasure, and satisfaction (Mlambo et al., 2020). As a result, good awareness among teachers of their obligations is one of the markers of work morale related to the impact of the principal's managerial abilities. The devotion to the principal is typically favorable, and the work discipline is exemplified by consistent classroom attendance and a high level of motivation among the teaching staff (Oeschger et al., 2022).

Leadership is essential not only in professional settings but also in academic settings like student organizations (Díez et al., 2020). Because of the many different groups that make up the school, it is

often called an organization. Gunn and McRae (2021) stated that there are aspects of human groups that collaborate to accomplish objectives, in this case, educational objectives. The principal, the teaching group, the employee group, and the student group are all components of the human group that function cohesively within the educational institution's context. Various categories can be used to classify cooperative connections within school, such as "a person or people who are responsible or assigned the responsibility of leading the principal" (Sharar and Nawab, 2020). As a result, school leadership is the result of a relationship between the principal as the person responsible for leading and groupings of teachers, administrative staff, parents, and students, the group being led (Collier et al., 2022).

In order to make the idea of principle Leadership clear, we are going to define the concept of Leadership as well as its various theories, processes, and types. Characteristics, personal conduct, influence on others, patterns of interaction, and cooperative relationships across roles contribute to effective leadership from an administrative perspective, these factors, along with the processes and others' judgments of the legitimacy of influence, shape how authority and leadership are perceived and enacted within the organization. Leadership is "an attempt that uses a leadership approach to influence rather than coerce individuals to achieve goals." In addition, Leadership can be defined as "the ability to persuade people or organizations to achieve goals" (Díez et al., 2020). Therefore, Leadership is how an individual employs a leadership style to exert influence over the activities of group members to achieve shared objectives.

According to the findings of this research, the concept of Leadership emphasizes the functions and duties of a leader. Those functions and duties are predicated on the principal's ability to influence and motivate the people he leads (the teachers) toward accomplishing school goals. The primary difficulty associated with Leadership may be broken down into three questions; What makes a leader effective? How a person becomes a leader? Furthermore, how a leader behaves? Studying leadership theory can be done using one of four techniques which are transactional and transformative leadership approach, correlation with leadership outcomes, evolution of leadership methodology, and correlation between leadership style and outcomes (Buckner et al., 2016) depending on which of these three issues is being asked: the authority influence approach, the situational approach.

This approach views the success of Leadership as sourced from the authority or power that exists in a leader. A leader's sources of authority or power come from reward power, position, or formal position of a leader (Brevik et al., 2019). With this positional power, a leader has that causes the willingness of subordinates to be loyal and willing to carry out the orders and wishes of the principal. Therefore, positional power gives rise to legitimacy power, coercive power, and reward power. At the same time, personal power or power is the influence that arises from a leader because he has personal characteristics, exemplary, and the expertise of the principal. This personal power gives birth to the referent and expert power (Iordăchescu, 2013). A leader, even though he has power (both positional and personal power), is not automatically able to influence subordinates if he cannot use it in his leadership process by considering the existing situation. Influencing subordinates can be done by giving instrumental compliance or imposing specific rules means the leader uses reward and coercive power on his subordinates. It means the leader uses expert power and identification or

identification of subordinates, which means the leader uses referent power.

This approach uses reference to personal traits and authority, described in terms of "patterns of activity," "roles of managers," or "categories of behavior" (Melgaard et al., 2021). With their nature and authority, a leader carries out the leadership process in various ways to form effective leadership. The purpose of this behavioral approach is to determine behavior related to effective Leadership. Thus, if the effective of a leader is obtained, then they will also be effective in any situation. This behavioral approach also emphasizes two leadership styles: task-oriented and employee-oriented (Bøe et al., 2022).

In connection with the leadership behavior above, put forward a three-dimensional theory of leadership behavior based on two essential components: task-oriented behavior and relationship-oriented behavior. To assess leadership abilities in education seeking to raise them to the level of other groups, leadership can be used to explain why a leader succeeds well in certain situations but not in others (Shen et al., 2021). In addition, it is very important for someone with a strong sense of charisma and relying on it to avoid adopting inappropriate leadership approaches in unfamiliar situations. The behavior of a leader has a working relationship that is personal and is characterized by mutual trust, respect for the ideas of subordinates, and tolerance for the role of his subordinates. The ability of the principal to influence, encourage, guide, direct, and mobilize other related parties, such as teachers, staff, students, and the parents of students, to work toward the accomplishment of the goals that have been established is an example of the principal's ability to exercise Leadership (Romijn et al., 2021).

