EREM 81/3
Journal of Environmental Research, Engineering and Management
Vol. 81 / No. 3 / 2025
pp. 21–32
10.5755/j01.erem.81.3.41909

How Consumers' Materialistic Values and Narcissistic Tendencies Affect Their Pro-Environmental Attitudes, Intentions, and Choices

Received 2025/06 | Accepted after revisions 2025/07

https://doi.org/10.5755/j01.erem.81.3.41909

How Consumers' Materialistic Values and Narcissistic Tendencies Affect Their Pro-Environmental Attitudes, Intentions, and Choices

Linas Pupelis*, Beata Šeinauskienė, Aušra Rūtelionė
School of Economics and Business, Kaunas University of Technology, Lithuania

***Corresponding author:** linas.pupelis@ktu.edu

This research examines how materialism-success influences pro-environmental attitudes, intentions, and behaviors, with a particular focus on the potential moderating role of narcissism. The research comprises three separate studies: Study 1 (N = 201) assessed the relationship between materialism-success and pro-environmental attitudes; Study 2 (N = 291) explored how materialism-success affects pro-environmental intentions and behaviors in an online shopping task; and Study 3 (N = 100) investigated whether narcissism moderates these relationships. Regression analyses revealed a weak negative effect of materialism-success on pro-environmental attitudes. Contradicting previous research, materialism-success was found to have a small but positive effect on pro-environmental intentions and behavior. Narcissism did not emerge as a statistically significant moderator in these relationships. Chi-square analyses suggest that narcissism may still influence the overall pattern of associations, possibly through other mechanisms. These findings highlight the complexity of value-driven pro-environmental behaviors and suggest the need for further research to uncover additional psychological and contextual factors. The study's limitations include a simulated consumer context and a focus on a limited range of product categories. Future research should validate these findings across broader, real-world settings.

Keywords: Materialism, pro-environmental behavior, narcissism, sustainability, values.

Introduction

The existing body of research concerning the associations between materialism and pro-environmental attitudes yields inconclusive results. The meta-analysis of Hurst et al. (2013) reveals a negative association between materialism and pro-environmental attitudes and behavior. Furthermore, it highlights that the strength of the relationship between materialism and pro-environmental attitudes (excluding behavior) varies depending on the recency of the publications. The more recent the publication, the less negative association is observed. As an explanation, Hurst et al. (2013) propose that environmental concerns have attained a level of global recognition that even individuals with materialistic perspectives find it challenging to dispute these issues when expressing their views. This observation is supported and extended by more recent research highlighting the widespread integration of environmental issues into global policy and public awareness. For example, studies show that over 130 nations have incorporated nature-based solutions into their climate adaptation and mitigation strategies, reflecting broad governmental acknowledgment of environmental challenges (Seddon et al., 2020). Psychological and behavioral research confirms that environmental risk perception now influences attitudes across diverse cultural and economic groups (Hornsey et al., 2016; Clayton et al., 2015). Moreover, recent analyses of globalization, technological innovation, and policy stringency demonstrate complex but generally positive effects on ecological footprints in major economies, underscoring the growing prioritization of sustainability in global governance (Zhao et al., 2025). Finally, global risk assessments such as the World Economic Forum's 2025 report emphasize that environmental threats rank among the highest long-term risks recognized by experts worldwide, signaling a consensus that transcends individual or materialistic worldviews (World Economic Forum, 2025).

Above noted policy initiatives and societal pressures toward sustainable lifestyles create a particular challenge for materialistic consumers, who must reconcile their materialistic aspirations with pro-environmental goals. Recent shifts in research findings–from a predominantly negative to a potentially positive relationship between materialism and environmentalism–call for new explanations (Hurst et al., 2013). One promising avenue is exploring the role of consumer personality characteristics, such as narcissism. Narcissists are driven by impression management and social approval motives, potentially leading to strategic prosocial or pro-environmental behaviors when such actions enhance their self-image (Bergman et al., 2014). Consequently, narcissistic individuals may frame pro-environmental behaviors as opportunities to boost their status or reputation (Leckelt et al., 2018). In our study, we propose that even when narcissistic consumers endorse materialistic, success-oriented values, their concern for self-image may mitigate the negative impacts of these values on pro-environmental outcomes. For narcissists, displaying environmental concern can become another means of gaining admiration and signaling superiority. This motivation makes them more receptive to pro-environmental initiatives, despite underlying materialistic tendencies.

