

Original Article

# Examining the Predictive Role of Teacher Support Typologies on Students' Research Self-Efficacy: An Integrated Theoretical Perspective

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**Abstract.** Studies show that social support enhances students' beliefs in their ability to perform research tasks; however, most prior research has focused on graduate and postgraduate students and examined support in general, limiting understanding of how multiple types of social support interact to shape secondary students' research self-efficacy. Guided by Tardy's Social Support Framework and Bandura's Self-Efficacy Theory, this study investigated the predictive effects of informational, appraisal, emotional, and instrumental support on students' research self-efficacy. A quantitative-predictive research design was employed, with 350 secondary students from Baguio City, Philippines, completing validated instruments measuring perceived teacher support and research self-efficacy. Binary logistic regression revealed that all four support types significantly increased the odds of students reporting high research self-efficacy, with informational support showing the strongest effect, followed by appraisal, instrumental, and emotional support. These findings underscore the multifaceted role of teacher support in enhancing students' research competence, highlighting the importance of clear guidance, constructive feedback, emotional reassurance, and practical resources. The study suggests that interventions targeting all four support dimensions can substantially strengthen students' self-efficacy in conducting research tasks.

**Keywords:** Bandura; Research self-efficacy; Secondary students; Tardy; Teacher support.

Research self-efficacy (RSE) has emerged as a significant construct contributing to students' academic success. Rooted in Bandura's social cognitive theory, RSE refers to students' belief in their ability to complete research tasks and processes successfully (Miao et al., 2025). Studies consistently show that higher levels of research self-efficacy lead to a range of positive outcomes for students. Miao et al. (2025), in their study of Ed.D students, found that research self-efficacy directly predicted academic achievement. Students with higher self-efficacy not only performed better in assessments but also exhibited increased engagement in learning activities, including more active participation in research projects, sustained effort in tackling complex research problems, and greater persistence in overcoming challenges. These outcomes suggest that research self-efficacy fosters both competence and resilience, enabling students to translate confidence into measurable academic performance.

Similarly, Khatony et al. (2023) investigated health sciences students and reported that research self-efficacy was significantly associated with academic performance. Beyond grades and research outputs, students with higher self-efficacy demonstrated greater motivation, initiative, and a more strategic use of research skills. The authors emphasized that research self-efficacy not only affects immediate academic outcomes but also contributes to longer-term benefits, including professional skill development, independent learning, and readiness to engage in complex research tasks. Furthermore, interventions that enhance research self-efficacy have been shown to amplify these positive outcomes, indicating that self-efficacy is a key lever for improving both academic and professional outcomes.

Recent studies indicate that students exhibit high levels of research self-efficacy, demonstrating confidence in their ability to conduct research (Manitzas Hill, Zwahr, & Gonzalez, 2022). In contrast, other groups report moderate confidence, reflecting a developing but not yet fully established sense of competence in research tasks (Osunronbi et al., 2023). Among more advanced learners, research self-efficacy may be at a fair or average level, indicating that even students with academic experience may require additional support to strengthen their confidence in completing research work (Olutoki & Osoba, 2024). These variations are attributed to several factors, including research interest, prior research experiences, stage of academic training, prior educational background, gender differences, and the availability of academic support (Manitzas Hill et al., 2022; Osunronbi et al., 2023; Olutoki & Osoba, 2024). Among these, academic support—particularly through teacher supervision and mentorship—has emerged as a significant influence on students' confidence in conducting research. Despite its importance, however, this form of support has received relatively limited attention in empirical studies. In particular, Amador-Campos et al. (2023) investigated doctoral students in Spanish universities and found a moderate positive relationship between perceived mentoring and supervision quality and research self-efficacy. Their findings indicated that doctoral students who perceived their supervisors as supportive, accessible, and constructive reported greater confidence in conducting research and completing thesis-related tasks.

Similarly, Petko (2012) showed that supportive mentoring relationships, when combined with engagement in research activities, positively contributed to doctoral students' research self-efficacy. Extending these findings, Overall et al. (2011) demonstrated that autonomy-supportive supervision, where guidance is balanced with encouragement of independent decision-making, was strongly associated with higher research self-efficacy across disciplines. In a complementary context, Poh and Kanesan Abdullah (2019) showed that doctoral students' mentoring experiences significantly predicted their research self-efficacy, alongside a supportive research training environment and research interest.