According to what has been learned above, the Leadership of the principal discussed in this research is the principal's capacity to do the responsibilities associated with a duties leader, which is supported by the principal's leadership (Kontaş and Demir, 2015). School leaders have the following roles: those functions are those related to the objectives that are to be accomplished, those functions are those related to directing the execution of each activity, and those functions are those related to establishing an atmosphere at work (See, 2014). The first function suggests that the main assists groups (subordinates) in considering, selecting, and formulating their goals. The second function suggests that the principal is connected to the leader's operations to drive the group toward satisfying the o requirements. The third function means that school principals should be able to create an environment conducive to work, generate enthusiasm for work for anyone involved in the process of collaboration, increase work productivity, and obtain job satisfaction by employing the appropriate style of leadership.

The principal's ability to manage is to refer the principal's ability to apply management inputs by executing management tasks, such as organizing, arranging, supervising, managing, and reviewing to effectively and efficiently control human capital and other resources to achieve school goals (Masari and Petrovici, 2014). This ability to manage demonstrates that the principal performs the duties of a manager. Using all organizational resources and accomplishing organizational goals are three significant facets connected to the principal's role as a manager that is vital to consider (Petrovici, 2014). The procedure entails carrying out an activity in a methodical manner. The term "process" in this context refers to the usage of management inputs that the school principal must carry out. The usage of school resources includes cash, equipment, information, and human resources. The term "goal achievement" refers to the accomplishment of one or more desired ultimate goals effectively and efficiently (Reinius et al., 2022). As a result, the administrative capacity of the



principal consists of the implementation of planning, coordinating, monitoring, and evaluating educational resources to meet the school goals specified.

### 3 Method

This study uses a quantitative methodology and takes the form of a survey. The teacher served as the focus of this investigation, while the leadership and administration skills of junior high school principals served as the study's target. This study employs survey research.

#### 3.1 Population and sample

The population of this study comprises all educators and principals of middle schools, totaling 119 individuals. The sample was taken using proportional random sampling. The researcher selects individuals who have had their numbers influenced to reflect the proportion of subject members in each group from each category in the population (Table 1). The characteristics of the study population can be described as follows:

The data in this study comprise secondary and primary data. Secondary data refer to sources that do not directly provide information for data collection. The utilization of secondary data serves as a support for obtaining performance data from related research articles, websites, and organizational documents (Sugiyono, 2019). Therefore, the researcher concludes that secondary data are additional information necessary for research purposes. Furthermore, primary data are data collected directly from the original source (Kothari, 2013). The data were collected using a questionnaire. The research questionnaire was interval data of the Rating Scale model.

#### 3.2 Operational variables

Principal's Leadership and School Management Practices are effective leadership which fosters a supportive and inspiring work environment, while sound management practices provide structure and resources, both of which are theoretically linked to enhanced teacher motivation through increased job satisfaction and engagement (Nir and Kranot, 2006). While teacher motivation drives individuals to achieve goals, it is supported by empirical studies that link both intrinsic and extrinsic motivation to improved performance outcomes in educational contexts, fostering a more engaged and effective teaching environment (Han and Yin, 2016). On the another side, teacher performance, Leadership provides direction and vision, while management ensures operational efficiency, both of which are critical for creating an environment where teachers can perform effectively (Andriani et al., 2018). This linkage is grounded in organizational

behavior theories that emphasize the interplay between leadership, management, and employee performance.

#### 3.3 Research variables

The research variables are described descriptively and correlatively. Variables are used in this study, including independent variables and dependent variables (Figure 1).

- Principal's Leadership (X1): This independent variable represents the leadership style and actions of the school principal. It directly influences both teacher motivation and teacher performance.
- School Management Practices (X2): This independent variable encompasses the strategies and practices used by the principal to manage the school. It also has a direct impact on teacher motivation and teacher performance.
- Teacher Motivation (Z): This mediating variable reflects the level of motivation among teachers, which is influenced by the principal's leadership and management practices. Teacher motivation, in turn, impacts teacher performance.
- Teacher Performance (Y): This dependent variable represents the overall effectiveness and performance of teachers in their roles. It is influenced directly by principal's leadership, school management practices, and indirectly through teacher motivation.