While numerous studies have explored various situational factors and personality traits for their influence on materialism and pro-environmental inclinations, the role of narcissism in moderating the relationship between these two phenomena has been relatively underexplored. The relationships between materialism and narcissism (Rose, 2007), as well as between narcissism and pro-environmental behavior (Bergman et al., 2014), have been extensively explored, however, these investigations have primarily been conducted in isolation, not in conjunction. Integrating those could yield significant insights into the dynamics of consumer behavior related to the alignment of conflicting materialistic and pro-environmental pursuits. Thus, there is a growing need to connect these research lines and to test theoretically grounded hypotheses about how materialism relates to pro-environmental behavioral outcomes and how consumer narcissism affects this relationship.

Materialism is commonly understood as a value-based orientation in which individuals place high importance on the acquisition and possession of material goods. According to Richins and Dawson (1992), materialism comprises three dimensions: the view of possessions as a measure of success, as a source of happiness, and as central to one's life. Narcissism, in turn, refers to a personality trait characterized by an inflated self-view and exaggerated self-importance. Contemporary research distinguishes between grandiose (agentic)

narcissism, which is associated with self-enhancing tendencies, and vulnerable (communal) narcissism, which may manifest through perceived pro-social behavior (Leckelt et al., 2018). Finally, pro-environmental behavior (PEB) encompasses a set of actions driven by both self-interest and pro-social motives aimed at protecting or enhancing the natural environment (Bamberg and Möser, 2007). These three constructs form the foundation for the present research into how materialism and narcissism influence pro-environmental decision-making.

Therefore, the present study is designed to examine the effect of materialism on pro-environmental behavioral outcomes within the less explored boundary conditions of consumer narcissism. It seeks to address the evolving dynamics of the link between materialism and pro-environmental outcomes, aiming to resolve inconsistencies and substantiate the role of consumer narcissism in this relationship. This study contributes to existing literature by elucidating the ambiguous relationship between materialism and pro-environmental behavior, particularly accounting for the conditional effect of narcissism attribution. The findings are anticipated to offer valuable implications for marketers in strategizing under conditions that reconcile previously perceived conflicting consumer preferences.

Hypothesis development

The present research draws primarily on Impression Management Theory and Value Conflict Theory to explain how materialistic values and narcissistic tendencies influence pro-environmental attitudes, intentions and behaviors. Impression Management Theory (Leary and Kowalski, 1990) suggests that individuals regulate their behavior to align with socially desirable norms, such as environmental concern, particularly when their self-image is at stake. In contrast, Value Conflict Theory (Schwartz, 1992) posits that competing internal value systems–such as the tension between extrinsic materialistic goals and intrinsic environmental values–can shape behavior depending on which set of values is more salient in a given context. These theoretical lenses provide a foundation for understanding how individuals high in materialism or narcissism may resolve or express conflicting motivations in pro-environmental decision-making. While materialism is a multidimensional construct, this study focuses on the success dimension, which captures the extent to which individuals define themselves and others based on material achievements. Materialism-success suggests that people judge their own and others' success by the number and quality of possessions accumulated. Both, materialism-success and narcissism both foster self-focused values, which generally undermine genuine pro-environmental behavior (Sirgy et. al. 2021).

The negative correlation between materialism and pro-environmental tendencies is predominantly attributed to the incongruity of values at the personal level (Hurst et al., 2013). In line with the conceptualization of materialism, materialistic values fall within the domain of self-enhancement-related values, whereas pro-environmental values align with self-transcendence values, as posited by Burroughs and Rindfleisch (2002), drawing on Schwartz's value model. Subsequent empirical studies have supported these propositions, revealing a negative association between individually oriented materialistic values and collectively oriented values (Burroughs and Rindfleisch, 2002; Dittmar et al., 2014). Additionally, egoistic values, prevalent among highly materialistic consumers, have been negatively correlated with pro-environmental behavior (Steg et al., 2014). Furthermore, studies on experimentally manipulated situational materialism suggest that the activation of situational materialistic orientations suppresses pro-environmental behavior (Kasser, 2016). Based on above, we posit:

H1: Materialism-success has a negative effect on pro-environmental behavioral outcomes (attitudes, intentions, behavior):

H1a: Materialism-success has a negative effect on pro-environmental attitudes.

