Article

The effect of greenwashing on green purchase intention: Perceived betrayal as a mediator and brand loyalty as a moderator

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Abstract: Building upon the cognition-affect-behavior model, this research aims to investigate the effect of greenwashing on consumers purchase intentions by testing the mediating effect of perceived betrayal and the moderating effect of brand loyalty. Data was collected through a questionnaire from 339 Chinese consumers involved in the fashion industry. AMOS 24 was employed to test the fitness of the proposed model, and the proposed hypotheses were tested through hierarchical regression analysis using SPSS 23. The results indicate that greenwashing has a negative impact on consumer purchase intentions, with perceived betrayal partially mediating this relationship. Additionally, the findings show that brand loyalty can mitigate the adverse effects of greenwashing on consumer purchase intentions. The findings of this study enhance the existing knowledge on the relationship between greenwashing and consumer purchase intentions, particularly in the fashion industry, and have significant practical implications for companies in this sector aiming to increase consumer purchase intentions.

Keywords: greenwashing; green purchase intentions; perceived betrayal; brand loyalty

1. Introduction

At present, intensifying business competition has prompted companies to adopt novel marketing strategies for product promotion. The escalating environmental degradation and growing concern over global warming further underscore the appeal of green marketing strategies in attracting consumer interest (Zhang et al., 2018). Consequently, many companies are integrating environmental considerations into their marketing strategies (Sun and Shi, 2022). By emphasizing sustainable development and environmental stewardship in their promotional efforts, businesses aim to enhance product sales while simultaneously building a robust brand image. However, the rising consumer preference for green products has incentivized companies to engage in practices known as greenwashing. Greenwashing refers to a company or organization spending a lot of money and time to promote its green and environmentally friendly brand image to boost product sales, while in reality, it does not minimize its negative impact on the environment (Gatti, 2019). This phenomenon represents deceptive advertising aimed at misleading environmentally conscious consumers who seek genuinely eco-friendly products under trusted green brand labels (Nguyen et al., 2019).

Previous research on greenwashing has primarily focused on its causes and impacts within industries such as automotive (Siano et al., 2017), electronics (Chen and Chang, 2013), finance (Wang and Sarkis, 2017), and hospitality (Rahman et al., 2015). However, there is limited research on greenwashing in the fashion industry.

According to Majlath (2017), greenwashing has become increasingly common in the fashion industry. Furthermore, the extant literature predominantly comprises studies conducted in Western countries (Blome et al., 2017; Kim and Lyon, 2015; Nyilasy et al., 2014). Although greenwashing is a global issue, there are fundamental differences between China's fashion industry and other industries or Western contexts, making this study both unique and necessary (Kastanakis and Voyer, 2014). For example, cultural differences play a significant role in shaping consumer perceptions and behaviors. China's cultural background, including values, traditions, and social norms, may lead to consumer perceptions of greenwashing that differ from those of consumers in Western contexts. Thus, considering the rapid expansion of the fashion industry in China and the rising environmental consciousness among Chinese consumers, who are progressively seeking green products (Jung et al., 2020), this study examines the impact of greenwashing in the fashion industry on consumer purchase intentions within the Chinese context to fill this gap.

Perceived betrayal in consumer contexts refers to the extent to which consumers believe that a company has intentionally violated the norms of their interactions (Sun and Shi, 2022). According to Peasley et al. (2021), consumers' attitudes towards a company are significantly influenced by the company's social responsibility actions, including greenwashing activities (Sun and Shi, 2022). As consumers' attitudes toward a company are generally considered to have a significant impact on their purchasing behavior (Jones et al., 2017), this study argues that the potential effect of greenwashing on purchase intentions may initially be shaped by changes in consumer perceived betrayal. In other words, when consumers perceive a company's green claims as misleading or insincere, it may lead to feelings of betrayal, thereby impacting their trust and subsequent purchase intentions.

In addition, brand loyalty refers to consumers' psychological preference for a brand, reflecting their level of trust and reliance on it (Atulkar, 2020; Lau and Lee, 1999). Most research regards brand loyalty as a direct factor triggering customer purchase intentions (Chen et al. 2020; Panda et al., 2020), while limited academic studies explore its moderating role between greenwashing and consumer purchase intentions. In fact, the impact of greenwashing activities by companies on purchase intentions of consumers with high brand loyalty is typically smaller, even though these consumers are more likely to recognize greenwashing activities and be aware of their negative effects. This is because consumers with high brand loyalty have developed a deep-seated trust in the brand through consistent positive experiences. This trust leads them to interpret misconduct as a temporary lapse rather than a fundamental issue, making them more forgiving. Thus, following this logic, this study proposes that brand loyalty moderates the relationship between greenwashing and purchase intentions.