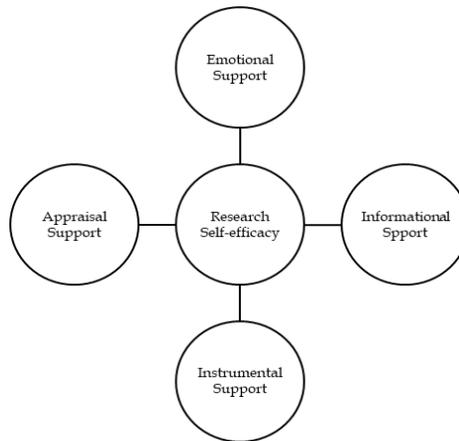
Studies focusing on postgraduate students also highlight the importance of mentor and supervisory support. For example, Ren and Li (2024) found that mentor support positively predicted postgraduate students' research ability, with research self-efficacy and research engagement serving as mediating mechanisms, and a positive academic environment strengthening these effects. Likewise, Aldhi et al. (2024) reported that supervisory support moderated the relationship between research self-efficacy and research productivity among postgraduate students in Indonesian higher education institutions, indicating that supportive supervision amplifies the positive effects of self-efficacy on research outcomes.

These findings underscore the central role of social support in fostering research self-efficacy. Nevertheless, the strong concentration of evidence within postgraduate and doctoral populations reveals a clear gap in the literature. Specifically, research self-efficacy among secondary-level students remains largely underexplored, despite increasing expectations for early engagement in research-related tasks. Addressing this gap is crucial for extending research self-efficacy frameworks beyond higher education and informing developmentally appropriate support mechanisms at earlier educational levels.

### **Theoretical Framework**

Most studies have examined social support in isolation as a determinant of research self-efficacy. This piecemeal approach limits our understanding of how multidimensional social support shapes students' confidence in their research abilities within a complex learning context. Consequently, there is a need for an integrated perspective that considers the interplay of emotional support, informational support, instrumental support, and appraisal support in shaping students' research capabilities. To address this gap, the current study adopts Tardy's Social Support Framework (1985) to provide a comprehensive perspective on the effect of social support provided by

teachers on students' research self-efficacy. Social support is defined as an individual's perceptions of general support or specific supportive behaviors from people in their social network that enhance functioning and may buffer against adverse outcomes (Malecki & Demaray, 2002). From a social support perspective, Lei et al. (2018) conceptualize teacher support as comprising informational, instrumental, emotional, and appraisal support provided to students. In addition, this study is anchored to Bandura's Self-Efficacy Theory (1977), which posits that an individual's belief in their ability to perform tasks influences motivation, effort, persistence, and resilience when facing challenges. Self-efficacy is shaped by four main sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological/emotional states. In educational contexts, these sources are influenced not only by personal experiences but also by the social environment, including support from teachers, peers, and parents.



**Figure 1.** *Integrated Social Support and Self-Efficacy Framework*

In this study, social support is conceptualized as the external mechanism that enhances students' research self-efficacy. Figure 1 presents a conceptual model illustrating the types of teacher support that contribute to students' research self-efficacy. At the center of the model is research self-efficacy, representing students' confidence in their ability to perform research-related tasks successfully. Surrounding this core construct are four interconnected forms of support: appraisal, emotional, instrumental, and informational. According to Lei et al. (2018), appraisal support comprises evaluative feedback and affirmations that help students understand their performance, build confidence, and refine self-perceptions. Emotional support includes expressions of care, empathy, encouragement, and trust to foster students' emotional well-being. Informational support involves providing students with guidance, advice, and knowledge to help them understand tasks and solve problems. Instrumental support refers to tangible assistance such as study materials, time, or direct help with academic activities. The integrated framework posits that external support systems are essential in strengthening students' internal psychological capital.

**Research Hypotheses**

Based on the theoretical framework, this study proposes that students' research self-efficacy is influenced by multiple factors related to teacher support. To empirically examine these relationships, the study formulates the following hypotheses:

- H1: Perceived appraisal support significantly predicts students' research self-efficacy.
- H2: Perceived emotional support significantly predicts students' research self-efficacy.
- H3: Perceived informational support significantly predicts students' research self-efficacy.
- H4: Perceived instrumental support significantly predicts students' research self-efficacy.

