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Influence of leader social capital on product innovation

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Abstract: This study was conducted with the aim of analyzing, evaluate and measuring the impact of leadership social capital on product innovation of plastic and packaging firms in Hanoi and neighboring provinces through survey results. Employees of packaging and plastic companies in Hanoi and the surrounding regions make up the survey participants. 305 respondents made up the study's sample, and the research subjects included accountants, salespeople, office workers, and other employees of plastic and packaging companies. Both qualitative and quantitative research techniques are employed by us. Regression models, correlation analysis, EFA analysis, and scale reliability analysis utilizing Cronbach's alpha coefficient were among the quantitative research techniques used using SPSS software. Research results show that leader social capital: colleague ingredients (LSC-C) and leader social capital: association of occupation ingredients (LSC-AOI) positively influence product innovation. However, no influence of leader social capital: business partners' ingredients (LSC-BP) on product innovation was found (PI = 0.363*LSC-C + 0.358*LSC-AOI). Based on this result, the study proposes some recommendations for plastic and packaging firms and employees.

Keywords: *Business administration, Economics, Leader social capital, Plastic and packaging firms, Product innovation.*

1. Introduction

Innovation in new products is not only a crucial step, but it is also a determining factor in a company's success. By serving as a conduit between the company and the market, new goods offer chances to grow market share, boost sales, and turn a profit. A new product's strength is its capacity to satisfy consumer demands and add unique value. New products can offer features and benefits that older models lack, or they can solve issues that consumers are having. In addition, new items foster innovation and creativity, which aid businesses in surviving or even surpassing market competition.

The process of designing and developing new or enhanced goods, services, or procedures is known as product innovation. This involves introducing novel concepts, features, technologies, or designs that create value for consumers and set the product apart from competing goods. A thorough awareness of the market, meticulous planning, and an efficient execution process are necessary for a successful product launch.

According to Yukl [1] leadership is the use of influence to motivate people to contribute to the accomplishment of objectives. According to Chemers [2] in order for leadership to be successful, leaders should prioritize legitimacy and credibility, build partnerships by learning about the needs and motivations of their subordinates, and cultivate relationships. allocate resources to achieve predetermined objectives. Additionally, leadership is predicated on their social relationship structure and cognitive ability [3]. According to Balkundi and Kilduff [3] a good leader is able to take advantage of each member's network of relationships both inside and outside the organization; they are aware of them.

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The packaging sector has contributed significantly to the Vietnamese economy in recent years and is regarded as a prospective industrial sector with opportunities arising from the growth of the industry, e-commerce, digital media, and trade agreements. The Vietnam Packaging Association's chairman, Mr. Nguyen Ngoc Sang, asserts that the packaging sector is becoming more and more significant. The value of packaging has increased by 12% annually on average, reaching 500 billion USD annually on a global scale. The packaging sector in Vietnam is expanding at a good and steady pace [4].

Vietnam's plastics sector has advanced significantly after a protracted period of development, particularly in the last several years. This sector is emerging as one of the most promising in the Vietnamese economy due to economic growth and rising consumer demand for plastic goods. But Vietnam is also dealing with a lot of difficulties in this sector. Plastic items are subject to many of the agreement's stringent requirements because of the low tax rates. Additionally, Vietnamese plastic companies face fierce rivalry from rivals worldwide, particularly from nations like China and India that have cheap production costs. Furthermore, raw materials are mostly imported from overseas, production costs are high, and science and technology for plastic production in Vietnam are still in their infancy. Therefore, product innovation is inevitable for plastic and packaging enterprises. And how leadership social capital affects product innovation is one of the necessary topics to study.

This study primarily aims to address the following research question (RQ):

RQ: How does the impact of leadership social capital (colleague ingredients, association of occupation ingredients, and business partners' ingredients) on product innovation of plastic and packaging firms in Hanoi and neighboring provinces?