Overall, this research, drawing on the cognition-affect-behavior (C-A-B) model, aims to investigate the impact of greenwashing in the fashion industry on consumer purchase intentions, as well as the mediating role of perceived betrayal and the moderating role of brand loyalty in the relationship between greenwashing and purchase intentions.

2. Theoretical background and hypotheses

2.1. The cognition–affect–behavior model

This research employs the C-A-B model to understand the underlying mechanism of greenwashing on customer purchase intentions. Initially, cognition within this model focuses on consumers' knowledge and beliefs regarding a company's environmental practices (Holbrook and Batra, 1987). Greenwashing, defined as the deceptive or exaggerated marketing of a product or company's environmental benefits, introduces a critical discrepancy between communicated claims and actual environmental impact. This discrepancy undermines consumers' trust and credibility assessments, shaping their cognitive evaluations.

Affect, the emotional component of the C-A-B model, plays a pivotal role in consumer responses to greenwashing. Emotional responses are elicited based on consumers' beliefs about the sincerity of environmental claims (Bhattacharya and Sen, 2004). Greenwashing can evoke negative emotions such as skepticism, disappointment, or even anger when consumers feel misled or deceived by misleading environmental assertions. These emotional reactions significantly influence consumer perceptions and subsequent behaviors (Howard and Sheth, 1969). Furthermore, behavior represents the final stage of the C-A-B model, where cognitive assessments and emotional responses converge to shape consumer decision-making (Carrington et al., 2010). If consumers perceive greenwashing, their trust in the company's environmental commitments diminishes, leading to a reassessment of their purchase intentions. This can manifest in consumers choosing not to purchase from the company and seeking alternative products or brands perceived as more transparent and genuinely committed to sustainability practices.

2.2. Effect of greenwashing on purchase intention

Shah et al. (2012) defined purchase intention as the willingness of consumers to buy a specific brand's products or services. Hameed et al. (2021) argued that companies engage in greenwashing to enhance consumer willingness to purchase their brands, thereby increasing sales volumes. However, Sun and Shi (2022) caution that consumers may reduce their purchase intentions upon realizing that greenwashing practices primarily benefit the brand without genuinely contributing to environmental causes. This short-term profit gain from greenwashing could ultimately lead to long-term negative impacts on brand reputation and consumer trust (Nguyen et al., 2019; Sun and Shi, 2022). Furthermore, research by Wang (2015) on Zara illustrates how greenwashing in the fast fashion industry can undermine a brand's profitability. Wang (2015) suggests that misleading green claims can alter consumer behavior and diminish their willingness to support environmentally dubious brands. Similarly, Cerchia and Piccolo (2019) highlight that widespread greenwashing by fashion retailers can erode consumer confidence in genuinely eco-friendly products, thereby weakening market demand for sustainable goods. In addition, Chen et al. (2020) found that greenwashing negatively affects consumer green purchasing behavior. Based on this literature review, the following hypothesis is proposed:

Hypothesis 1: Greenwashing has a negative effect on consumer purchase

intentions.

2.3. Perceived betrayal as a mediator

The concept of perceived betrayal operates within the framework of the affective component of consumer responses, as posited by the C-A-B model. It encapsulates the emotional responses evoked when consumers feel deceived or misled by corporate claims regarding sustainability (Bhattacharya and Sen, 2004). Such emotional reactions are critical determinants of consumer behavior, influencing their subsequent attitudes towards the brand and their purchasing decisions. In the context of greenwashing, perceived betrayal intensifies negative emotions such as distrust, disappointment, and anger, thereby exacerbating the erosion of consumer trust in the company's environmental integrity. Research indicates that consumers who perceive betrayal due to greenwashing are more likely to exhibit decreased purchase intentions towards the implicated brand or product (Lyon and Maxwell, 2011; Sun and Shi, 2022). Therefore, when consumers perceive that a company has engaged in greenwashing practices—misleading them about the environmental attributes of products or corporate practices—they experience a sense of betrayal, thereby influencing consumer purchase intention. Thus, this research proposes as following:

Hypothesis 2: perceived betrayal mediates the relationship between greenwashing and consumer purchase intentions.

