Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 4, 406-414
2025
Publisher: Learning Gate
DOI: 10.55214/25768484.v9i4.5995

Attitudes towards COVID-19 as predictors of emotional exhaustion in university students from a higher education center in the city of Chiclayo

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Abstract: The recent health crisis has significantly affected the mental health of college students, with emotional exhaustion being the most prominent issue. This study seeks to determine how attitudes toward the health crisis predict emotional exhaustion in university students. A quantitative methodology with a cross-sectional design and correlational-causal scope was used. The sample, which was representative and randomly selected, included 297 university students. A validated questionnaire was used to assess attitudes toward the health crisis, and a scale was used to measure emotional exhaustion, with inclusion criteria that considered voluntary participation and informed consent. The results of linear regression analysis indicated that attitudes toward the health crisis (β = -0.203, p < 0.001) and the emotional-affective dimension (β = -0.290, p < 0.001) are significant predictors of emotional exhaustion. However, the behavioral (β = -0.096, p = 0.098) and cognitive (β = -0.106, p = 0.069) dimensions did not show a statistically significant relationship. In conclusion, negative attitudes toward the health crisis, especially in the emotional-affective domain, increase the risk of emotional exhaustion in university students, underscoring the need for interventions that address these attitudes to improve students' emotional well-being.

Keywords: *Attitudes, Emotional exhaustion, Health crisis, Mental health.*

1. Introduction

The COVID-19 health emergency has deeply affected the population on multiple levels, such as physical and mental health, the economy, and society, causing consequences like the loss of lives, unemployment, and poverty [1]. In the educational field, the pandemic forced an abrupt transition to virtual education, affecting students and their families. Despite the efforts of many countries to facilitate access to education through technological tools, students faced high levels of anxiety, depression, and other emotional issues [2].

The stress and emotional exhaustion derived from this transition to online education have been key factors contributing to the increase in mental health problems among higher education students [3]. In the United States, the Pew Research Center [4] reported that 46% of young people between 14 and 45 years old experienced high levels of emotional exhaustion, with 59% of young women affected.

This problem has also been observed in other countries, such as China, where in Hong Kong, between 25% and 65% of university students suffer from emotional fatigue, which has affected their academic performance [5]. Similarly, in Spain, emotional exhaustion among students has increased since 2018, rising from 33.8% to 39% in 2019, and these figures are expected to continue growing due to the pandemic [6].

History: Received: 20 January 2025; Revised: 27 March 2025; Accepted: 31 March 2025; Published: 5 April 2025
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In Peru, a study on university students revealed high levels of stress, anxiety, and depression during the lockdown, with a higher prevalence in women (66%). Additionally, problems such as insomnia, emotional fatigue, physical exhaustion, and lack of academic engagement were observed, despite students meeting their sleep hours [7]. These issues are related to online education, social isolation, and uncertainty about the future, which has created a psychological predisposition in students to external factors generated by the protection measures [3, 8].

In summary, this research aims not only to identify the relationship between attitudinal factors towards COVID-19 and emotional exhaustion in university students but also to contextualize these findings within the social reality, apply rigorous research methods, and base the study on relevant theories that enhance the understanding of the phenomenon. Therefore, the general objective of this study was: To determine the extent to which attitudinal factors towards COVID-19 predict emotional exhaustion in university students from a higher education institution in the city of Chiclayo.

From this general objective, the specific objectives were derived, which were: a) to identify the levels of attitudinal factors towards COVID-19 and emotional exhaustion in university students from a higher education institution in the city of Chiclayo, and b) to determine to what extent the volitional dimension of attitudinal factors towards COVID-19 predicts emotional exhaustion in university students from a higher education institution in the city of Chiclayo. Another objective to be developed was: c) to determine to what extent the cognitive dimension of attitudinal factors towards COVID-19 predicts emotional exhaustion in university students from a higher education institution in the city of Chiclayo. Finally, d) to determine to what extent the affective-emotional dimension of attitudinal factors towards COVID-19 predicts emotional exhaustion in university students from a higher education institution in the city of Chiclayo. All of this is supported by the following general hypothesis: Attitudinal factors towards COVID-19 significantly predict emotional exhaustion.