**Methodology**

**Research Design**

This study aimed to investigate the extent to which various teacher support factors predict students' research self-efficacy. Recognizing that research self-efficacy is explained by a complex interplay of appraisal, emotional, instrumental, and informational support dimensions, the study sought to identify which dimensions of social

support most significantly contribute to students' confidence in conducting research. To achieve this goal, a predictive research design was employed, enabling the researchers to examine the predictive relationships between the identified social support factors and research self-efficacy. This approach also enabled a systematic evaluation of the proposed hypotheses, providing empirical evidence regarding the strength and direction of these relationships.

### Participants and Sampling Technique

The respondents of the study were Grade 12 students enrolled in a research course at a secondary institution in Baguio City, Philippines. A cluster sampling method was employed, in which seven sections were randomly selected from a total of thirty sections. Using Cochran's formula at a 95% confidence level and assuming a population proportion of 50%, the formula yielded a sample size of 350 students. The participants' profiles are presented in Table 1.

**Table 1.** Profile of Participants

Age Group	18 Years Old	19 Years Old
	58.86%	41.14%
Sex	Male	Female
	42.86%	57.14%

### Research Instrument

This study employed an adapted version of the Comprehensive Research Self-Efficacy Scale (C-RSES) developed by Taş et al. (2023) to assess students' perceived research self-efficacy. The 27-item version of the scale was used, incorporating one additional item under the theoretical/conceptual framework domain as suggested by the original authors. The instrument comprises six domains: literature review and research problem formulation (8 items), conceptual or theoretical framework (3 items), research planning (5 items), data analysis (5 items), research ethics (4 items), and discussion and dissemination (3 items). The items assess students' confidence in conducting literature reviews, designing and implementing research procedures, analyzing and interpreting data, adhering to ethical standards, and effectively communicating research findings. The following table shows the results of the reliability analysis for C-RSES, demonstrating satisfactory reliability and suggesting that the instruments consistently measured their intended constructs.

**Table 2.** Cronbach's Alpha for C-RSES

Dimensions	Items	$\alpha$
Literature Review & Research Problem Formulation	8	0.87
Conceptual/Theoretical Framework	3	0.81
Research Planning	5	0.84
Data Analysis	5	0.85
Research Ethics	4	0.82
Discussion & Dissemination	3	0.80

In addition, the Perceived Teacher Support Scale (PTSS), developed by Wu et al. (2024), was adapted to measure students' perceptions of teacher support. The scale comprises 25 self-report items assessing instrumental support (7 items), emotional support (6 items), informational support (7 items), and appraisal support (5 items). Instrumental support items focus on tangible assistance, time, and learning opportunities; emotional support items capture teachers' care, trust, respect, and encouragement; informational support items address guidance, advice, and learning-related information; and appraisal support items assess evaluative feedback on students' performance and improvement. The following table shows the results of the reliability analysis for PTSS, demonstrating satisfactory reliability and suggesting that the instruments consistently measured their intended constructs.

**Table 3.** Cronbach's Alpha for PTSS

Dimensions	Items	$\alpha$
Instrumental Support	7	0.88
Emotional Support	6	0.86
Informational Support	7	0.89
Appraisal Support	5	0.87

### Data Gathering Procedure

Before data collection, formal approval was obtained from the school administration to ensure that the study

adhered to institutional guidelines and ethical standards. Participants were provided with clear and comprehensive information regarding the purpose of the study, the procedures involved, potential risks, and anticipated benefits. They were also informed of their rights as research participants, including the right to decline participation or withdraw at any point without penalty. Informed consent was obtained from all participants, and participation was strictly voluntary. To facilitate accessibility and maintain consistency, data were collected using a structured questionnaire administered during regular class hours. This approach ensured standardized administration across all participants while minimizing disruption to instructional time.

### Data Analysis Procedure

Binary logistic regression was employed to examine the effects of teacher support dimensions on students' research self-efficacy, categorized as low versus high based on mean scores from a 4-point Likert scale. This method is appropriate for binary outcomes, allowing the estimation of the probability that students exhibit high self-efficacy while simultaneously assessing the unique contribution of informational, appraisal, instrumental, and emotional support, directly aligning with the study's hypotheses. Moreover, logistic regression is statistically robust, as it does not require normality of predictors or homoscedasticity, making it well-suited for educational data that may violate parametric assumptions. Finally, Additionally, it yields odds ratios that clarify how each support dimension affects the likelihood of high self-efficacy. The following table shows the mean range for students' research self-efficacy.