2.4. Brand loyalty as a moderator

Brand loyalty denotes consumers' psychological inclination toward a brand, indicative of their trust and dependence on it (Atulkar, 2020). In the C-A-B model, brand loyalty functions as a buffer against the detrimental effects of greenwashing on consumer behavior. According to Bhattacharya and Sen (2004), consumers who have developed strong brand loyalty are emotionally and psychologically invested in the brand's values, including those related to environmental sustainability. These loyal consumers may initially experience cognitive dissonance when faced with compelling evidence of wrongdoing. This is because consumers with high brand loyalty have developed deep-seated trust in the brand, leading them to interpret misconduct as temporary errors rather than fundamental issues, making them more forgiving (Carrington et al., 2010). Therefore, brand loyalty may moderate the negative effect of greenwashing on consumer purchase behavior. In the current literature, brand loyalty is commonly regarded as a precursor to customer purchase intention (Panda et al., 2020). However, there has been limited research focusing on its moderating effects. To address this gap, we propose the following hypothesis:

Hypothesis 3: brand loyalty moderates the relationship between greenwashing and consumer purchase intentions.

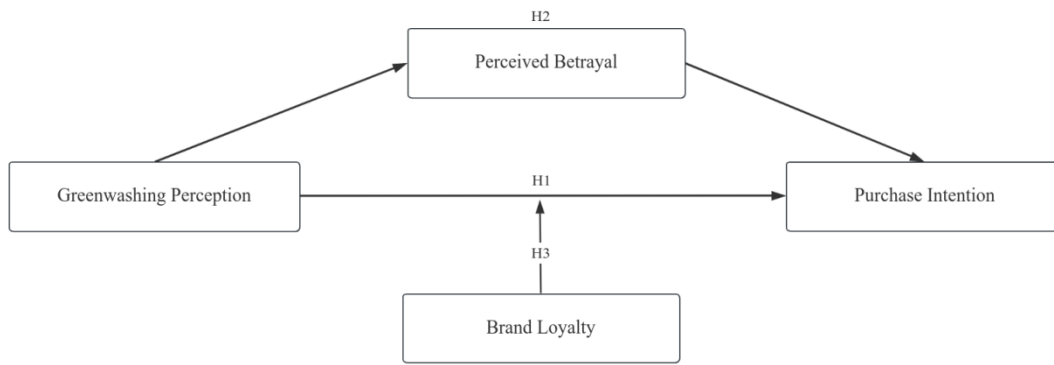**Figure 1** presents the research framework.

Figure 1. The research framework.

3. Method

3.1. Participants and data collection

The questionnaire served as the primary data collection method for this study and was distributed and managed online. A cover letter was attached to the questionnaire, informing participants that the participation was anonymous. This assurance of privacy can encourage participants to feel more at ease, thereby promoting honest responses. Ensuring the credibility of the answers will result in more accurate findings (Barchard and Williams, 2008). Since the measurement scales are in English, but the study's context is in China, the original scales were translated into Chinese for the survey. A simple random sampling strategy was employed to reach the target population, which consists of customers in the Chinese fashion industry. By contacting users who follow the fashion industry on social media (mainly from Douyin), they were invited to complete the questionnaire. A total of 360 questionnaires were received, of which 339 were valid and used as research data. The data was analyzed using SPSS version 23 and Amos 24.

In the sample set, 69.7% were female and 30.3% were male. As for the age, 11.2% were under 20 years old, 29.6% were aged 21–30, 26.4% were aged 31–40, 20.8% were aged 41–50, and 12.0% were over 50 years old. Regarding education, 64.7% of respondents had a bachelor's degree or higher. In terms of monthly income, the majority (84.6%) had a monthly salary between 3,000 and 15,000 yuan.

3.2. Measurement

All items in the study were adopted from prior research and measured using a Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither/nor, 4 = agree, 5 = strongly agree). **Table 1** present the details.

In addition, drawing on previous research (Sun and Shi, 2022; Zhang et al., 2018), consumers purchase intentions may be influenced by their gender, age, educational background, and income. Therefore, this study includes these four demographic variables as control variables.

Table 1. Measurement scales.

Construct	Measurement Items	Source
Greenwashing	1) The product misleads with words regarding its environmental features. 2) The product misleads with visuals or graphics regarding its environmental features. 3) The product is associated with a green claim that is vague or seemingly un-provable. 4) The product overstates or exaggerates what its green functionality actually is. 5) The product leaves out or masks important information, making the green claim sound better than it is.	Zhang et al. (2018)
Purchase intentions	1) I would recommend others to buy products from this company. 2) I am happy to buy products from this company because it cares about the environment. 3) I am willing to buy other related products from this company because of its environmental performance. 4) I am happy to buy products from this company because it is environmentally friendly.	Sun and Shi (2022)
Perceived betrayal	1) I was lied to by the company. 2) I felt seriously betrayed. 3) The company has practised deception on me. 4) I believe that the company is taking advantage of me.	Grégoire and Fisher (2008)
Brand loyalty	1) This brand would be my first choice. 2) I consider myself to be loyal to this brand. 3) I will not buy other brands if the same product is available at the store. 4) I recommend this brand to someone who seeks my advice. 5) I get good value for my money. 6) I say positive things about this brand to other people.	Algesheimer et al. (2005)

4. Results

4.1. Reliability and validity

We conducted the analysis using SPSS version 23 and AMOS 24 to assess the validity and reliability of the structure and evaluate the proposed model. Recognizing cultural differences in the scales, we performed an exploratory factor analysis (EFA) prior to the confirmatory factor analysis (CFA). The results indicated that the KMO value was 0.915, surpassing the threshold of 0.7, and Bartlett's test of sphericity was significant (Sig. < 0.05). Additionally, **Table 2** displays the results of the rotated component matrix, confirming a 4-factor solution consistent with the proposed model.