#### 3.4 Research question

- Do the Principal's Leadership and School Management Practices both influence Teacher Motivation?
- Does the Teacher Motivation influence to Teacher Performance?
- Do the Principal's Leadership and School Management Practices effects on Teacher Performance?

#### 3.5 Hypotheses

- Principal's Leadership and School Management Practices both influence Teacher Motivation.
- Teacher Motivation influenced to Teacher Performance.
- Principal's Leadership and School Management Practices effects on Teacher Performance.

This analysis is performed to discover the relationship model and the extent of influence of each independent variable on the dependent variable teacher performance (Table 2).

## 4 Results

#### 4.1 Demographics respondent

The participants were also categorized based on their highest level of education. Among the male participants (42 total), the majority, 37, hold a Bachelor's degree, and only 5 have a Master's degree. On the other hand, among the female participants (77 total), 60 have a Bachelor's degree, and 17 have a Master's degree. While both male and female participants

TABLE 1 Characteristics of the research sample.

Sex		Education background	
M	F	Bachelor	Master
42	77	97	22

Source: Data analysis (2024).

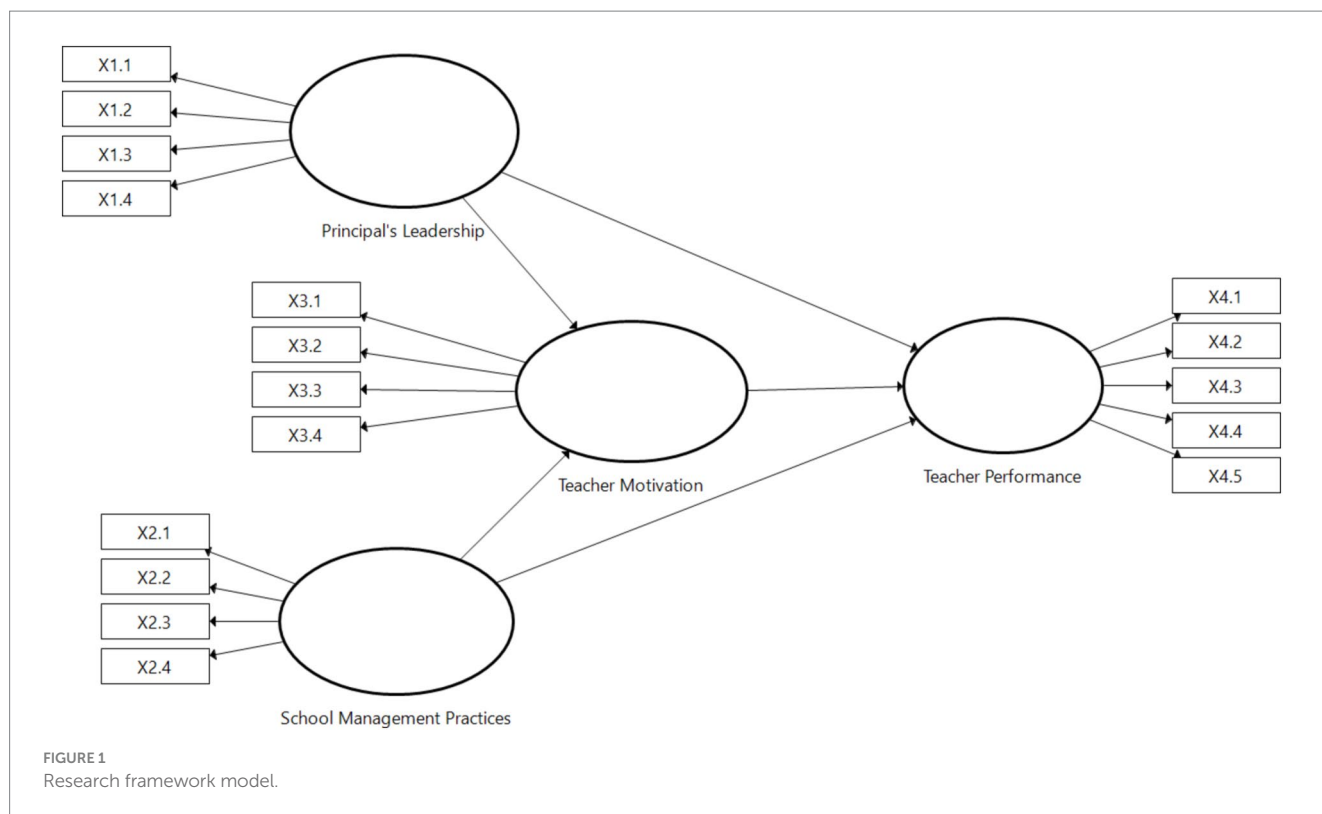


TABLE 2 Variables and aspects of questionnaire.