**Table 4.** Mean Range for Research Self-Efficacy

Mean Score Range	Interpretation
1.00 - 2.49	Low Self-Efficacy
2.50 - 4.00	High Self-Efficacy

### Ethical Considerations

Participant protection was ensured by adhering to established ethical standards throughout the study. All participants, aged 18–19 years, were fully informed about the purpose, procedures, potential risks, and benefits of the research, and provided informed consent before completing the questionnaire. Participation was voluntary, and participants could withdraw at any time without penalty. To maintain confidentiality, no personally identifiable information was collected, and responses were anonymized using unique codes. All data were stored in password-protected files, accessible only to the researchers, and reported in aggregate form to prevent the identification of individual participants. The study involved minimal risk, focusing on educational experiences without including sensitive or intrusive procedures.

### Results and Discussion

The logistic regression results in Table 5 examine the predictive effects of four types of teacher support, informational, appraisal, instrumental, and emotional, on students' research self-efficacy. The overall model was statistically significant,  $\chi^2(4) = 53.48, p < .001$ , indicating that the combined influence of these support dimensions reliably predicts students' confidence in conducting research tasks. The model explained approximately 38% of the variance in research self-efficacy (Nagelkerke  $R^2 = 0.38$ ), reflecting a moderate but meaningful effect and underscoring the important role of teacher support in shaping students' perceived research competence.

**Table 5.** Regression Output of Support Typologies and Research Self-Efficacy

Constructs	$\beta$	SE	Wald $\chi^2$	p	OR	CI
Informational Support	1.25	0.40	9.77	0.002	3.49	1.57 - 7.75
Appraisal Support	1.10	0.35	9.88	0.002	3.00	1.44 - 6.23
Instrumental Support	0.95	0.33	8.29	0.004	2.59	1.34 - 5.01
Emotional Support	0.80	0.32	6.25	0.012	2.23	1.19 - 4.18

$\chi^2 = 53.48, p < .001, Nagelkerke R^2 = 0.38$

Specifically, each one-unit increase in informational support makes students 3.49 times more likely to report high research self-efficacy (OR = 3.49, 95% CI: 1.57–7.75), making it the strongest predictor. Similarly, increases in appraisal support (OR = 3.00, 95% CI: 1.44–6.23), instrumental support (OR = 2.59, 95% CI: 1.34–5.01), and emotional support (OR = 2.23, 95% CI: 1.19–4.18) substantially enhance the probability of students reporting high research self-efficacy.

These results highlight the critical role of teachers in shaping students' self-efficacy, not only by providing

guidance and feedback but also by creating an environment that supports emotional well-being and access to necessary resources. By disaggregating teacher support into these four distinct dimensions and interpreting their effect sizes, the analysis provides a nuanced understanding of which forms of support exert the strongest influence, offering actionable insights for educational practices and teacher development programs aimed at enhancing students' research competence.

### **Informational Support**

Informational support emerged as the strongest predictor of research self-efficacy ( $\beta = 1.25, p = .002$ ), indicating that students who receive clear guidance, instructions, and explanations from their teachers feel significantly more confident in conducting research tasks. This finding underscores the importance of knowledge transfer and task-specific guidance in fostering students' competence beliefs. When teachers provide timely clarification, structured explanations, and step-by-step instructions, students are better equipped to navigate the complexities of the research process, thereby enhancing their sense of efficacy. This result is consistent with the findings of Hombrados-Mendieta et al. (2012), who identified teachers as a primary source of informational support during adolescence, emphasizing the central role of teachers in shaping students' perceived competence. Extending this evidence to higher education contexts, Staser (2021) highlighted that informational support, such as clear academic guidance and institutional communication, was critical in reducing uncertainty among graduate students, particularly during periods of disruption. Moreover, Yang and Li (2025) demonstrated that teacher informational support positively influenced learning engagement, which, in turn, fully mediated its effect on academic achievement.