Table 2. Component matrix after rotation.

Variables	Items	Component			
		1	**2**	**3**	**4**
Brand loyalty (BL)	BL 1	0.803	−0.138	−0.101	0.172
	BL 3	0.798	−0.198	−0.156	0.104
	BL 6	0.784	−0.178	−0.160	0.096
	BL 2	0.780	−0.101	−0.179	0.124
	BL 5	0.771	−0.097	−0.130	0.164
	BL 4	0.771	−0.092	−0.179	0.167
Greenwashing (GW)	GW 4	−0.127	0.811	0.108	−0.138
	GW 1	−0.181	0.792	0.111	−0.146
	GW 5	−0.096	0.789	0.159	−0.144
	GW 3	−0.136	0.784	0.091	−0.223
	GW 2	−0.165	0.769	0.161	−0.132

Table 2. (*Continued*).

Variables	Items	Component			
		1	2	3	4
Perceived betrayal (PB)	PB 4	−0.189	0.118	0.844	−0.089
	PB 2	−0.180	0.125	0.800	−0.168
	PB 3	−0.184	0.139	0.791	−0.218
	PB 1	−0.191	0.203	0.777	−0.098
Purchase intentions (PI)	PI 4	0.188	−0.168	−0.127	0.799
	PI 3	0.112	−0.222	−0.132	0.797
	PI 2	0.160	−0.168	−0.127	0.782
	PI 1	0.222	−0.163	−0.178	0.773

This study used AMOS 24 software to conduct CFA to examine the discriminant validity of the four variables: greenwashing, purchase intention, perceived betrayal, and brand loyalty. The results are shown in **Table 3**. The four-factor model (greenwashing, purchase intentions, perceived betrayal, and brand loyalty) demonstrated a good model fit: $\chi^2 = 162.703$, $\chi^2/df = 1.114$, RMSEA = 0.018, CFI = 0.995, GFI = 0.954, and AGFI = 0.940. Additionally, all standard factor loadings (SFL) were above 0.7, ranging from 0.749 to 0.823. All values for composite reliability (CR) and average variance extracted (AVE) met the recommended thresholds (Greenwashing: CR = 0.884, AVE = 0.605; Purchase intentions: CR = 0.860, AVE = 0.605; Perceived betrayal: CR = 0.873, AVE = 0.631; Brand loyalty: CR = 0.904, AVE = 0.611). Therefore, this study exhibits good internal consistency and adequate convergent and discriminant validity.

Table 3. Results of confirmatory factor analysis.

Constructs	Items	SFL	CR	AVE
Greenwashing (GW)	GW 1	0.786		
	GW 2	0.762		
	GW 3	0.786	0.884	0.605
	GW 4	0.788		
	GW 5	0.766		
Purchase intentions (PI)	PI 1	0.789		
	PI 2	0.749	0.860	0.605
	PI 3	0.777		
	PI 4	0.795		
Perceived betrayal (PB)	PB 1	0.764		
	PB 2	0.786	0.873	0.631
	PB 3	0.804		
	PB 4	0.823		

Table 3. (*Continued*).

Constructs	Items	SFL	CR	AVE
	BL 1	0.802		
	BL 2	0.770		
Brand loyalty (BL)	BL 3	0.811	0.904	0.611
	BL 4	0.769		
	BL 5	0.751		
	BL 6	0.784		

Note: $\chi^2 = 162.703$, $\chi^2/df = 1.114$, GFI = 0.954, AGFI = 0.940, CFI = 0.995, RMSEA = 0.018.

4.2. Common method bias

Considering that the data for this study were collected from a single source, there is potential for introducing common method bias, which could exaggerate the relationships between variables (Eichhorn, 2014). To further ensure the validity and reliability of the research findings, a common method bias test was conducted. This study employed Harman's single factor test to determine the presence of common method bias in the data. The results indicated that a single factor accounted for 21.358% of the variance, which is below the 40% threshold (Kock et al., 2021). Additionally, recognizing the potential insensitivity of Harman's single-factor test (Baumgartner et al., 2021), this study added CFA to further ensure minimal impact from common method bias. The results showed that the chi-square value for the single latent factor model was 1625.599 ($p < 0.001$), which is significantly higher than the chi-square value of 162.703 ($p < 0.001$) for the proposed four-factor model. Therefore, this study does not have issues related to common method bias.