Variable	Aspects	Indicator
Principal's leadership	Innovation, and community service, professional attitude, monitoring	1–4
School management practices	Vision, mission transformation, empowerment, developing a commitment, planning	5–8
Teacher motivation	Rewards, promotion, confession	9–13
Teacher performances	Organizing, coordinating, evaluation, creativity	14–17

Source: Data analysis (2024).

predominantly hold a Bachelor's degree, a higher proportion of female participants (approximately 22%) possess a Master's degree compared to male participants (approximately 12%). The data show that the number of female participants (77) is higher compared to male participants (42). This indicates a significant gender disparity, with female participants making up a larger portion of the research sample. This disparity may suggest that female participants are more likely to participate in this study, or there could be certain factors influencing the gender distribution in the context of the study's focus. Some factors that may play a role include social roles, the level of female participation in the field being researched, or even a higher level of interest among females in the topic addressed in this study (Figure 2).

### 4.2 Reliability and validity

The reliability and validity of the constructs in this study are well-supported by the data, as demonstrated in Table 3. This means that the instruments used to collect data are both consistent (reliable) and accurately measure what they are intended to measure (valid). The validity and reliability testing ensures the credibility of the research findings and confirms that the conclusions drawn are based on sound data.

The variable Principal's Leadership demonstrates good reliability and validity, with a Cronbach's alpha of 0.789, composite reliability of 0.864, and an average variance extracted (AVE) of 0.614, indicating that the items used to measure this construct are consistent and capture a substantial amount of variance. School Management Practices stands out with the highest reliability and validity metrics, evidenced by a Cronbach's alpha of 0.891, composite reliability of 0.926, and an AVE of 0.758, showing that this construct is particularly strong in both consistency and explanatory power. Similarly, Teacher Motivation shows robust reliability and validity, with a Cronbach's alpha of 0.872, composite reliability of 0.913, and an AVE of 0.724, affirming the quality of its measurement. While Teacher Performance has slightly lower values, it still meets the acceptable criteria, with a Cronbach's alpha of 0.780, composite reliability of 0.852, and an AVE of 0.543, indicating that it is a reliable and valid measure. Overall, the results indicate that the measurement model used in this study is reliable and valid across all constructs, ensuring confidence in the findings.

### 4.3 Discriminant validity

The discriminant validity assessment for the variables in the study was conducted using the Fornell-Larcker criterion, as presented in