H1b: Materialism-success has a negative effect on pro-environmental intentions.

H1c: Materialism-success has a negative effect on pro-environmental behavior.

The pro-environmental behavior definition encompasses both altruistic and egoistic motives. Notably, costly signaling theory elucidates the conspicuous altruistic behavior of materialists, often driven by egoistic motives. For instance, Griskevicius et al. (2010) found that high social visibility influences consumers' preference for green products as a status symbol. Therefore, pro-environment tendencies can be induced by purely egoistic, narcissistic, self-interest motives (Griskevicius et al., 2012).

Self-interest orientation and overconcern with self-enhancement also are featured as essential characteristics of narcissism. Narcissism has been found to be positively associated with materialism (Rose, 2007). Consumers who are high on narcissism have similar motivations for pro-environmental tendencies. Individuals with narcissistic exhibitionist tendencies are more likely to buy higher-priced green products, presumably because expensive products are associated with the ability to convey elevated status (Naderi and Strutton, 2015). According to recent research, consumers engage in organic food consumption to project a virtuous self-image, signal social standing, and garner admiration (Konuk and Otterbring, 2024). Furthermore, environmental activism was found to be associated with the dark triad traits, including narcissism, implying that participation in such activities may be fueled by ego-focused needs and the desire to demonstrate moral superiority over others (Zacher, 2024). Similarly, research shows a positive link between communal narcissism and pro-environmental tendencies. For example, communal narcissists are more likely to engage in environmentally friendly actions that are visible to the general public (Naderi, 2018) and are more likely to engage in egoistically motivated pro-environmental behavior (Kesenheimer and Greitemeyer, 2021).

In summary, the pursuit of self-benefit and self-enhancement through symbolic consumption or activities, coupled with egoistic motivation, are commonalities pertinent to materialism and narcissism, potentially influencing pro-environmental behavior. Narcissistic individuals, while often driven by egoistic motives, may also engage in pro-environmental behaviors when such behaviors serve as impression management goals. Their desire for admiration and status can lead them to adopt visible or socially valued actions–such as buying green products or engaging in environmental activism–not necessarily out of intrinsic concern, but as a strategy to enhance self-image. Thus, even when endorsing materialistic success values, narcissists may reframe sustainability as a status-enhancing or virtue-signaling opportunity. This tendency may buffer the typically negative relationship between materialism and pro-environmental outcomes. Therefore, it is plausible to propose that narcissism moderates the relationship between materialism and pro-environmental outcomes. As a result, we propose:

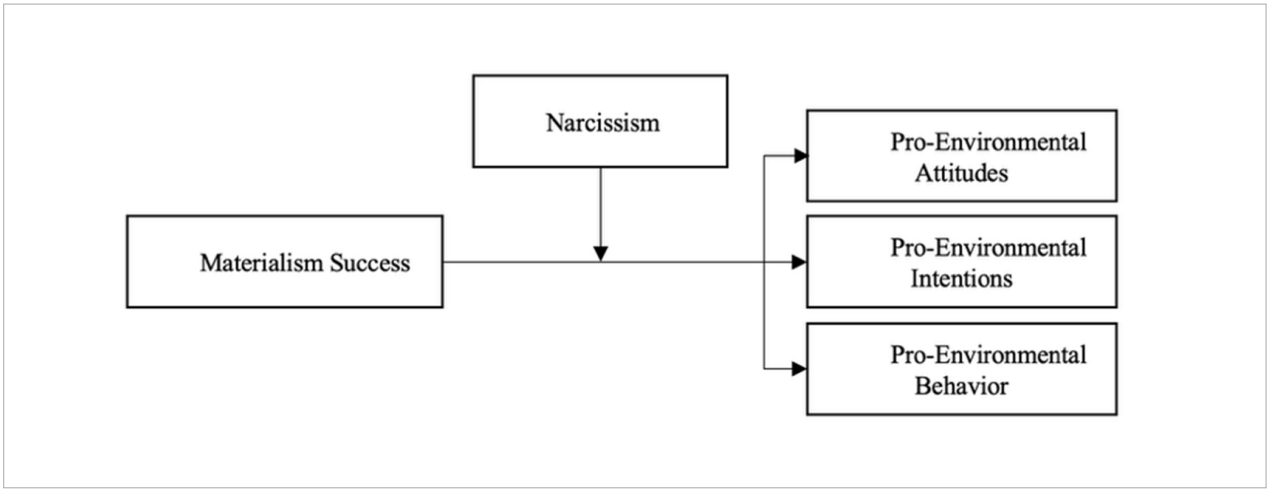
H2: The negative effect of materialism-success on pro-environmental outcomes (attitudes, intentions, behavior) will be moderated by the levels of narcissism:

H2a: The negative effect of materialism-success on pro-environmental attitudes will be attenuated by higher levels of narcissism.