4.3. Descriptive statistics and correlations

Table 4 presents the means (*M*), standard deviations (*SD*), and correlation coefficients among the variables. As expected, greenwashing is significantly negatively correlated with purchase intention ($r = -0.44$, $p < 0.01$) and brand loyalty ($r = -0.39$, $p < 0.01$), while significantly positively correlated with perceived betrayal ($r = 0.38$, $p < 0.01$).

Table 4. Means, standard deviations, and correlations.

Variables	M	SD	1	2	3	4	5	6	7	8
1. Gender	1.61	0.49	1							
2. Age	2.82	1.10	0.01	1						
3. Education	2.42	0.95	−0.03	−0.11	1					
4. Income	2.52	0.98	−0.05	0.34**	0.15**	1				
5. Greenwashing	3.31	0.96	−0.06	0.00	−0.07	−0.02	1			
6. Purchase intention	2.67	0.97	0.03	0.02	0.11	0.01	−0.44**	1		
7. Perceived betrayal	3.40	0.99	−0.06	0.12*	−0.09	0.02	0.38**	−0.40**	1	
8. Brand loyalty	2.65	0.96	0.07	−0.01	0.06	−0.06	−0.39**	0.42**	−0.44**	1

Note: *$p < .05$; **$p < 0.01$ (two-tailed).

4.4. Hypothesis testing

This study tested the proposed hypotheses using hierarchical regression analysis, with the results detailed in **Table 5**. First, regarding the direct impact of greenwashing on consumer purchase intentions, Model 2 reveals a significant negative relationship between greenwashing and purchase intention ($\beta = -0.44$, $p < 0.01$), thus supporting H1. This indicates that higher levels of perceived greenwashing are associated with lower consumer purchase intentions.

In addition, concerning the mediating role of perceived betrayal in the relationship between greenwashing and consumer purchase intentions, Model 3 shows that after adding perceived betrayal to the model, the coefficient of greenwashing on purchase intention is -0.38 ($p < 0.01$), and the coefficient of perceived betrayal on purchase intention is -0.27 ($p < 0.01$). This demonstrates that perceived betrayal partially mediates the effect of greenwashing on consumer purchase intentions, thus supporting H2. This partial mediation suggests that while greenwashing directly decreases purchase intentions, a portion of this effect is channeled through the consumers' sense of betrayal.

Table 5. Results of hierarchical regression analysis.

	Purchase intention				
	M1	*M2*	*M3*	*M4*	*M5*
Constants	2.23	3.845	4.42	2.74	2.81
Control variables					
1) Gender	0.07	0.02	−0.01	-0.008	0.00
2) Age	0.04	0.04	0.06	0.030	0.04
3) Education	0.11*	0.08	0.07	0.070	0.07
4) Salary	−0.02	−0.02	−0.02	0.001	-0.01
Independent variable					
Greenwashing		−0.44**	−0.38**	−0.33**	−0.31**
Mediator					
Perceived betrayal			−0.27**		
Moderator and interactor					
Brand loyalty				0.29**	0.27**
Greenwashing * Brand loyalty					0.18**
ΔR^2	0.00	0.19	0.25	0.26	0.29
R^2	0.01	0.20	0.27	0.28	0.31
F	1.16	17.02**	20.12**	20.96**	20.70**

Note: *$p < 0.05$; **$p < 0.01$; two-tailed tests.

Furthermore, regarding the moderating role of brand loyalty, the results in **Table 5** indicate that brand loyalty moderates the relationship between greenwashing and purchase intention. Specifically, Model 5 shows that the interaction term between greenwashing and brand loyalty has a significant effect on purchase intention ($\beta = 0.18$, $p < 0.01$), thus supporting H3. To further illustrate the interaction effect, a simple slope