Several international studies have examined the impact of emotional exhaustion, particularly during the COVID-19 pandemic. Knapp, et al. [9] explored the emotional exhaustion risks among European radiography students, finding high levels of burnout in countries like the UK, Ireland, and France, with 35% of academics seriously considering leaving their jobs. Sveinsdottir, et al. [10] conducted a study in Iceland, revealing that 51% of the variance in burnout was explained by perceived stress, mental health, and support related to COVID-19. Similarly, Amor, et al. [6] reported emotional exhaustion in 36% to 38% of medical students in Spain, with higher rates among advanced-year students.

National studies also indicate significant emotional exhaustion in students. Estrada, et al. [11] examined university students in Peru and found a strong correlation between academic stress and emotional exhaustion. The study revealed moderate levels of both stress (31.1%) and exhaustion (34.4%), with a Spearman correlation of 0.731 and a p-value < 0.01, suggesting a significant relationship between these variables. Similarly, Ruiz , et al. [12] analyzed attitudes toward COVID-19 in Huánuco, showing that 63.1% of participants had negative attitudes, which could contribute to emotional exhaustion.

Other studies, such as Estrada, et al. [11] focused on burnout among university students in Madre de Dios, Peru, finding moderate levels of academic burnout linked to factors like gender, age, employment status, and academic cycle. Yupari, et al. [13] explored the relationship between biological, social, and cultural factors and preventive behaviors toward COVID-19, noting negative attitudes in young adults aged 18-29, with no significant gender difference. Prada-Chapoñan, et al. [14] studied the predictive capacity of personality traits on emotional exhaustion, finding that traits like extraversion and neuroticism significantly predicted burnout.

The theoretical framework supporting this study includes classic theories of attitudes, such as Allport [15] view that attitudes are mental and cognitive states acquired through experience, influencing an individual's responses to various objects or situations. Ajzen and Fishbein [8] further defined attitudes as evaluations that predict behavior, shaped by both personal beliefs and social contexts. These theories suggest that attitudes toward COVID-19, influenced by personal and social factors, could significantly impact emotional exhaustion in university students.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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Emotional exhaustion, as a key component of burnout, has physical and psychological aspects. It leads to a feeling of overload, detachment, and a loss of energy, affecting both academic performance and overall well-being Ortega and López [16]. Maslach, et al. [17] noted that burnout results from prolonged stress and manifests as emotional distancing, reduced energy, and a sense of incompetence. In the university context, emotional exhaustion can hinder academic success, leading to decreased motivation and performance, potentially affecting long-term career outcomes [18].

The study is grounded in positivism, applying a quantitative approach to understand the relationship between attitudes toward COVID-19 and emotional exhaustion. This methodology allows for hypothesis testing and the identification of causal relationships between variables. The study follows a deductive approach, examining the influence of external factors like demographics and personality on attitudes and behaviors, with the aim of predicting emotional exhaustion in university students [19].

2. Method

This study is applied, aimed at developing psychological interventions in educational contexts [20]. It uses a quantitative approach to collect and analyze numerical data, establishing objective relationships between variables through deductive and statistical methods [21]. The design is non-experimental and cross-sectional, collecting data at a single point in time to describe and analyze the incidence and interrelation of the variables [22]. The research is correlational-explanatory, identifying relationships between variables and explaining the factors that condition them [23]. The hypothetical-deductive method was employed, starting with hypotheses based on prior theories and empirically verifying them [24].

The population of the study consisted of 9,099 undergraduate university students from the city of Chiclayo. The sample, selected through a non-probabilistic snowball sampling method, included 297 students. The inclusion criteria considered students who were of legal age, enrolled in universities in northern Peru, and who agreed to participate by signing an informed consent form. Exclusion criteria included minors and postgraduate students.

Data collection was carried out using the survey technique, applied through two previously validated instruments. The COVID-19 Attitude Questionnaire (CAPC-19), designed by Vicuña, et al. [25] demonstrated strong psychometric properties, with validity indices [26] and reliability (general Cronbach's α: .88). Similarly, the Emotional Exhaustion Scale (ECE), developed by Ramos, et al. [27] and adapted by Domínguez [28] for the Peruvian population, showed a Cronbach's α of .87 and evidence of unidimensional validity.