2. Literature Review

2.1. Leader Social Capital: Colleague Ingredients (LSC-C)

Dansereau Jr, et al. [5] investigated the interactions between managers and staff. Originally known as Vertical Dyad Linkage (VDL), this strategy subsequently took two distinct turns. The first direction, the relationship model between leader and member exchange, was created by Graen and Uhl-Bien [6]. The second branch, the Individualized Leadership (IL) model, was created by Dansereau, et al. [7]. Scholars concentrate on the type of vertical connections that leaders establish with each follower. At work, a leader's relationships are seen as a network of vertical connections [8]. Worldwide, this theory is frequently used in fields like banking and finance [9] medicine [10] oil and gas [11] and non-governmental organizations (NGOs) [12]. In Vietnam, there are studies in the fields of commerce and services in small and medium enterprises [13] and culture [14].

Ambarwati, et al. [15] examined how open innovation, social capital, and human capital affected the performance of the tourism industry. Social capital, business networks, and other stakeholders are also essential to the tourism industry's survival and expansion. The social capital theory serves as the foundation for this study's analysis of open innovation and performance prediction of tourism enterprises.

2.2. Leader Social Capital: Business Partners Ingredients (LSC-BP)

Studying the network of connections between people, social capital examines the assets of people, organizations, or groups that are built and cultivated on the foundation of networks of reciprocal and trustworthy interactions. Next, take into account how the link network and resources have affected user behavior [16].

Communication, trust, friendliness, consensus, sharing, assistance, commitment, and responsibilities are all indicators of a leader's relationship network quality [17, 18].

The quality of a leader's network of connections with people inside the company and pertinent external partners is known as leadership social capital Nguyen and Huynh [17]. state that a leader's network of relationships consists of their family, friends, partners, superiors, and coworkers.

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2.3. Leader Social Capital: Association of Occupation Ingredients (LSC-AOI)

An organization that represents the interests of companies in the same industry is called a trade association. By supplying member firms with information on industry output, revenue, and exports, for example, local industry associations play a crucial role in bolstering foreign affairs for businesses [19]. Additionally, it hosts forums to talk about business operations and contact government organizations on matters of shared interest. In order to further the goals of the company, CEOs must thus build strong ties with stakeholders and industry groups [18].

Piccolo and Buengeler [20] assert that leaders are crucial to the process of establishing the objectives of their workforce. When leadership is goal-oriented, taking care of people is crucial, and the extent of this concern is based on how much the leader likes, respects, and trusts the employee (a high-quality relationship).

2.4. Product Innovation

According to risk level, Heany and Donald [21] identified six stages of product creation (See Table 1):

Table 1.
Six levels of product innovation.

Product innovation					
Market for the product	**Firm presence in this market**	**Customer perception of the product**	**Firm change**		**Innovation level**
			Product	**Procedure**	
Had	Had	Had	Small change	Are not	Change style
Had	Had	Had	Small change	Small change	Product improvement
Had	Had	Had	Significantly	Small change	Product expansion
Had	Had	Had	Big change	Big change	New product
Had	Not yet	Not yet	Big change	Big change	Start-up
Not yet	Not yet	Not yet	Big change	Big change	Comprehensive innovation

Source: Heany and Donald [21].

Although innovation exists in all facets of life, it can be characterized in companies as the application of novel concepts to generate value for the company [22]. Technical innovation and administrative innovation are the two facets of Organizational Innovativeness Theory (OIT) that people are interested in [23]. Technical innovation specifically refers to goods, services, and manufacturing methods. Administrative innovation, on the other hand, focuses on administrative procedures and organizational structure; in other words, it directly affects management and indirectly affects the fundamental tasks of an organization [24].

The development of a good or service that is novel or markedly better than its intended application or features is known as product innovation. According to the Development [25] this comprises notable advancements in technical standards, parts and materials, integrated software, usability, and other functional aspects.