analysis was conducted, as shown in **Figure 2**. This analysis reveals that consumers with high brand loyalty are less negatively impacted by greenwashing compared to those with low brand loyalty, indicating that strong brand loyalty can buffer the adverse effects of greenwashing on purchase intentions.
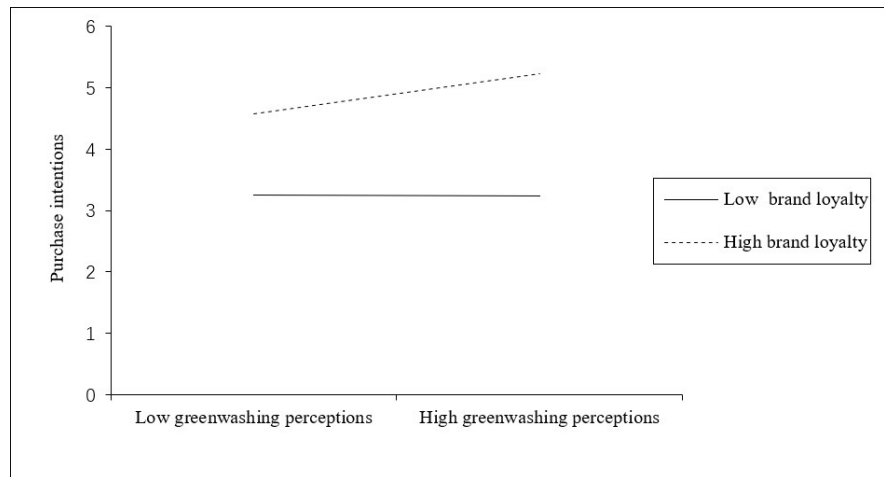

Figure 2. Moderating effect of brand loyalty.

5. Conclusions and discussion

5.1. Conclusions

This study aims to apply the C-A-B model to investigate the impact of greenwashing on purchasing intentions among customers in the fashion industry. It examines the mediating effect of perceived betrayal and the moderating effect of brand loyalty. The proposed framework is supported by the findings of this research.

First, Hypothesis 1 of this study received robust support. Consistent with the hypothesis and previous research (Nguyen et al., 2019; Sun and Shi, 2022; Zhang et al., 2018), the results confirm that greenwashing negatively impacts consumer purchase intentions. This finding underscores the importance of genuine environmental efforts in shaping consumer behavior, emphasizing the need for authenticity and ethical practices in purchase decisions. Secondly, the mediation analysis indicates that perceived betrayal partially mediates the relationship between greenwashing and consumer purchase intentions, supporting Hypothesis 2. This finding is consistent with the findings of Sun and Shi (2022). It suggests that when consumers perceive a discrepancy between a brand's environmental claims and actual practices, they experience feelings of betrayal, which consequently reduces their willingness to purchase from the brand. Third, the study finds that brand loyalty acts as a moderating factor that mitigates the adverse impact of greenwashing on consumer purchase intentions, supporting Hypothesis 3. Customers with strong brand loyalty are more likely to maintain positive purchase intentions even in the face of greenwashing allegations or suspicions. This underscores the strategic importance of cultivating loyal customer relationships, as loyalty acts as a protective buffer against the negative effects of greenwashing (Carrington et al., 2010).

5.2. Theoretical and practical implications

This research contributes to the literature in several ways. First, it significantly advances the existing literature by applying the C-A-B model to the context of greenwashing and its impact on customer purchase intentions. By elucidating the mediating role of perceived betrayal, this study enhances the understanding of how cognitive dissonance induced by greenwashing translates into affective responses that ultimately influence consumer behavior. In addition, this study innovatively introduces brand loyalty as a moderating variable between greenwashing and consumer purchase intentions, thereby expanding the C-A-B model. The research demonstrates that pre-existing positive attitudes towards a brand can buffer the negative impact of perceived greenwashing, providing a more comprehensive framework for understanding the cognitive and emotional processes underlying consumer responses to deceptive marketing practices. Thirdly, while existing literature on greenwashing has predominantly focused on Western contexts (Blome et al., 2017; Kim and Lyon, 2015; Nyilasy et al., 2014), this study contributes by examining the impact of greenwashing in the fashion industry within a Chinese context. This not only extends the generalizability of greenwashing findings but also elucidates how greenwashing influences consumer purchasing decisions across different cultural settings.

These findings also carry several practical implications. First, the study results indicate that greenwashing has a direct negative impact on consumer purchase intentions. Businesses should focus on substantive environmental actions rather than superficial green marketing strategies to build and maintain consumer trust. Genuine commitment to environmental sustainability is essential for leveraging the opportunity of green consumption. Second, perceived betrayal partially mediates the negative relationship between greenwashing and purchase intentions. Therefore, businesses facing greenwashing controversies should take timely measures to mitigate perceived betrayal. This could involve promptly disclosing detailed information about their environmental practices to reduce consumer skepticism. Thirdly, when customers exhibit higher brand loyalty, the negative impact of greenwashing on their purchase intentions is less pronounced compared to those with lower brand loyalty. Therefore, businesses should prioritize and continuously enhance consumer brand loyalty. Strategies such as long-term loyalty programs and consistent, genuine interactions with customers can help foster and sustain brand loyalty.