From Tardy's perspective, informational support functions as a critical support dimension that directly shapes individuals' cognitive appraisals of competence by providing relevant knowledge and guidance. In line with Bandura's theory, such support enhances self-efficacy by strengthening mastery-related cognitions and reducing ambiguity in task demands, thereby increasing students' confidence in their ability to perform research activities successfully. The results suggest that informational support is not merely a supplementary resource but a central mechanism through which teachers influence students' research self-efficacy. By clarifying expectations, scaffolding research tasks, and providing structured guidance, teachers create conditions that promote mastery experiences, identified by Bandura as the most powerful source of self-efficacy, while simultaneously fulfilling the informational support function articulated by Tardy. Consequently, strengthening informational support in instructional practices is essential for enhancing students' academic success in research courses.

### **Appraisal Support**

Appraisal support also significantly predicted research self-efficacy ( $\beta = 1.10, p = .002$ ). These findings suggest that students rely not only on instructions but also on evaluative feedback to assess their progress and gauge their capability in research tasks. This aligns with prior research emphasizing the importance of evaluative feedback in academic contexts. In the context of teacher support, Yang and Li (2025) found that appraisal support positively influences academic achievement, indirectly through increased learning engagement, underscoring its motivational function. Similarly, Hascoët and Audrin (2025) reported appraisal support as one of the most frequently perceived types of support not only from teachers, but also from parents and classmates, with classmates showing broad associations with positive academic and social outcomes. This highlights the role of peer appraisal in fostering self-efficacy and skill development. Interestingly, while the present study found a positive effect of appraisal support on research self-efficacy, Wong, Tao, and Konishi (2018) reported a negative association between teacher feedback and mathematics achievement among Canadian high school students when controlling for instrumental support and gender. This apparent contrast highlights that the impact of appraisal support may be subject- and context-specific.

From Tardy's social support framework, appraisal support is a distinct and influential form of social support that shapes individuals' self-evaluations by providing performance-related information. In line with Bandura's social cognitive theory, evaluative feedback serves as a source of self-efficacy through social persuasion and feedback on mastery experiences, helping students interpret their performance more positively and accurately. The findings affirm that appraisal support is a critical mechanism in strengthening students' research self-efficacy. When teachers and peers provide constructive, timely, and specific feedback, students develop clearer perceptions of their research competence and greater motivation to persist in research tasks. Moreover, appraisal support helps students calibrate their self-perceptions by aligning external evaluations with internal judgments of competence, thereby reducing uncertainty about their research abilities. Integrating systematic appraisal support into

instructional practices can play a vital role in enhancing students' confidence in research.

### **Instrumental Support**

Instrumental support showed a significant predictive effect on students' research self-efficacy ( $\beta = 0.95, p = .004$ ), indicating that even modest practical support can meaningfully influence students' confidence in conducting research. This suggests that verbal or hands-on guidance not only facilitates the efficient completion of research tasks but also strengthens their confidence in navigating complex procedures, making independent decisions, and overcoming challenges that arise during the research process. With access to tangible resources and practical support, students can experiment, apply theoretical knowledge in real contexts, and gradually build a sense of mastery, which, in turn, reinforces their belief in their own capabilities. These findings align with Staser (2021), who emphasized the importance of tangible assistance for academic progress and coping in challenging situations, and with Granziera et al. (2022), who found that teacher-provided instrumental support predicted academic buoyancy and indirectly enhanced engagement and skill development in both high school and elementary students, highlighting practical resources as a critical foundation for applying knowledge and building academic confidence. Overall, these results underscore instrumental support as a key driver in strengthening students' confidence and effectiveness in research tasks.

According to Tardy's social support framework, instrumental support represents a tangible form of assistance that facilitates task completion by reducing material and logistical barriers. From the perspective of Bandura's social cognitive theory, instrumental support promotes mastery experiences by equipping students with the resources needed to successfully carry out research tasks, thereby contributing to the development of self-efficacy. By offering concrete resources, such as access to research materials, software, laboratory equipment, or step-by-step templates, teachers help minimize logistical and procedural obstacles that might otherwise impede students' full engagement in research. In addition, instrumental support enables students to focus their cognitive and emotional energy on learning and problem-solving rather than on overcoming material constraints. When provided consistently, such support can strengthen students' sense of competence and encourage greater persistence when tackling complex research tasks. Lastly, instrumental support may foster collaborative skills, as access to shared tools and materials promotes teamwork and peer-assisted learning, further enhancing overall research efficacy. Thus, instrumental support not only removes barriers but also actively cultivates the skills and confidence necessary for sustained research success.

