



RESEARCH ARTICLE

Determinants of Green Cosmetic Purchase Intentions in Malaysia

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ABSTRACT

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The purpose of this study is to investigate the determinants that impact Malaysian consumers' intent to purchase green cosmetics, a market that is expanding at a rapid rate within the cosmetics sector. The study derived the underpinning theory from the Theory of Planned Behaviour (TPB). A survey using online questionnaire were conducted using convenience sampling where the qualified respondents were collected. A total of 385 samples were successfully collected for the study. The hypotheses were tested using regression analysis in the SPSS. The findings showed that attitude, subjective norms and perceived behaviour control (PBC) have significant influence on consumers' intentions to purchase green cosmetics in Malaysia. Attitude had the highest beta meaning the most influencing factor on the intention to purchase green cosmetics. This research emphasizes the importance of attitude in considering the factors examined for marketers in order to increase the market competitiveness. The study also showed that Theory of Planned Behaviour a potent theory in explaining purchase behaviours of consumers.

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INTRODUCTION

There has been a global uptick in the demand for cosmetics that are free of harmful chemicals and are suitable for use by people of all ages ever since the COVID-19 epidemic (Lee and Kwon, 2022). Multinational cosmetics corporations have expanded their product lines to include more eco-friendly options in response to rising consumer demand (Kumar et al., 2021; Zollo et al., 2021). From 2019 to 2023, the global market value for ecological cosmetics exhibits a marginal annual increase, as sales increase from \$34.5 billion in 2018 to \$44.5 billion in 2023, the global green cosmetics market is undergoing substantial expansion. Projections (Roberts, 2022) predict that the market will reach a value of \$54.5 billion by that year. The expansion of ecological cosmetics may contribute in some way to achieving the Sustainable Development Goals. Goal 12 of the Sustainable Development Goals (SDGs) addresses the matter of responsible production and consumption. Responsible production and consumption promotes a higher quality of life, sustainable infrastructure, fundamental services, green and respectable employment, and sustainable energy and resource efficiency (United Nations, 2023). Sustainable Development Goal 12 (Panigrahi, 2023) states that in order to reduce the

environmental impact of human activities and ensure the sustainable use of resources, it is necessary to promote responsible production and consumption patterns. The cosmetic industry can contribute to reducing environmental pollution, climate change and the greenhouse effect by substituting chemical constituents with natural resources and utilizing biopolymers for cosmetic packaging (Kakkalamei et al., 2022). Recent researchers had even indicated the growing number of studies for green finance (Xu et al, 2024).

The historical development of green cosmetics in Malaysia is proving the expanding worldwide trend towards sustainable and environmentally friendly of green cosmetics. The concept of sustainable consumption has experienced a surge due to individuals have becoming more concerned of the environmental and personal impacts of their purchases (Chua et al., 2020). The revenue of the green cosmetics market in Malaysia demonstrates a marginal annual growth trajectory from 2019 to 2023. The government's support has been critical in fostering the awareness of green cosmetics in the Malaysian market. Tax and financial incentives, such as the Green Technology Financing Scheme (GTFS), Green Investment Tax Allowance (GITA) and Green Income Tax Exemption (GITE) can have significant influence on this trend (Hoong & Ling, 2023). Only then green cosmetics can have a significant foothold in Malaysia's mainstream markets (Ur Rehman et al., 2023).

The Ministry of Health Malaysia has identified significant challenges in the Malaysian cosmetic industry pertaining to the disposal of chemical cosmetics containing poisonous substances such as hydroquinone, tretinoin, mercury, and betamethasone 17-valerate. The aforementioned values exert a substantial influence on their approach to decision-making (Martins and Marco, 2023). Consequently, there has been a surge in the desire for green cosmetics, characterised by their use of natural ingredients, environmentally responsible packaging, and ethical manufacturing processes.