The procedure began by recruiting participants who met the inclusion criteria. Each participant was informed about the purpose of the study, and their informed consent was ensured. Data collection was conducted both virtually and in person, ensuring a good rapport was established to guarantee honest responses. Once the data was collected, it was recorded and cleaned, ensuring that the questionnaires were complete. In the case of incomplete questionnaires, an additional randomly selected sample was used.

The data analysis included cleaning and validating the data, followed by normality testing using the Kolmogorov-Smirnov test, which allowed for evaluating whether the data followed a normal distribution. To test the hypotheses, linear regression was used, which facilitated the identification of relationships between attitudes toward the COVID-19 pandemic and emotional exhaustion, explaining significant variations in the latter ($R^2 = .041$; $p < .05$). Descriptive analyses such as absolute and relative frequency distributions, along with measures of central tendency (mean, median, mode), were employed. In addition to linear regression analysis, other statistical tests such as analysis of variance (ANOVA) were used to compare means between groups, and the t-test was applied to determine if there were significant differences between groups. The analyses were conducted with a significance level of $p < 0.05$ using SPSS software.

Edelweiss Applied Science and Technology
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3. Results

Table 1.
Linear Regression Analysis for Emotional Exhaustion and Attitude Toward the COVID-19 Pandemic Variables.

$R = .203$ $F =$	12.677	$R^2 = 0.041$ $p = 0.000$			
	Variables		Coefficients Beta	*t*	*P*
		Non-standardized	standardized		
(Constant)		40.591		12.159	0.000
Attitudes toward the COVID-19 pandemic		-0.113	-0.203	-3.560	0.000

In Table 1, we can observe a linear regression model (LRM), in which attitudes toward the COVID-19 pandemic were able to validly and significantly explain 4.1% of the variations in emotional exhaustion ($R^2 = .041$; $p < .05$). This means that the joint explanation of the attitude variable predicts a minimal percentage of the emotional exhaustion variable's behavior. This is confirmed by the standardized β coefficients, which show that attitudes toward COVID-19 establish a predictive factor for emotional exhaustion. However, the effect size is small ($.10 > \beta < .20$), which explains that while attitudes toward the disease are appropriate or positive, the level of emotional exhaustion will be minimal, or vice versa.

Table 2.
Linear Regression Analysis for Emotional Exhaustion and the Emotional-Affective Dimension.

$R = 0.290$ **$F =$**	**27.121**	**$R^2 = 0.084$** **$p = 0.000$**			
	Variables		Coefficients Beta	*t*	*P*
		Non-Standardized	Standardized		
(Constant)		42.739		15.777	0.000
Attitudes toward the COVID-19 pandemic		-0.374	-0.290	-5.208	0.000

In Table 2, we find a linear regression model (LRM) for the emotional-affective dimension of attitudes toward the COVID-19 pandemic, which explains 8.4% of the variations in emotional exhaustion ($R^2 = .084$; $p < .05$) in a valid and significant manner. This means that the joint result predicts a minimal percentage of the emotional exhaustion variable's behavior. The standardized β coefficients confirm this finding, supporting that the described dimension is a predictive factor for emotional exhaustion. However, the effect size is moderate ($.20 > \beta < .50$). In conclusion, a negative emotional-affective attitude toward COVID would help explain a higher level of emotional exhaustion to some extent.

Table 3.
Linear Regression Analysis for Emotional Exhaustion and the Behavioral Dimension.

R = 0.096 **F =**	**2.756**	**$R^2 = 0.009$** **p =0.098**			
	Variables		**Coefficients Beta**	**t**	**P**
		Non-standardized	**standardized**		
(Constant)		33.325		12.088	..000
Attitudes toward the COVID-19 pandemic		-0.152	-0.096	-1.660	..098

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ISSN: 2576-8484
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DOI: 10.55214/25768484.v9i4.5995

A linear regression model (LRM) is shown for the behavioral dimension of attitudes, which explains 0.9% of the variations in emotional exhaustion (R^2 = .009). With this result, it can be assumed that the behavioral dimension did not significantly explain ($p > .05$) the dependent variable. Additionally, the standardized β coefficients indicate that the behavioral dimension is not a predictive factor for emotional exhaustion ($\beta < .20$). This means that regardless of the behavioral attitude toward the disease, emotional exhaustion levels will not be affected.