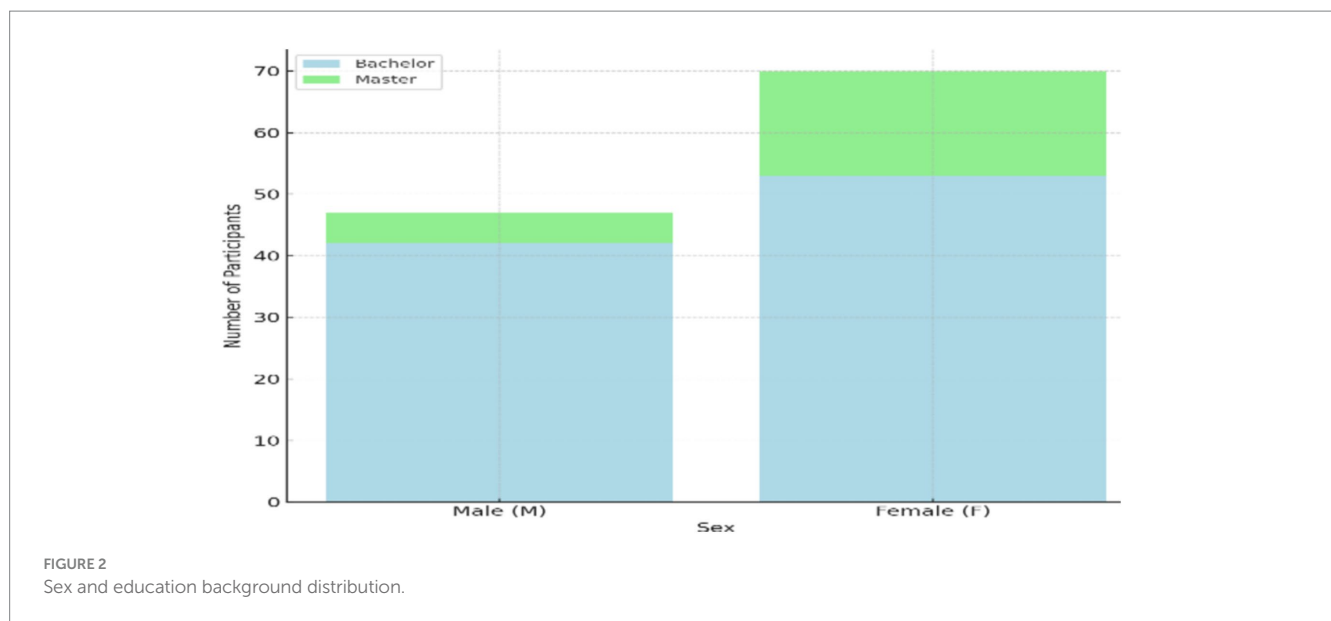


TABLE 3 Reliability and validity.

Variable	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Principal's leadership	0.789	0.864	0.614
School management practices	0.891	0.926	0.758
Teacher motivation	0.872	0.913	0.724
Teacher performance	0.780	0.852	0.543

Source: Data analysis (2024).

**Table 4.** This method compares the square root of the average variance extracted (AVE) for each construct with the correlations between constructs to ensure that each variable is distinct and not highly correlated with others.

Discriminant validity is confirmed when the square root of the average variance extracted (AVE) for each construct (diagonal values) is greater than the correlations between that construct and the others (off-diagonal values). Principal's Leadership has a square root of AVE of 0.784, which is higher than its correlations with other variables, indicating good discriminant validity. School Management Practices shows a square root of AVE of 0.871, which is also higher than its correlations with other constructs, confirming strong discriminant validity. Teacher Motivation has a square root of AVE of 0.851, surpassing its correlations with other variables, thus maintaining discriminant validity. Teacher Performance has a square root of AVE of 0.737, which, while slightly lower than some of its correlations, still generally supports discriminant validity. The discriminant validity for the constructs is generally acceptable, though some correlations, particularly between Teacher Performance and other variables, are relatively high, suggesting some overlap that may need further exploration.

### 4.4 Direct effect

After conducting the validity and reliability tests, the next step involves presenting the research findings on the direct effects. The analysis of direct effects provides insight into the relationships between

key variables in the study, highlighting how certain factors directly influence others. By examining the mean coefficients, *T*-values, and *p*-values, the study evaluates the strength and significance of these direct relationships, offering a deeper understanding of the dynamics at play between Principal's Leadership, School Management Practices, Teacher Motivation, and Teacher Performance (Table 5).

The analysis of direct effects in the study reveals several significant relationships between the variables. Principal's Leadership positively influences Teacher Motivation with a significant mean coefficient of 0.422, a *T*-value of 2.317, and a *p*-value of 0.021, indicating that strong leadership is crucial in motivating teachers (Figure 3).

In addition, Principal's Leadership has a significant positive impact on Teacher Performance, with a mean coefficient of 0.388, a *T*-value of 3.242, and a *p*-value of 0.001, suggesting that effective leadership directly enhances teacher performance.

In contrast, the relationship between School Management Practices to Teacher Motivation is not significant, as evidenced by a mean coefficient of 0.164, a *T*-value of 0.925, and a *p*-value of 0.356. This finding implies that, within this study, school management practices alone may not be sufficient to significantly boost teacher motivation. However, School Management Practices do have a significant positive effect on Teacher Performance, with a mean coefficient of 0.537, a *T*-value of 4.133, and a *p*-value of 0.000, highlighting the importance of effective management in improving teacher performance (Figure 4).

Finally, Teacher Motivation significantly contributes to Teacher Performance, as indicated by a mean coefficient of 0.144, a *T*-value of

TABLE 4 Discriminant validity results.

Variable	Principal's leadership	School management practices	Teacher motivation	Teacher performance
Principal's leadership	0.784			
School management practices	0.836	0.871		
Teacher motivation	0.553	0.515	0.851	
Teacher performance	0.839	0.859	0.586	0.737

Source: Data analysis (2024).

TABLE 5 Result analysis of direct effects.