A limited findings exists with regard to the determinants of intention to purchase green cosmetics in Malaysia (Abas et al., 2022). Nonetheless, determining Malaysians' purchasing intentions for the green cosmetics is critical. Today, individuals of all genders widely use these cosmetics. An examination of consumers' perspectives on green cosmetics can provide marketers and the beauty industry with valuable consumer insights and guidelines for improving future consumer perception and intent to purchase. These had motivated the purpose and the significance of this study. Thus, the objective of this study is to examine the influence of attitude, subjective norm and perceived behaviour control on the intention to purchase green cosmetics in Malaysia.

LITERATURE REVIEW

Within a fiercely competitive market, there is a rising curiosity among marketers and industries to pinpoint the worldwide factors that influence purchase intention. The role of consumers in economics is crucial, as they are the ones who buy specific products and services from vendors in exchange for payment (Naini et al., 2022). Having a strong base of loyal customers is crucial for a business's success. These customers not only contribute to the organization's revenue but also play a significant role in providing valuable feedbacks and recommendations. Several studies conducted by Malaysian researchers have found the factors that influence individuals' inclination to buy different products such as organic food and automobiles (Sulaiman et al., 2022). Factors that related to different products can influence the likelihood of purchase in Malaysia where environmental concern plays a role in shaping purchase intention. In a study conducted by Manickam (2022), a significant correlation was found between environmental concern and the intention to purchase plant-based product. Aziz et al. (2022) arrived at a similar conclusion regarding the impact of environmental concern on the purchasing intentions of Malaysian consumers on organic foods. However, the findings of Hamzah and Tanwir (2021) with regards the intention to purchase hybrid vehicles were found to contradictory. Malaysian scholars have been increasingly on studying the various factors that have an indirect impact on consumers' likelihood to participate in online shopping (Hoo et al., 2024) and green tourism (Abdullah et al., 2022).

Purchase intention (PI)

Many academics and researchers have examined into the concept of purchase intention for marketing. Purchase intention refers to an individual's inclination or expectation to acquire a specific product or service through purchase (Jonsson et al., 2019). In addition, Zhuang et al. (2021) provided further insights into how consumers perceive purchase intention as a key driver in their decision-making process when it comes to buying products and services. According to Lin and Sheng (2023), purchase intention is the term used to describe a consumer's desire to buy a particular product or service. Customers gather information from various sources, compare products and then make a purchase to reach their conclusion.

According to social psychology literature, it is widely accepted that an individual's attitude has a significant impact on their behaviour. Consumer awareness and preference for environmentally friendly products is consistently highlighted as crucial. Ajzen (2020) defines "consumer attitude" as the degree to which a person has a positive or negative opinion about a particular behaviour. This study provides a description of how an individual's behaviours align with their emotions regarding different aspects of consumption (Amoako et al., 2020). Previous studies have explored the correlation between consumers' intention to buy environmentally-friendly cosmetics and their opinions about them. Many researchers have highlighted the connection between consumer purchasing intentions and their attitudes towards green cosmetics. Studies on green products can be found from many countries such as South Africa (Shimul et al., 2022), Indonesia (Andika et al., 2023) and Hungary (Echchad & Ghaith, 2022). Tan et al. (2019) had studied the purchase intention in the context of health supplement in Malaysia. Paraman et al. (2023) concluded that research on hotel services has produced uncertain findings.

Subjective norm (SN)

Subjective norms have a significant influence on people's tendency to purchase specific products or services. The study by Hameed et al. (2019) focuses on how individuals perceive the assessment of a specific action by their peers. Subjective norms, as described in research statements published by Kokila and Sampathlakshmi (2020) revolved around the social pressures that individuals perceive when deciding whether or not to participate in a particular behaviour. In addition, a wide range of social and peer factors can have an impact on consumer behaviour especially among adolescents. These factors include the information they receive, recommendations from others, the level of trust, their interactions with others, and their daily routines (Gunawan et al., 2023). In a recent study conducted by Shimul et al. (2022), empirical evidence was found to support the idea that subjective norms have a significant impact on the intention to purchase green cosmetics. Wang et al. (2021) highlighted the important impact of subjective norms on consumer purchase intentions. The intentions of consumers to purchase specific products are greatly influenced by how others perceive them. Thus, subjective norms play a crucial role in shaping the outcome of events.