Table 4.
Linear Regression Analysis for Emotional Exhaustion and the Cognitive Dimension.

***R* = 0.106**	**3.330**	***R²* = 0.011**			
***F* =**		***p* = 0.069**			
	Variables		**Coefficients Beta**	***t***	***P***
		Non-Standardized	**Standardized**		
(Constante)		34.131		14.569	0.000
Cognitive		-0.144	-0.106	-1.825	0.069

In this table, we observe through the linear regression model (LRM) that the cognitive dimension of attitudes toward the pandemic is able to explain 1.1% of the variations in emotional exhaustion (R^2 = .011). The findings from the regression lead us to assume that the cognitive dimension is not capable of significantly explaining ($p > .05$) emotional exhaustion. This is demonstrated by the values corresponding to the standardized β coefficients, which also indicate that the variable is not a predictive factor for emotional exhaustion ($\beta < .20$).

Table 5.
Descriptive Analysis of the Level of Emotional Exhaustion Reached.

	High		**Moderate**		**Low**		**Total%**	
Emotional Exhaustion	***f***	***%***	***f***	***%***	***f***	***%***	***f***	***%***
	121	40.7	138	46.5	38	12.8	297	100

The levels of emotional exhaustion found in university students show a predominance of moderate levels (46.5%) and high levels (40.7%). These findings demonstrate that emotional exhaustion is present within the university population, with moderate and high levels of exhaustion being reflected through symptoms such as fatigue, lack of energy, irritability, difficulty concentrating, and loss of interest in activities that were previously enjoyable.

Table 6.
General Descriptive Analysis of Attitudes Toward the COVID-19 Pandemic in University Students.

	Positive		**Adequate**		**Inadequate**		**Negative**		**Total%**	
Attitudes Toward the COVID-19 Pandemic	***f***	***%***	***f***	***%***	***f***	***%***	***f***	***%***	***f***	***%***
	19	6.4	167	56.2	111	37.4	0	0	29	100

Regarding the attitudes found in university students, Table 6 shows a predominance of an adequate attitude level (56.2%), meaning that most students exhibit favorable behaviors toward COVID-19. However, a considerable percentage of students (37.4%) showed inadequate attitudes, which could suggest a predisposition toward coping with stressful situations related to the presence of the disease.

4. Discussion

According to Baron and Byrne [29] attitudes are acquired over time and change depending on time and the environment surrounding the individual (through our traditions, customs, beliefs, and behavior). As can be seen in the findings presented, it is evident that during the COVID-19 pandemic, this group of university students adopted behaviors that may be either appropriate or inappropriate, and this largely

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 4: 406-414, 2025
DOI: 10.55214/25768484.v9i4.5995

depends on what they have experienced [30]. Like many others, they have been exposed to the pandemic (direct interaction with the object or situation of the attitude) and to mass media such as social networks. Now, the formation of a positive or negative attitude will depend on each person evaluating all that information based on their emotions and reflections on it [25].

Regarding what is presented in Table 1, it is observed that attitudes towards COVID-19 are different and predict 4.1% of emotional exhaustion (EE) with a small impact (.10 > β < .20). In other words, there is a minimal correlation between attitudes and emotional exhaustion. Additionally, the values found in the Beta coefficients suggest that the impact of attitudes on emotional exhaustion is small, as the values range between 0.10 and 0.20. A careful analysis of the findings leads us to propose that other factors influence emotional exhaustion and also helps us understand that the measures taken during the pandemic have a limited impact in this aspect. It is important to note that these findings are based on the information and analysis currently available and may undergo modifications or variations as more data is collected and further research is implemented.