Variable	Mean	STDEV	T-values	p-values	Confirm
Principal's leadership > teacher motivation	0.422	0.176	2.317	0.021	Accepted
Principal's leadership > teacher performance	0.388	0.124	3.242	0.001	Accepted
School management practices > teacher motivation	0.164	0.187	0.925	0.356	Rejected
School management practices > teacher performance	0.537	0.126	4.133	0.000	Accepted
Teacher motivation > teacher performance	0.144	0.057	2.423	0.016	Accepted

Source: Data analysis (2024).

2.423, and a  $p$ -value of 0.016, emphasizing that motivated teachers are more likely to perform better. Overall, the results underscore the pivotal roles of Principal's Leadership and School Management Practices in enhancing teacher performance, while also recognizing the importance of teacher motivation in achieving optimal performance.

## 5 Discussion

The findings highlight the critical role of Principal's Leadership in directly enhancing both Teacher Motivation and Teacher Performance, underscoring the need for strong and effective leadership in schools. Similarly, School Management Practices significantly contribute to Teacher Performance, demonstrating the importance of structured and efficient management systems. However, their lack of influence on Teacher Motivation indicates a potential gap in addressing motivational aspects through management practices. Teacher Motivation has a smaller but significant positive impact on Teacher Performance, suggesting it serves as an important but secondary factor. This highlights the need for schools to integrate motivational strategies within leadership and management frameworks to maximize teacher performance outcomes.

Principal's Leadership plays a direct role in improving teacher performance. This finding is similar to that found by [Pardosi and Utari \(2022\)](#), whose study results indicate that principal leadership behaviors, analyzed through the dimensions of leadership and follower relations, task structure, and leadership positions, were highly effective. This implies that, beyond motivating teachers, strong leadership also directly influences how effectively teachers perform their duties. This implies that beyond motivating teachers, strong leadership also directly influences how effectively teachers perform their duties. These results are also supported by [Rahman et al. \(2020\)](#), whose study demonstrates that school principal leadership, teacher performance, and internal quality assurance methods significantly improve educational quality.

Principals who lead with clarity, purpose, and support can positively impact the quality of teaching, ultimately benefiting the entire school community. Conversely, the correlation between School

Management Practices and Teacher Motivation appears to be less significant. Based on the result of [Abidogun \(2023\)](#), which states that there is no significant difference between teachers' motivation and job performance, this hypothesis is rejected. The findings suggest that teachers' motivation does have an impact on their job performance, contrary to the assertion made in the previous study. The ability to conduct in a specific manner is based on the energy of the expectation that the act would be followed by a specified outcome at the brilliance of the outcome to an individual. The concept argues that instructors will be driven to deliver their best if they believe that productivity will result in the desired outcome. Expanded effort will result in increased overall performance. This implies that gratification from the initial effort must be efficaciously stunning or equitable to make the time worthwhile.

This suggests that although the teachers generally perceived themselves as having a relatively high level of autonomous motivation, some of their motivational reasons for engaging in teaching were externally controlled ([Irnidayanti et al., 2020](#)). Management practices, while important, may not be the primary driver of teacher motivation in this context. Other elements, possibly including leadership, personal incentives, or external factors, might be more influential in motivating teachers to perform at their best. School Management Practices significantly affect Teacher Performance. Well-structured management practices that provide clear expectations, support, and resources are crucial for ensuring that teachers can perform at their highest potential.

Teacher Motivation itself is a significant contributor to Teacher Performance. When teachers are motivated, they are more likely to engage fully with their work, exhibit greater commitment, and achieve higher performance levels. This underscores the importance of fostering a motivating environment as motivated teachers are key to achieving better educational outcomes. This highlights the importance of effective management practices in creating an environment where teachers can thrive and perform their roles efficiently. In line with [Hans and Hans \(2017\)](#) create routines for entering the gym or outdoor play area, setting up equipment, starting games, putting equipment away, and exiting the class. As suggested by [Nachshoni \(2024\)](#) most principals responded by encouraging teachers to enhance motivation, having