5.3. Limitations and future research

This study acknowledges several limitations. Firstly, the data was collected solely through self-reports from consumers, which are susceptible to common method bias and may exaggerate the relationships between variables (Podsakoff et al., 2003). Therefore, future research could employ multiple methods to address the limitations arising from relying solely on self-report data. Secondly, this study is based on cross-sectional data, which cannot capture the dynamic processes of variables over time and may also lead to recall bias (Levin, 2006). Therefore, future research could employ a longitudinal study design to better capture the causal relationships between variables. Finally, because this study was conducted within a Chinese context, its findings may

have limited generalizability to other cultural settings. Future research could expand the scope by exploring these phenomena in different cultural backgrounds to enhance the broader applicability of the results.

Author contributions: Conceptualization, JS and NAO; methodology, JS and NAO; software, JS; validation, JS; formal analysis, JS and NAO; investigation, JS; resources, JS; data curation, JS; writing—original draft preparation, JS; writing—review and editing, JS and NAO; visualization, JS; supervision, NAO; project administration, JS; funding acquisition, JS. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Algesheimer, R., Dholakia, U. M., & Herrmann, A. (2005). The Social Influence of Brand Community: Evidence from European Car Clubs. Journal of Marketing, 69(3), 19–34. https://doi.org/10.1509/jmkg.69.3.19.66363

Atulkar, S. (2020). Brand trust and brand loyalty in mall shoppers. Marketing Intelligence & Planning, 38(5), 559–572. https://doi.org/10.1108/mip-02-2019-0095

Barchard, K. A., & Williams, J. (2008). Practical advice for conducting ethical online experiments and questionnaires for United States psychologists. Behavior Research Methods, 40(4), 1111–1128. https://doi.org/10.3758/brm.40.4.1111

Baumgartner, H., Weijters, B., & Pieters, R. (2021). The biasing effect of common method variance: some clarifications. Journal of the Academy of Marketing Science, 49(2), 221–235. https://doi.org/10.1007/s11747-020-00766-8

Bhattacharya, C. B., & Sen, S. (2004). Doing Better at Doing Good: When, Why, and How Consumers Respond to Corporate Social Initiatives. California Management Review, 47(1), 9–24. https://doi.org/10.2307/41166284

Blome, C., Foerstl, K., & Schleper, M. C. (2017). Antecedents of green supplier championing and greenwashing: An empirical study on leadership and ethical incentives. Journal of Cleaner Production, 152, 339–350. https://doi.org/10.1016/j.jclepro.2017.03.052

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why Ethical Consumers Don't Walk Their Talk: Towards a Framework for Understanding the Gap Between the Ethical Purchase Intentions and Actual Buying Behaviour of Ethically Minded Consumers. Journal of Business Ethics, 97(1), 139–158. https://doi.org/10.1007/s10551-010-0501-6

Cerchia, R. E., & Piccolo, K. (2019). The Ethical Consumer and Codes of Ethics in the Fashion Industry. Laws, 8(4), 23. https://doi.org/10.3390/laws8040023

Chen, Y.-S., & Chang, C.-H. (2012). Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk. Journal of Business Ethics, 114(3), 489–500. https://doi.org/10.1007/s10551-012-1360-0

Chen, Y.-S., Huang, A.-F., Wang, T.-Y., et al. (2018). Greenwash and green purchase behaviour: the mediation of green brand image and green brand loyalty. Total Quality Management & Business Excellence, 31(1–2), 194–209. https://doi.org/10.1080/14783363.2018.1426450

Eichhorn, B. R. (2014). Common method variance techniques. Cleveland State University, Cleveland, OH: SAS Institute Inc, 1(11).

Gatti, L., Seele, P., & Rademacher, L. (2019). Grey zone in – greenwash out. A review of greenwashing research and implications for the voluntary-mandatory transition of CSR. International Journal of Corporate Social Responsibility, 4(1). https://doi.org/10.1186/s40991-019-0044-9

Grégoire, Y., & Fisher, R. J. (2007). Customer betrayal and retaliation: when your best customers become your worst enemies. Journal of the Academy of Marketing Science, 36(2), 247–261. https://doi.org/10.1007/s11747-007-0054-0

Hameed, I., Hyder, Z., Imran, M., et al. (2021). Greenwash and green purchase behavior: an environmentally sustainable perspective. Environment, Development and Sustainability, 23(9), 13113–13134. https://doi.org/10.1007/s10668-020-01202-1

Holbrook, M. B., & Batra, R. (1987). Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising. Journal of Consumer Research, 14(3), 404. https://doi.org/10.1086/209123

Howard, J. A., & Sheth, J. N. (1969). A Theory of Buyer Behavior Wiley. Available online: https://www.jagsheth.com/consumer-behavior/a-theory-of-buyer-behavior/ (accessed on 3 May 2023).