Moreover, despite the low incidence of attitudes, it was discovered that part of it does influence emotional exhaustion, and this is attributed to the physical and psychological repercussions left by COVID-19 [11]. Therefore, a predictive model can be used where exposure to COVID-19 (either directly or indirectly) has created attitudes toward it. These attitudes are learned, and over time and with the environment surrounding the individual, they develop. This process of forming beliefs and emotions may be crucial for each student to make a specific assessment of COVID-19 [31]. Exact comparisons of what has been learned focus on several consequences and the environment experienced during the pandemic, as they have generated an experience in university students that has formed both favorable and adverse attitudes toward COVID-19, which are somewhat related to the emotional exhaustion perceived in these students. It is crucial to highlight that this problem has intensified during the pandemic years [4, 5].

Although it has been confirmed that attitudes toward the pandemic influence 4.1% of emotional exhaustion, it is necessary to point out that there is considerable room for other factors that may have a more significant impact on emotional exhaustion among university students, as indicated by Contreras [32] who mentions that emotional dysregulation and perceived social support predict emotional exhaustion by 22% and 26%, respectively, in university students. In summary, this study indicates that an increase in students' emotional intelligence directly impacts emotional exhaustion, leading to a decrease in their levels. The same effect occurs when the student has social support, meaning that the greater the perceived social support, the lower the emotional exhaustion, or it may even be nonexistent. Also, Sveinsdottir, et al. [10] in a study demonstrated that the perception of stress, the support received, and the level of education of the students can predict 42% of the variability in their emotional exhaustion. Other factors also influence emotional exhaustion, such as low extraversion (introverted individuals and low in agreeableness). These people do not tend to use planning as a tool to solve problems, which causes a high level of stress and, therefore, they tend to burn out more [14].

We cannot overlook that the results revealed a dimension that had a considerable impact on emotional exhaustion, the Emotional-Affective dimension, which explains 8.4% of the variations regarding emotional exhaustion ($R2 = .084$; $p < .05$), with these results being valid and significant. Moreover, a medium-range effect size was discovered (.20 > β < .50). The emotions found in the attitudes, as a negative attitude toward COVID-19 can lead to psychological wear and tear that the student perceives. Also, facing the virus, either through direct exposure or that of a family member, can cause emotional exhaustion in the whole process of living with the disease [25].

In contrast, the cognitive and behavioral dimensions of attitudes toward the COVID-19 pandemic would explain less than 1% of fluctuations in emotional exhaustion. The regression outcome obtained in this study suggests that the mentioned dimensions do not significantly explain ($p > .05$) the dependent variable of emotional exhaustion, or in other words, they are not predictive factors of emotional exhaustion (β < .20). In other words, regardless of the behavioral or cognitive stance toward the disease, emotional exhaustion levels will not suffer a significant impact. This finding indicates that the

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 4: 406-414, 2025
DOI: 10.55214/25768484.v9i4.5995

behavioral or cognitive stance a student adopts toward the COVID-19 pandemic will not notably influence their levels of emotional exhaustion. In summary, it doesn't matter if a person is adopting preventive actions and precautions to safeguard against the virus or if they show less concern and do not take major preventive measures; both may experience similar levels of emotional exhaustion. To counter these results, some factors that could affect emotional exhaustion may be linked to the duration and severity of the disease in society, personal situations, and existing social support [32]. Additionally, emotional exhaustion may fluctuate depending on personality and individual coping skills [10, 14].

Through the descriptive analysis, it was found that in relation to the variable of emotional exhaustion, a moderate level of fatigue predominates in university students (46.5%). However, the results also indicate considerably high levels (40.7%) in this group of individuals. These findings align with what has been observed in countries like the United Kingdom, Ireland, and France, where university students show high levels of emotional fatigue due to the high demands of academic and curricular activities in higher education [9]. Additionally, the findings in this research also contrast with Estrada, et al. [11] who found predominantly moderate levels of emotional exhaustion at 34.4% perceptible in the daily behaviors of university students selected for their study. Furthermore, Amor, et al. [6] found that the prevalence of emotional exhaustion in Spanish university students ranged from 36% to 38%, with the final years showing a significantly more noticeable symptomatology (61%) compared to first-year students (21%).