Perceived behavioural control (PBC)

People evaluate their own ability to perform a specific behaviour is referred to as Perceived Behaviour Control (PBC) (Ajzen, 1991). Perceived Behaviour Control (PBC) plays a vital role as it reflects an individual's perception of the level of difficulty associated with performing a specific behaviour. This statement highlights the importance of voluntary control in shaping an individual's emotions towards their behaviour. It also emphasises the role of perception in influencing behaviour and the level of control it has over one's actions (Ajzen, 2006). Customers who have a strong sense of agency are more likely to regulate their behaviour when faced with external influences that affect their decision-making. This is because they believe they have more opportunities and resources at their disposal. Prior studies have examined the correlation between consumers' intentions to buy green cosmetics and their perceived behaviour control (PBC). Several researchers have found a strong and statistically significant link between perceived behaviour control (PBC) and the intention to buy environmentally friendly cosmetics (Meliniasari & Mas'od, 2024). According to a recent study by Wilson and Edelyn (2022), they found that the perception of behaviour control (PBC) has a

significant impact on the intention to buy green cosmetics in Indonesia. Despite the ongoing debates the literature on variables and purchase intent remains contested. Although there have been many studies conducted on consumers' purchase intentions regarding green cosmetics, there is a lack of information on this topic in Malaysia. This study aims to fill a knowledge gap by conducting tests on the significance of the relationship between purchase intention and subjective norms, perceived behaviour control (PBC), and attitude.

This study used Theory of Planned Behaviour (TPB) in examining a different context to analyse and predict behaviour. Thus, the focus of this study is on investigating green purchase intention by utilising the Theory of Planned Behaviour (TPB). Studies had shown that this theory was frequently utilised for prediction particularly in assessing consumer intentions to purchase green products (Shimul et al., 2022).

Tengli and Srinivasan's (2022) research uncovered a strong and favourable connection between consumers' attitudes and their inclination to buy eco-friendly cosmetic products in Indonesia. According to Mamun et al. (2020), consumer attitudes play a role in shaping the level of desirability for ecological cosmetics among the Malaysian public. According to a study conducted in Malaysia among generation Y, it was found that consumer attitude plays a significant role in influencing the intention to purchase natural skin care products. However, subjective norms were not found to have a significant impact on the use of these products (Boon et al., 2020). Thus, this study developed the following hypothesis: The significance of the relationship between attitude and intention to purchase ecological cosmetic products in Malaysia is evident.

In addition, prior research, particularly in China, has demonstrated that subjective norms have a significant impact on individuals' intention to purchase green hygiene products (Rahman et al., 2022). Previous studies have found a notable link between subjective norms and the inclination to buy eco-friendly cosmetics, specifically among young consumers in Malaysia (Sapri et al., 2023). Research indicates that the likelihood of individuals intending to purchase environmentally friendly products is influenced by subjective norms in a positive manner. Therefore, it is possible to formulate a subsequent hypothesis. Based on the data collected in Malaysia, it can be concluded that there is a notable correlation between subjective norms and the intention to purchase ecological cosmetic products.

A study conducted by Ahsan and Ferdinando (2023) examined the relationship between the purchasing intention of female consumers in Sri Lanka and their preference for ecological cosmetics. Based on the results, it was found that the model successfully accounted for 67.3% of the variance in predicting purchase intentions. In addition, the study found that perceived behaviour control (PBC) had a positive impact on purchase intention for ecological cosmetics. In a study conducted by Soo and Gong (2023), it was found that the perception of control over behaviour has a significant impact on the purchase intention of generation Z in Malaysia when it comes to green products. Thus, the following is a proposal for the hypothesis underlying the subsequent research. There is a notable correlation in Malaysia between perceived behaviour control (PBC) and the intention to purchase green cosmetic products.

METHODOLOGY

Research design

The present study employs a descriptive cross-sectional design to examine the determinants that impact the intention of Malaysian consumers to purchase green cosmetics. The objective of this study is to ascertain the relationship that exists between attitude subjective norm, perceived behavioural control and purchase intention.