Consequently, product innovation consists of: New product development is the process of developing completely original goods that address unmet demands or offer special advantages. Product enhancement is the process of making current products better by adding new features, enhancing functionality, or responding to user input. Product line extension: Offering upgrades or modifications to the original product to cater to various clientele groups. Process innovation is the process of developing better systems, procedures, or methods for producing or distributing a product in order to cut expenses and boost efficiency.

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2.5. Leader Social Capital and Product Innovation

According to a number of studies, social capital promotes knowledge growth, which serves as the basis for creating competitive advantage and business innovation [26]. Furthermore, by encouraging collaboration and coordination between individuals both inside and outside the company, social capital fosters innovation [27, 28].

Businesses will be encouraged to develop innovative products if they fulfill their commitments, establish positive policies with partners, and refrain from jeopardizing mutual benefits. Additionally, companies frequently fulfill their commitments and establish guidelines to preserve collaboration with business partners, and they frequently get referrals to new business prospects from their partners [28].

Business will grow when employees consistently fulfill their commitments, uphold connections [17] present new business prospects, and refrain from hurting one another [17]. Businesses gain market knowledge and information fast, which encourages product invention and enhancement and improves corporate performance.

3. Methodology

3.1. Samples and Data Processing

Two methods were used in the study: (i) the descriptive method and (ii) the questionnaire-based analytical method.

Both qualitative and quantitative research methodologies are employed by us. Managers of plastic and packaging companies with at least five years of experience who were highly knowledgeable about product innovation and leader social capital were chosen as interview subjects.

Primary sources were examined both in-person and online using Google Docs. Employees of plastic and packaging industries during the six months following the survey's administration were the main focus (see Table 2). A stratified random sample is used to gather primary data on 305 workers from plastic and packaging companies.

In this study, a 5-point Likert scale with a range of 1 to 5 was employed. For the dependent variable, 1 is completely disagree and 5 is completely agree. For the independent variable, 1 is completely no influence, and 5 is very strong influence.

The following tests were conducted using the statistical analysis program (SPSS): correlation analysis, EFA analysis, regression models, and scale reliability analysis using Cronbach's alpha coefficient.

3.2. Research Models

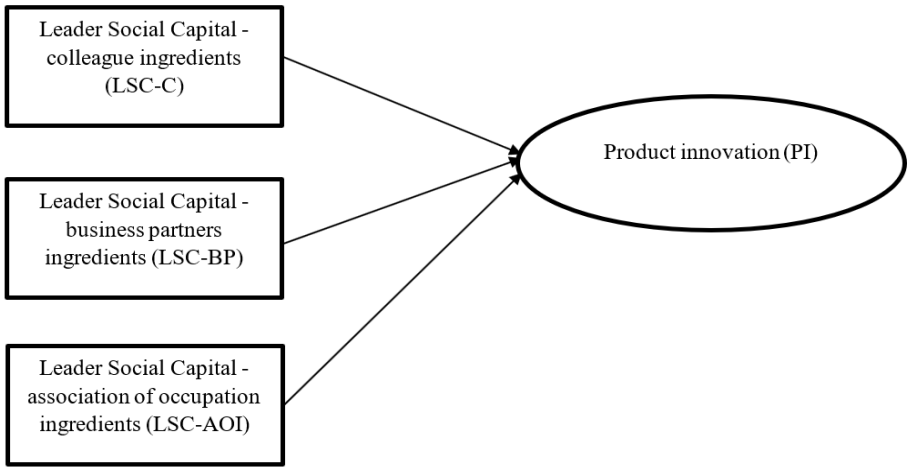

Figure 1.
Research model.

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Leader Social Capital - colleague ingredients (LSCC): Includes 3 observed variables (LSCC1, LSCC2, LSCC3) inherited from the research results of Nguyen [13].

Leader Social Capital - Business Partners ingredients (LSCBP): Includes 3 observed variables (LSCBP1, LSCBP2, and LSCBP3) inherited from the research results of Chu, et al. [29].