The findings and comparisons indicate that emotional exhaustion intensifies when academic tasks and environmental demands exceed students' ability to manage emotions, which impacts their ability to make decisions and handle their emotions. In other words, students may exhibit symptoms such as persistent fatigue, lack of motivation, trouble focusing, and a generally low mood. A person with moderate fatigue may require longer periods of rest and relaxation for recovery. Additionally, it is crucial to highlight that students are experiencing problems in the academic environment, causing a certain level of fatigue that is still manageable for most of them. However, continuing with the same routine and perception of their environment could lead to high levels of emotional exhaustion, which are also present in this population with a similar age. At this point, students may need to seek professional assistance and take steps to reduce stress and boost their emotional health [14].

It is important to highlight that the university students observed, who show high levels of emotional exhaustion (40.7%), which may be largely due to the stress and challenges caused by the pandemic situation, also experience adverse effects on their academic performance. As Barreto-Osma and Salazar-Blanco [33] point out, when a person is emotionally exhausted, they may have trouble focusing, remembering information, and completing school tasks. Therefore, it is not uncommon for students with high levels of emotional exhaustion to also show poor academic performance. In addition to academic performance, emotional exhaustion can also increase the likelihood of mental health disorders in university students. As Londoño, et al. [34] note, high levels of emotional exhaustion are often linked to signs of depression and anxiety. The added pressure and persistent stress can cause these problems and intensify their severity. On the other hand, high levels of emotional exhaustion or burnout cause university students to feel they can no longer contribute emotionally, generating a sense of daily exhaustion [35].

Finally, regarding attitudes toward the COVID-19 pandemic, it was discovered that there are appropriate attitudes that predominate among university students (56.2%). These findings differ from those found by Ruiz , et al. [12] who observed predominantly negative and incorrect attitudes in university students. It is crucial to note that the presence of appropriate and positive attitudes can lead individuals to adopt preventive actions against COVID-19. Although infection rates have significantly reduced, specialists advise not to lower the alert and continue implementing preventive actions in the population [36]. Therefore, maintaining positive attitudes toward COVID-19 enables people to be willing to listen to and follow recommendations for prevention and proper treatment of COVID-19 [25]. In addition to the previous findings, a significant percentage expressed inappropriate attitudes toward COVID-19 (37.4%), although it is not predominant, but it is important to highlight that this

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 4: 406-414, 2025
DOI: 10.55214/25768484.v9i4.5995

group has developed these attitudes due to possible negative experiences with COVID-19. For example, the social distancing measures implemented during the pandemic led to unfavorable feelings because they were not allowed to leave home and were required to use them. As a result, rebellious behaviors were observed, especially on celebratory days, demonstrating that actions that were initially intended to be positive transformed into negative and annoying actions [25]. We could say that all of this has led to an ambivalent condition that has resulted in a specific stance toward COVID-19.

5. Conclusions

This study determined that the attitudinal factors toward COVID-19 predict 4.1% of emotional exhaustion in university students with a small effect size ($R2= 0.41$; $.10 > \beta < .20$). This explains that while attitudes toward the disease are appropriate or positive, the level of emotional exhaustion will be minimal, or vice versa.

It was identified that the attitudes of university students toward the COVID-19 pandemic are at an adequate level, with 56.2%, while the predominant level of emotional exhaustion, at 46.5%, is moderate; however, there are indications of high levels of emotional exhaustion in a regular percentage of the sample (40.7%).

It is determined that the Emotional-Affective dimension of the attitude toward the COVID-19 pandemic significantly and validly explains 8.4% ($R2= .084$; $p< .05$) of the variations in emotional exhaustion, with an effect size showing a medium impact ($.20 > \beta < .50$).

It was determined that the Behavioral dimension of the attitude toward the COVID-19 pandemic explains only 0.9% of the variations in emotional exhaustion ($R2= .009$), assuming that this dimension is not a predictor factor of emotional exhaustion ($\beta < .20$; $p> .05$).

It is determined that the Cognitive dimension of the attitude toward the COVID-19 pandemic explains only 1.1% of the variability in emotional exhaustion ($R2= .011$), inferring that this dimension is not a predictor factor of emotional exhaustion ($\beta < .20$; $p> .05$).

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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