Technique

Snowball sampling was the method that was used in the data collection process. The minimal number of samples that must be collected from individuals who use green cosmetics is 385 (Krejcie & Morgan, 1970).

Participants

In order to achieve the goals of the research, an emphasis has been placed on collecting samples for this research. Participation in the survey is open to any Malaysian citizen who is at least 18 years old, has used cosmetics in the past, and is knowledgeable about green cosmetics.

Data collection tool

A survey using online questionnaires will be send using Google Link via WhatsApp to friends and families of the researchers. The respondents will self-administer to the completion of the questionnaire. The data collected from respondents in the questionnaire encompassing demographic characteristics, independent variables and the dependent variable of this study. All variables will be assessed using a Likert scale consisting of five points, ranging from 1 (strongly disagree) to 5 (strongly agree). The relationship between independent and dependent variables is tested using SPSS software. P-values will be utilised to ascertain which variables are significant. In scientific inquiry, the "P-value" is employed to illustrate a probability, whereas the "significance level" (alpha) is utilised to represent a predetermined probability. In most cases, the null hypothesis states that no significant difference exists between variables. Rejecting the null hypothesis occurs when the p-value is less than the predetermined significance level.

RESEARCH FINDINGS

Table 1: Profile of respondents

Demographics	Frequency	Percent (%)
Gender		
Male	129	33.5
Female	256	66.5
Age		
18-23	155	40.3
24-30	106	27.5
31-40	70	18.2
41-50	30	7.8
>50	24	6.2
Ethnicity		
Malay	56	14.5
Chinese	284	73.8
Indian	36	9.4
Others	9	2.3
Educational Level		
High School	26	6.8
Certificate	13	3.4
Diploma/ Bachelor	286	74.3
Postgraduate	60	15.6
Income Level		
<RM2,000	187	48.6
RM2,001-RM3,000	41	10.6
RM3,001-RM4,000	54	14.0
RM4,001-RM5,000	27	7.0
>RM5,000	76	19.7

Source: Ng (2024)

This study distributed the 385 questionnaires collected through the online Google form using a comprehensive set of social media platforms. This study gathered 385 responses in total, indicating a 100% response rate. Each of the 385 collected data points is valid and usable. Table 4 depicts the demographic profile of the respondents. 5.129 of the total respondents were male, representing 33.5 percent of the sample. 66.5% of the 256 remaining respondents identified as female. The proportion of female participants in the study was greater than that of male participants. Subsequently, it is evident that a considerable proportion of the participants, precisely those aged 18 to 23, constituted 40.3% of the total sample. Furthermore, the age distribution of the respondents was as follows: 106 individuals (27.5%) fell within the 24 to 30 age bracket, 70 individuals (18.2%) belonged to the 31 to 40 age group, and 30 individuals (7.8%) were between 41 and 50 years of age. In conclusion, the research sample comprised a mere 24 participants who were 50 years of age or older, representing a mere 6.2% of the overall composition.

This study will also conduct an examination of the respondents' ethnic backgrounds. A considerable proportion of the participants, 73.8 percent, self-identified as Chinese, whereas 14.5 percent identified as Malay, as indicated in Table 4.5. Indian respondents comprise 9.4% of the total, whereas respondents of other ethnicities make up 2.3%. Furthermore, according to the data presented in Table 4.5, a considerable proportion of the participants (74.3%) possess a bachelor's degree or diploma, whereas 15.6% have undertaken a master's or PhD programme. A minority of the respondents (3.8%) have fulfilled the requirements for a high school diploma, and an even smaller proportion (3.4%) have completed Certificated, Foundation, or A-Level programmes.

The participants of 48.6% have monthly income to RM 2,000 or less. Following that, 19.7% of the participants belong to the income bracket exceeding RM 5,000. In addition, 14.0% of the participants reported earning between RM 3,001 and RM 4,000 per month. 10.6% of the 385 participants are in the RM 2,001 to RM 3,000 bracket, while 7.0% are in the RM 4,001 to RM 5,000 bracket.

Reliability testing using the Cronbach's alpha coefficients for perceived behaviour control (PBC), subjective norms, and attitude are 0.818, 0.880, and 0.851, respectively. These values are greater than recommended value. Thus, this study have deemed all items to be consistent and appropriate for further analysis.