Leader Social Capital - association of occupation ingredients (LSCAOI). Includes 3 observed variables (LSCAOI1, LSCAOI2, and LSCAOI3) inherited from the research results of [30].

Product innovation (PI): Includes 4 observed variables (PI1, PI2, PI3, and PI4) inherited from the research results of Dao, et al. [31].

4. Results

4.1. Cronbach Alpha

The Cronbach alpha coefficient is used to assess the scales' internal reliability. The dependability of the scale used in the study is confirmed by the statistical results in Table 2, which indicate that Cronbach alpha values between 0.702 and 0.939 are higher than the significance level of 0.7. The item-total correlation for each observable variable on the scales is higher than 0.3. All of the scales are suitable for exploratory factor analysis since they satisfy the criteria [32-35].

Table 2.
Results of Cronbach's alpha testing of attributes and item-total statistics.

PI				
Cronbach's Alpha	**N of Items**			
0.946	**4**			
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PI1	10.931	3.952	0.908	0.918
PI2	11.033	3.775	0.842	0.939
PI3	10.938	3.927	0.900	0.920
PI4	10.889	3.955	0.835	0.939
LSC-C				
Cronbach's Alpha	Cronbach's Alpha			
0.840	0.840			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LSC-C1	7.177	2.830	0.633	0.844
LSC-C2	7.121	2.581	0.748	0.734
LSC-C3	7.328	2.596	0.732	0.749
LSC_BP				
Cronbach's Alpha	Cronbach's Alpha			
0.841	0.841			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LSC_BP1	6.997	2.911	0.632	0.846
LSC_BP2	7.148	2.508	0.781	0.702
LSC_BP3	6.951	2.639	0.706	0.777
LSC-AOI				
Cronbach's Alpha	Cronbach's Alpha			
0.849	0.849			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LSC-AOI1	6.298	2.092	0.675	0.832
LSC-AOI2	6.285	2.264	0.766	0.756
LSC-AOI3	6.170	1.964	0.727	0.782

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4.2. EFA Analysis

Component analysis and variance were then used to perform exploratory factor analysis (EFA), as shown in Tables 3.

The KMO index is 0.883, more than 0.5 (>0.5), according to the results of Bartlett's test, which was used to examine the possibility of correlation between the observed data. The extracted variance shows that these nine observable factors account for 72.027% of the variation in the data. If Sig. < 0.05, Bartlett's test is deemed statistically significant. Therefore, it can be said that the indicators included in the study satisfy the EFA analysis's standards [33-35].

These figures show that factor discovery research data analysis is appropriate. Nine elements of the leader social capital of plastic and packaging firms have been found by the EFA model's test and the scale's quality assurance [33, 34].

Table 3.
KMO and Bartlett's Test.

LSC	**KMO and Bartlett's Test**	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.883
Bartlett's Test of Sphericity	Approx. Chi-Square	1,621.473
	Df	36
	Sig.	0.000

4.3. Correlation Analysis

Table 4 displays the correlation matrix's findings. The leader social capital correlation coefficients with product innovation in plastic and packaging companies are more than 0.0, indicating a positive trend. Furthermore, all variables are connected if the sig. values are less than 0.05, indicating a linear relationship between the independent factors and the dependent variable [34]. Furthermore, there is virtually no chance of collinearity between the Leader Social Capital—colleague ingredients (LSC-C) and Leader Social Capital—association of occupation ingredients (LSC-AOI) because they are not correlated (sig = 0.000, smaller than 0.05, but the correlation coefficient is 0.412, smaller than 0.7); there is no chance of collinearity between the Leader Social Capital—business partners ingredients (LSC-BP) and Leader Social Capital—association of occupation ingredients (LSC-AOI) because they are not correlated (sig = 0.000, smaller than 0.05, but the correlation coefficient is 0.417, smaller than 0.7) [36]. The possibility of collinearity between the Leader Social Capital - Business Partners ingredients (LSC-BP) and Leader Social Capital—Colleague ingredients (LSC-C) because sig = 0.000, smaller than 0.05, and the correlation coefficient is 0.821, larger than 0.7, so it is necessary to check the VIF index in linear regression analysis to be able to make the most accurate assessment.