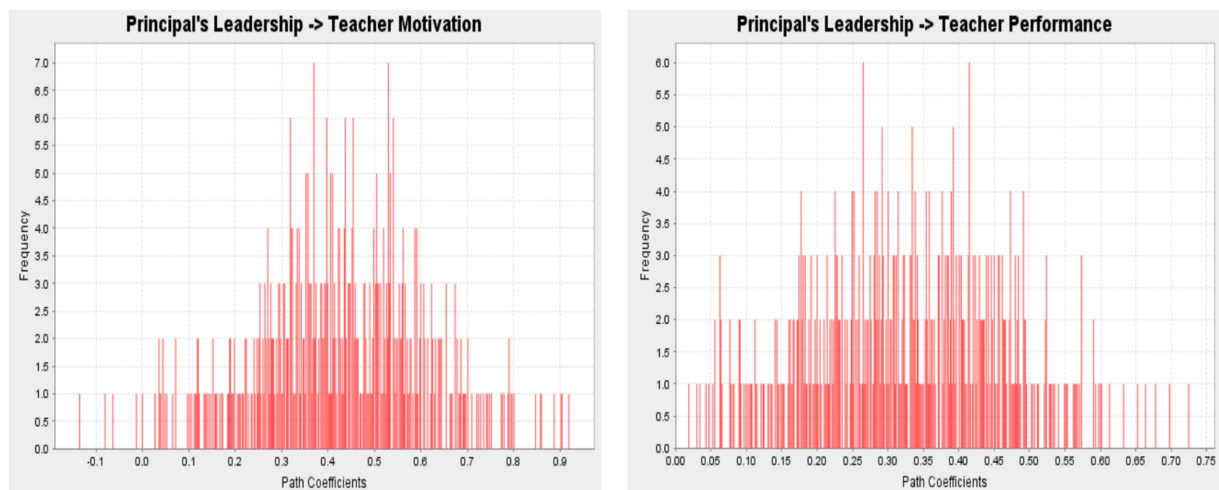


FIGURE 3  
Graphic of the effect principal leadership.

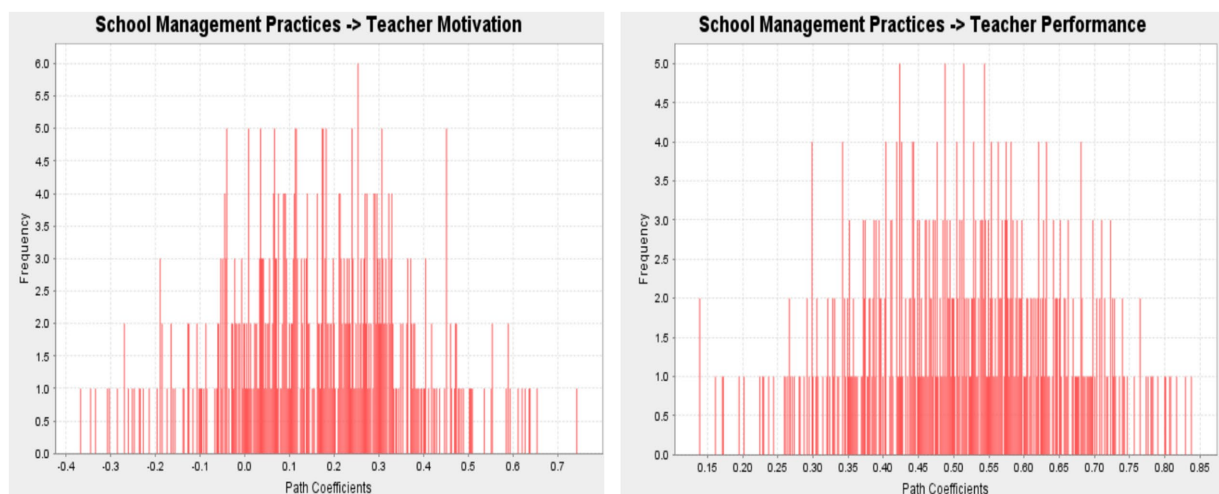


FIGURE 4  
Graphic of the school management practices.

motivational conversations, lending an ear, and offering aid as required. Our goal is to foster positive relationships with teachers, empower them to take initiative and achieve success, and motivate them to come to school with enthusiasm. Allow instructors to pursue their ambitions and offer funding for those who think beyond the box. Motivation, in the perspective of the principal, is a crucial and required driving factor for renewal, to motivate people to come to work with enthusiasm in order to achieve self-actualization, to allow children to express their abilities, to foster a positive and enjoyable environment in educational activities, and to provide them with freedom of action.