Hypothesis testing

Table 2: Pearson correlation coefficients

Correlations					
		Purchase Intention (PI)	Attitude (ATT)	Subjective Norms (SN)	Perceived Behaviour Control (PBC)
Purchase Intention (PI)	Pearson Correlation	1	.681**	.610**	.613**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	385	385	385	385
Attitude (ATT)	Pearson Correlation	.681**	1	.542**	.493**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	385	385	385	385
Subjective Norms (SN)	Pearson Correlation	.610**	.542**	1	.631**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	385	385	385	385
Perceived Behaviour Control (PBC)	Pearson Correlation	.613**	.493**	.631**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	385	385	385	385

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Ng (2024)

Table 2 shows the correlation between attitude and purchase intention is the strongest, followed by subjective norms and perceived behaviour control (PBC). Multiple regression analyses the

relationship between variables and evaluates the framework's capacity to explain the research phenomenon. This study can conclude that the model adequately fits the data when the R-squared value surpasses 0.4. An R square value below 0.4 indicates a low correlation, indicating a negligible effect of the model on the dependent variable (Srinivasan, 2024). Hair et al. (2010) stated that a higher R square value indicates a stronger fit for the model. This study investigated purchase intentions in relation to three independent factors: attitude, subjective norms, and perceived behaviour control (PBC). This regression utilises perception, subjective norms, and perceived behaviour control (PBC) as predictor variables. The use of these predictors is critical in assessing purchase intention.

Table 3: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766a	.587	.584	.43734
a. Predictors: (Constant), Attitude, Subjective Norms, Perceived Behaviour Control (PBC)				

Source: Ng (2024)

According to table 3, this study have adjusted the R-squared value for the multiple regression model to 0.584. This study's independent variables account for 58.4% of the variability in the dependent variable. Factors not investigated in the present study may account for the remaining 41.6% of the variation not explained by the predictors.

Table 4: ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.529	3	34.510	180.428	<.001 ^b
	Residual	72.872	381	.191		
	Total	176.401	384			
a. Dependent Variable: Purchase Intention						
b. Predictors: (Constant), Attitude, Subjective Norms, Perceived Behaviour Control (PBC)						

Source: Ng (2024)

From Table 4, the p-value of less than 0.05 (Sig. <0.05) indicated that the model fit the data collected.

Table 5: Coefficients

Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics VIF
		B	Std. Error	Beta			
1	(Constant)	.567	.167		3.397	<.001	
	Attitude (ATT)	.509	.047	.438	10.871	<.001	1.497
	Subjective Norms (SN)	.156	.035	.204	4.505	<.001	1.883
	Perceived Behaviour Control (PBC)	.222	.036	.268	6.152	<.001	1.756
a. Dependent Variable: PI							

Source: Ng (2024)

From Table 5, the p-values for attitude, subjective norms, and perceived behaviour control (PBC) are all less than 0.05. This study established that when the p-value is less than 0.05, attitude, subjective norms, and perceived behaviour control (PBC) significantly influence consumers' purchase intention in Malaysia. According to the results in Table 5, the beta coefficients for attitude are the highest in this study. This suggests that attitude exerts a more pronounced influence on purchase intention in comparison to subjective norms and perceived behaviour control (PBC).

Multicollinearity occurs in a regression model when two or more independent variables are highly correlated. Shrestha (2020) explains that a high degree of multicollinearity exists between the independent variable and the others when the variance inflation factors (VIF) surpass 5. On the other hand, when this study set the variance inflation factor (VIF) to 1, study observe no correlation between the independent and dependent variables. As the variance inflation factor (VIF) value is between 1 and 4, suggesting that multicollinearity concerns that may lead to skewness do not exist among these variables.