Table 4.
Correlations.

		Product Innovation	**Colleague**	**Business Partners**	**Association of Occupation**
Product innovation	Pearson Correlation	1	0.576**	0.528**	0.541**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	305	305	305	305
Colleague	Pearson Correlation	0.576**	1	0.821**	0.412**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	305	305	305	305
Business Partners	Pearson Correlation	0.528**	0.821**	1	0.417**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	305	305	305	305
Association of occupation	Pearson Correlation	0.541**	.412**	0.417**	1
	Sig. (2-tailed)	0.000	.000	0.000	
	N	305	305	305	305

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Thus, judgments on the impact of leader social capital on the capacity of the packaging and plastics industries to produce new products can be made. However, in addition to leader social capital, further research should be done on the other independent elements that impact the product innovation of plastic and packaging firms. More studies with bigger sample numbers and broader geographic scopes should be conducted in the future to increase the validity of the research findings.

4.4. Regression Model

Three independent variables and one dependent variable are included in the study, and the results are obtained by multiple regression analysis. In the regression phase of this study, product innovation (PI) will be the only variable.

Examine the relationship between leader social capital (LSC) and product innovation (PI) in plastic and packaging industries using model regression (see Figure 1). Table 5 illustrates the validity of the model and the relationships between the dependent and independent variables. This model's R-square value of 0.445 indicates that three factors explain 44.5% of the variance in product innovation (PI) in plastic and packaging industries [33]. With a 95% confidence level, the ANOVA test's p-value (sig. value) is 0.000, satisfying the criterion that it be less than 0.05 (Table 6). Stated differently, the ANOVA analysis demonstrates the relevance of the linear model [33].

Durbin-Watson statistics, which are used to verify the autocorrelation of residuals, show that the model is not violated when using the multiple regression approach because the Durbin-Watson value falls between 1 and 3 (DW = 2.013). In other words, residual autocorrelation is absent from the model [33]. Two independent variables are significant predictors of the dependent variable, as indicated by the coefficients result shown in Table 7 having two p-values (sig. values) less than 0.05 and one p-value (sig. value) greater than 0.05. Furthermore, the VIF values of the predictors are less than 5, which suggests that multicollinearity is not present [33]. Based on the result, the regression equation can then be ascertained as follows:

PI = 0.363*LSC-C + 0.358*LSC-AOI

Table 5.
Model Summary[b].

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.667[a]	0.445	0.440	0.48852	2.013

Note: a. Predictors (Constant): LSC-AOI, LSC-C, LSC-BP
b. Dependent Variable: PI.

Table 6.
Anova[a].

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	57.629	3	19.21	80.494	0.000[b]
	Residual	71.833	301	0.239		
	Total	129.462	304			

Note: a. Dependent Variable: PI
b. Predictors: (Constant): LSC-AOI, LSC-C, LSC-BP.

Table 7.
Coefficients[a].

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.286	0.155		8.290	0.000		
LSC-C	0.302	0.063	0.363	4.780	0.000	0.319	3.131
LSC-BP	0.066	0.063	0.080	1.045	0.297	0.318	3.149
LSC-AOI	0.334	0.044	0.358	7.518	0.000	0.811	1.233

Note: a. Dependent Variable: PI.

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5. Discussion and Implications

A furniture company can boost product innovation and refine its product strategy by getting feedback on designs, styles, patterns, and product materials from customers and business partners. Furthermore, it was shown through expert conversations that leader social capital aids businesses in coming up with numerous product innovation ideas, particularly in the plastic and packaging industries.

According to Dai, et al. [28] a company can enhance its product innovation when its employees share the same vision and goals, keep their word, build relationships, and collaborate to solve problems. Additionally, businesses that concentrate on establishing tight coordination systems among departments or units to accomplish tasks will encourage more product innovation.