### **Emotional Support**

Emotional support was a statistically significant predictor of students' research self-efficacy ( $\beta = 0.80, p = .012$ ). This suggests that emotional support plays a crucial role in maintaining students' motivation and persistence, particularly when they encounter challenges. By creating a supportive and reassuring environment, teachers help students manage research challenges, which strengthens their research self-efficacy. This is consistent with Granziera et al. (2022), who reported that teacher emotional support predicted academic buoyancy, engagement, and skill development, suggesting that emotional support is crucial for students' resilience and confidence. Furthermore, Shen et al. (2024) found that teacher emotional support positively influenced academic engagement, partially mediated by positive academic emotions and moderated by mastery approach goals, emphasizing the role of supportive teacher behaviors in fostering students' motivation and adaptive learning strategies. It can be noted that this type of support has the weakest influence on research self-efficacy, likely because students often receive emotional support primarily from parents and peers rather than from teachers. For instance, Hascoët and Audrin (2025) found that students most frequently perceived emotional support from parents and peers, which underscores the central role of these relationships in shaping academic and emotional experiences. While teacher-provided emotional support is valuable, parental involvement and peer collaboration remain essential sources of encouragement and reassurance, contributing significantly to students' research self-efficacy.

From the lens of Tardy's social support theory, emotional support represents a core support dimension that nurtures students' emotional well-being and sense of belonging, thereby strengthening their confidence in managing academic demands. In alignment with Bandura's social cognitive theory, emotional support enhances self-efficacy by reducing stress and negative affect, factors that Bandura identified as key physiological and emotional states influencing efficacy beliefs. When students feel understood and encouraged, they are more likely to interpret challenges as manageable rather than threatening. These findings highlight the crucial role of emotional support in enhancing students' research self-efficacy, engagement, and ability to manage academic challenges. By providing consistent encouragement, empathy, and reassurance, teachers can reduce students' fear

of failure and anxiety associated with complex research tasks, fostering long-term confidence, self-reliance, and sustained commitment to research activities. Ultimately, emotional support helps create a psychologically safe learning environment in which students feel comfortable taking risks, asking questions, and seeking guidance without fear of judgment. This reinforces the idea that emotional support is essential not only for academic success but also for students' overall psychological development.

## Conclusion

This study demonstrates practical outcomes derived from the theoretical perspectives of Tardy and Bandura, thereby supporting and confirming the validity of the study's integrated theoretical framework. Findings suggest that teacher support plays a significant role in fostering students' research self-efficacy. Among the four types of support, informational support emerged as the strongest predictor, highlighting the importance of clear guidance, structured explanations, and task-specific instructions in fostering students' competence and confidence in conducting research. Appraisal support also significantly predicted self-efficacy, emphasizing the role of evaluative feedback from teachers and peers in helping students monitor progress, identify strengths and areas for improvement, and maintain motivation. Instrumental support, which provides tangible assistance, resources, and practical help, also contributed to self-efficacy by enabling students to apply knowledge effectively and navigate research tasks successfully. Emotional support positively influenced research self-efficacy by fostering a supportive, reassuring environment that promotes resilience, persistence, and engagement, particularly in the face of challenges. Its comparatively lower impact may be attributed to the fact that students often receive this form of support from parents and peers rather than directly from teachers. These results underscore the multifaceted role of teacher support in enhancing research self-efficacy and suggest that interventions that strengthen informational, appraisal, emotional, and instrumental support can substantially cultivate students' confidence, engagement, and capability in research tasks. The findings of this study indicate that external support systems help reinforce students' internal psychological strengths. Furthermore, these findings highlight the need for educators to adopt a balanced and intentional approach in providing multiple forms of support within the classroom. Future research may also explore how these support dimensions interact over time to influence long-term academic development and research competence. In practice, strengthening teacher support systems can serve as a strategic intervention to enhance both student performance and self-belief in research contexts.

## Contributions of Authors

**Author 1:** conceptualization, data curation, data analysis

**Author 2:** conceptualization, data gathering, editing

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## Conflict of Interests

The authors declare no conflict of interest.

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