Table 6: Summary of the findings

Hypothesis	Hypothesis Description	Findings	Conclusion
H1	Attitude (ATT) has a significant relationship on purchase intention (PI) towards green cosmetic products in Malaysia.	$\beta = 0.509$ t - value = 10.871 p - value = <.001 Pearson Correlation = 0.681	Supported
H2	Subjective Norms (SN) has a significant relationship on purchase intention (PI) towards green cosmetic products in Malaysia.	$\beta = 0.156$ t - value = 4.505 p - value = <.001 Pearson Correlation = 0.610	Supported
H3	Perceived Behaviour Control (PBC) has a significant relationship on purchase intention (PI) towards green cosmetic products in Malaysia.	$\beta = 0.222$ t - value = 6.152 p - value = <.001 Pearson Correlation = 0.613	Supported

Source: Ng (2024)

Table 6 showed that there is a statistically significant relationship between the attitude and purchase intentions of Malaysian consumers ($\beta = 0.509$, $p < .001$, Pearson Correlation = 0.681). In other words, this indicates that attitude has a substantial impact on the intention to purchase ecological cosmetics. This supports the H1 hypothesis. The current result aligns with the findings of previous research by Boon et al. (2020) which established that consumers' attitudes significantly influence their buying intentions. When environmental concerns receive greater priority, consumers are more inclined to purchase green products as they perceived as having a positive impact on the environment thus explaining this correlation (Mutiarra et al., 2023).

Furthermore, the study reveals an association between subjective norms and the purchase intentions of consumers with a Pearson correlation value of 0.610, a beta coefficient of 0.156, and a p-value below 0.001. As a result, H2 is supported. This result is consistent with Sapri et al.'s (2023) research which suggested that subjective norms significantly influence purchase intention. Echchad and

Ghaith (2022) study also showed similar results with impact of social circles including family members on the intention to purchase environmentally friendly cosmetics.

Lastly, perceived behaviour control (PBC) also significantly influences the intention of Malaysian consumers to purchase green cosmetics. Purchase intention is significantly correlated with perceived behaviour control (PBC) ($\beta = 0.222$; p -value $< .001$; Pearson correlation value = 0.613). As a result, H3 is also supported. This finding aligns with prior study conducted by Ahsan and Ferdinando (2023) and Bui et al. (2021).

CONCLUSION

Implications: Based on the aforementioned findings, marketers in the cosmetics industry can implement a few recommendations suggested below to increase their market share. The results of this study show that there is a strong link between the factors of buying environmentally friendly cosmetics in Malaysia and the factors like perceived behaviour control (PBC), subjective norms and attitude. Therefore, this study recommends that Malaysian cosmetic industries and marketers to increase their financial investments in educational initiatives to raise awareness about the environmental impact of consumer decisions. Informing consumers about the environmental advantages of green products and services, such as green cosmetics. The activities will have heightened consumer purchase intentions and leading to growth in both companies' sales (Prabakar, 2023). This shows that increased awareness may result in a favorable attitude that motivates Malaysian consumers to purchase more green cosmetics.

This study uses multiple regression analysis to predict the relationship between factors that affect purchase intention such as attitude, subjective norms and perceived behaviour control (PBC). This fills in a gap in the existing research on environmentally friendly cosmetics in Malaysia. The results of this research can serve as a foundational framework for forthcoming investigations that scrutinise the determinants that impact the intention to purchase environmentally friendly cosmetics in Malaysia. This is particularly valuable given the current lack of research in this area. The results of this study may contribute significantly to the knowledge base of academics interested in investigating additional variables or employing alternative methodologies to reveal a more details of this context.

Limitation: Due to budget constraints this study used convenience sampling through social media which may not represent the behaviour of the entire Malaysian population. Additionally, the majority of the research respondents came mainly from an ethnicity thus hamper the generalisation of study on the purchase intentions towards green cosmetic in Malaysia.

Future research suggestion: In the future, it will be beneficial to explore other factors that may impact the intention to buy green cosmetics in Malaysia not just focusing on attitude, subjective norms, and Perceived Behaviour Control (PBC). This is because 41.6% of the variance is not explained by the predictors and may be attributable to variables that have not been investigated in this study. Therefore, future studies might investigate other variables, such as relative benefits, risk, and trust, to ascertain their impact on purchasing intention towards green cosmetics in Malaysia.

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

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Authors' contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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