The study emphasizes the critical roles that both Principal's Leadership and School Management Practices play in enhancing teacher performance. While leadership is crucial for both motivating teachers and improving their performance, management practices primarily impact performance. This result is found in line with the suggestion by Akhtar and Akhtar (2024). High leadership qualities may enhance teacher effectiveness, while low leadership qualities

may have the reverse impact (most participants agreed). This distinction is important for educational administrators to consider when devising strategies to enhance teacher outcomes. In addition, the significance of Teacher Motivation in driving performance highlights the need for schools to invest in initiatives that boost motivation. Whether through professional development, recognition programs, or fostering a supportive work environment, motivated teachers are essential to a successful educational experience.

The principal's leadership style has an impact on teachers' perceptions of their profession, their willingness to actively engage, and teachers' initiatives related to teaching. This also influences positive perceptions of their profession and teachers' initiatives related to teaching (Berhanu, 2023). Schools with higher levels of instructional leadership will have better teacher performance, commitment to the school, teaching jobs, and teaching groups (Wasserman et al., 2016). Pedagogical leadership is positively related to teacher commitment, which enhances job performance. Pedagogical leadership is a protective factor that

indirectly influences the teacher's job performance index through commitment. Teacher performance is supported by school principal leadership (Jelagat Yego et al., 2020). This research indicates that leadership and performance management are related to teacher performance. The management performance of the school principal stands out more than the leadership performance of the school principal. Leadership and performance management are two essential aspects in managing teacher performance in a school. Effective leadership enables the school principal to inspire, guide, and provide direction to teachers in achieving the school's goals together. This involves the ability to motivate, support, and facilitate the professional development of teachers, as well as creating a positive and collaborative work environment.

In summary, the study suggests that a holistic approach, combining strong leadership, effective management, and targeted efforts to enhance teacher motivation, is vital for improving teacher performance. By addressing these areas, schools can create a supportive environment that not only nurtures teachers' professional growth but also leads to better outcomes for students. The leadership of a principal can have a significant impact on teacher performance. An effective principal is able to provide appropriate support, clear guidance, and incentives that motivate teachers to improve their performance. There is a significant relationship between the leadership of the principal and teacher performance (Kaso et al., 2019). The leadership of the principal plays a role in shaping a school culture that supports the growth and professional development of teachers. An inclusive culture, result-oriented, and supportive of collaboration among teachers can enhance overall performance.

## 6 Conclusion

This study delves into the direct effects among Principal's Leadership, School Management Practices, Teacher Motivation, and Teacher Performance, offering key insights into how these factors interrelate and influence each other. Understanding these relationships is crucial for educational leaders aiming to optimize teacher performance and overall school success. The findings indicate that Principal's Leadership significantly enhances both Teacher Motivation and Teacher Performance. Effective leadership is essential in motivating teachers, fostering a positive work environment where teachers feel inspired and engaged. This relationship suggests that when principals exhibit strong leadership qualities, it directly translates into higher levels of motivation among teachers, which is vital for creating an energetic and productive educational setting.

The study provides valuable insights into the relationships between Principal's Leadership, School Management Practices, Teacher Motivation, and Teacher Performance. By examining how these variables interact, the research highlights key factors that influence teacher effectiveness and overall school performance. The findings underscore the critical roles of leadership and management in shaping teacher outcomes and offer guidance on optimizing these aspects to foster a more productive educational environment. Key findings include the following:

- 1 Principal's Leadership significantly enhances both Teacher Motivation and Teacher Performance. Effective leadership is crucial for inspiring teachers and improving their performance.
- 2 School Management Practices positively impact Teacher Performance but do not significantly affect Teacher Motivation, suggesting that management practices alone may not be enough to boost teacher motivation.
- 3 Teacher Motivation plays a significant role in improving Teacher Performance. Motivated teachers are more likely to perform at higher levels, highlighting the need for initiatives that foster motivation.

A comprehensive approach that integrates strong leadership, effective management practices, and targeted strategies to enhance teacher motivation is essential for improving teacher performance and achieving better educational outcomes.

## Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/supplementary material.

## Ethics statement

The studies involving humans were approved by Dr. Lili Kasmini, M.Si/Bina Bangsa Getsempena University. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

## Author contributions

SS: Writing – original draft, Conceptualization, Investigation, Methodology. MY: Methodology, Writing – original draft, Project administration. MU: Writing – review & editing, Conceptualization, Resources, Software, Validation. AM: Formal analysis, Investigation, Methodology, Writing – original draft. MM: Conceptualization, Data curation, Resources, Visualization, Writing – original draft. MS: Conceptualization, Resources, Supervision, Writing – original draft.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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