Jones, R. J., Reilly, T. M., Cox, M. Z., et al. (2017). Gender Makes a Difference: Investigating Consumer Purchasing Behavior and Attitudes Toward Corporate Social Responsibility Policies. Corporate Social Responsibility and Environmental Management, 24(2), 133–144. Portico. https://doi.org/10.1002/csr.1401

Jung, H. J., Choi, Y. J., & Oh, K. W. (2020). Influencing Factors of Chinese Consumers' Purchase Intention to Sustainable Apparel Products: Exploring Consumer "Attitude–Behavioral Intention" Gap. Sustainability, 12(5), 1770. https://doi.org/10.3390/su12051770

Kastanakis, M. N., & Voyer, B. G. (2014). The effect of culture on perception and cognition: A conceptual framework. Journal of Business Research, 67(4), 425–433. https://doi.org/10.1016/j.jbusres.2013.03.028

Kim, E.-H., & Lyon, T. P. (2015). Greenwash vs. Brownwash: Exaggeration and Undue Modesty in Corporate Sustainability Disclosure. Organization Science, 26(3), 705–723. https://doi.org/10.1287/orsc.2014.0949

Kock, F., Berbekova, A., & Assaf, A. G. (2021). Understanding and managing the threat of common method bias: Detection, prevention and control. Tourism Management, 86, 104330. https://doi.org/10.1016/j.tourman.2021.104330

Lau, G. T., & Lee, S. H. (1999). Consumers' trust in a brand and the link to brand loyalty. Journal of market-focused management, 4, 341-370. https://doi.org/10.1023/A:1009886520142

Levin, K. A. (2006). Study design III: Cross-sectional studies. Evidence-Based Dentistry, 7(1), 24–25. https://doi.org/10.1038/sj.ebd.6400375

Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate Environmental Disclosure under Threat of Audit. Journal of Economics & Management Strategy, 20(1), 3–41. https://doi.org/10.1111/j.1530-9134.2010.00282.x

Majláth, M. (2017). The Effect of Greenwashing Information on Ad Evaluation. European Journal of Sustainable Development, 6(3). https://doi.org/10.14207/ejsd.2017.v6n3p92

Nguyen, T. T. H., Yang, Z., Nguyen, N., et al. (2019). Greenwash and Green Purchase Intention: The Mediating Role of Green Skepticism. Sustainability, 11(9), 2653. https://doi.org/10.3390/su11092653

Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2013). Perceived Greenwashing: The Interactive Effects of Green Advertising and Corporate Environmental Performance on Consumer Reactions. Journal of Business Ethics, 125(4), 693–707. https://doi.org/10.1007/s10551-013-1944-3

Panda, T. K., Kumar, A., Jakhar, S., et al. (2020). Social and environmental sustainability model on consumers' altruism, green purchase intention, green brand loyalty and evangelism. Journal of Cleaner Production, 243, 118575. https://doi.org/10.1016/j.jclepro.2019.118575

Peasley, M. C., Woodroof, P. J., & Coleman, J. T. (2020). Processing Contradictory CSR Information: The Influence of Primacy and Recency Effects on the Consumer-Firm Relationship. Journal of Business Ethics, 172(2), 275–289. https://doi.org/10.1007/s10551-020-04514-4

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., et al. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Rahman, I., Park, J., & Chi, C. G. (2015). Consequences of "greenwashing." International Journal of Contemporary Hospitality Management, 27(6), 1054–1081. https://doi.org/10.1108/ijchm-04-2014-0202

Shah, S. S. H., Aziz, J., Jaffari, A. R., et al. (2012). The impact of brands on consumer purchase intentions. Asian Journal of Business Management, 4(2), 105-110.

Siano, A., Vollero, A., Conte, F., et al. (2017). "More than words": Expanding the taxonomy of greenwashing after the Volkswagen scandal. Journal of Business Research, 71, 27–37. https://doi.org/10.1016/j.jbusres.2016.11.002

Sun, Y., & Shi, B. (2022). Impact of Greenwashing Perception on Consumers' Green Purchasing Intentions: A Moderated Mediation Model. Sustainability, 14(19), 12119. https://doi.org/10.3390/su141912119

Wang, Z., & Sarkis, J. (2017). Corporate social responsibility governance, outcomes, and financial performance. Journal of Cleaner Production, 162, 1607–1616. https://doi.org/10.1016/j.jclepro.2017.06.142

Zhang, L., Li, D., Cao, C., et al. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. Journal of Cleaner Production, 187, 740–750. https://doi.org/10.1016/j.jclepro.2018.03.201