Demand for expansion in a variety of industries, including the plastics industry in general and plastic enterprises in particular, has been fueled by Vietnam's expanding economy. Plastic products are becoming more and more in demand throughout industries, particularly in the construction and packaging sectors.

The economy as a whole will become more dynamic, competitive, and efficient when numerous businesses collaborate to develop. More businesses taking part in and succeeding in innovation activities is something that policymakers frequently desire. This is particularly crucial for economies in transition, such as Vietnam, where there aren't many innovative businesses, particularly small and medium-sized ones.

Even companies who have never developed innovative items before can start to do so in a more favorable business climate. In a setting where few companies have historically developed innovative products, a more favorable business environment benefits the vast majority of small and medium-sized businesses in Vietnam.

In the business world, a strategic partner is a connection between two companies that is frequently established by explicit, legally binding contracts and that collaborates to achieve shared objectives. Two companies that are strategic partners will work together to grow a particular field. To establish a product brand, for instance, commercial organizations will collaborate to promote and advertise. the partnership between a small business and a manufacturing company that specializes in offering technical and production knowledge in order to develop a new, specialized product.

Potential partners are those who might be a good fit for the company's collaborative goals. They are not cooperating at the moment, but if the chance to do so arises in the future, it will benefit both of them greatly.

Business executives must build strong bonds with their partners. Leaders must routinely communicate, visit, meet, and assist as individuals to establish trust in order to accomplish this. Transactions and mutual assistance in business will be easier when you and your company partner have a positive relationship.

Human resources are the most important part of every organization, and if this part is of better quality, the chances of the organization's success will increase [37]. The worker's motivation is the key to his or her efficiency [38]. So, plastic and packaging firms should pay more attention and encourage workers, thereby helping them feel secure in working and successfully implementing the business's product innovation plan.

Additionally, the Vietnamese plastics export business is growing. The development intentions of large-scale businesses caused a sharp increase in supply in several countries worldwide.

Due to their cheap and plentiful human resources, Vietnamese plastic companies are able to offer a lower pricing. Through tax laws and industrial park incentives, the Vietnamese government is promoting investment in the plastics sector.

According to shifts in consumer behavior, the COVID-19 pandemic that struck in early 2020 had both beneficial and bad effects on the packaging sector. Lockdowns, travel restrictions, and a lack of workers have caused significant disruptions in the packaging industry, as they have in many other businesses. The production materials are mostly imported and make up 60% to 70% of the cost, but the supply chain is disrupted, raw materials are scarce, and raw material prices have gone up.

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Product groupings and packaging materials were used to differentiate the packaging industry's picture from the previous year. Pharmaceutical packaging, food packaging, and labeling are the results of the robust growth of the consumer goods, pharmaceutical, and health care product industries as well as e-commerce in terms of product groupings. Hand sanitizers, detergents, soap containers, and disinfectants are all in high demand right now. However, there is typically less demand for packaging for industrial and luxury goods.

In addition to its negative effects, COVID-19 offers the Vietnamese packaging industry new prospects for growth by speeding up innovation and digitization and increasing production volume and marketplaces for consumption in several nations. favorable packaging segment, particularly the increased awareness of the beneficial function of packaging in society. However, each company must be able to quickly adjust, have plans that are appropriate for each stage of development, and guarantee that the quality and design of packaging meet ever-increasing standards in order to turn prospects into reality. Clear traceability, smarter, ease of use, and good preservation.

Employees will focus more on their work and produce better work outcomes when they trust their superiors and feel safe working with them. Therefore, leaders must focus more on their employees, provide honest guidance and recommendations for their advancement, understand their needs, and know how to inspire passion, dedication, and hard work for their employer. They must also support salespeople, help employees gain confidence, and have a positive mindset to conduct business. The findings of this investigation are entirely in line with those of earlier research [39, 40].

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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