H2b: The negative effect of materialism-success on pro-environmental intentions will be attenuated by higher levels of narcissism.

H2c: The negative effect of materialism-success on pro-environmental behavior will be attenuated by higher levels of narcissism.

Fig. 1. *Conceptual model*



Methods

Three separate studies were conducted using independent samples. Study 1 (N = 201) examined the relationship between materialism-success and pro-environmental attitudes. Study 2 (N = 291) explored the effect of materialism-success on pro-environmental intentions and behavior. Study 3 (N = 100) investigated the potential moderating role of narcissism. We used self-report measures of materialistic value success dimension (Richins and Dawson, 1992), New Ecologic Paradigm (NEP) short version scale to capture pro-environmental attitudes (Hawcroft and Milfont, 2010), and narcissism NARQ-S scale (Leckelt et al., 2018). The Material Values Scale and the New Ecological Paradigm (NEP) Scale were both administered using a 7-point Likert scale, as recommended by the original authors. The Narcissistic Admiration and Rivalry Questionnaire – Short Form (NARQ-S) was used with a 6-point Likert scale, following the scoring procedure outlined by its developers.

In the case to measure low and high levels of materialism and narcissism, a median split was applied. Pro-environmental behavior was captured by asking respondents to make a choice on a preferred option of product in simulated e-shop environment from two available options, where one product option is Nike Court Vision Low Next Nature unisex shoes from sustainable materials at $80 price and alternative product option Nike Court Vision Low unisex shoes from regular materials at $75 price. Both products are real life (not modified) examples from e-shop at nike.com (see Appendix A). Pro-environmental intention was captured by asking respondents to evaluate intention to purchase a Nike Court Vision Low Next Nature unisex shoes from sustainable materials at $80 price in 7-point Likert scale. Samples from the UK and the USA were recruited for all studies on prolific.com and analyzed with IBM SPSS Statistics 27.0.1 software. Moderation analyses were conducted using the PROCESS macro for SPSS (Model 1) developed by Hayes (2012). This approach was applied to test the interaction effects of narcissism on the relationship between materialism–success and pro-environmental outcomes. Additionally, moderation effects were tested also with two-way ANOVA to assess main and interaction effects. This mixed approach allowed for consistency with the theoretical model while also exploring group-level interaction patterns. The sample size for the research on pro-environmental attitudes was 201 (males – 31.7%, females – 66.3%, other – 2%; dominating age groups 25–44 years old – 66.7%), while the sample size for studying the effect of materialism-success on pro-environmental intentions and behavior was 291 (males – 37.8%, females – 61.2%, other – 1%; dominating age groups 25–44 years old – 60.8%). Additionally, the sample size for investigating the moderation of narcissism on the linkages between materialism-success and pro-environmental intents and behavior was 100 (males – 28%, females – 72%, other – 0%; dominating age groups 25–44 years old – 69%).

Results

Study 1: Materialism-Success and Pro-Environmental Attitudes (H1a, H2a). In Study 1, we investigated how materialism–success relates to pro-environmental attitudes, with materialism–success serving as the independent variable and pro-environmental attitudes as the dependent variable. Additionally, narcissism was included as a moderator of this relationship. All constructs were measured using validated self-report scales. The reliability of all scales used in Study 1 was acceptable: materialism–success (Cronbach's $\alpha = 0.861$), narcissism ($\alpha = 0.775$), and pro-environmental attitudes (NEP scale, $\alpha = 0.708$), with a total sample size of N = 201. A linear regression analysis revealed a significant negative effect of materialism–success on pro-environmental attitudes (B = –0.188, $p = 0.008$, $R^2 = 0.035$), supporting H1a. To further explore this effect, an independent samples *t*-test compared participants scoring low vs. high on materialism–success. Results indicated significantly lower pro-environmental attitudes among high materialism scorers (M = 30.37, SD = 5.92) than among low scorers (M = 33.05, SD = 5.54), $t(199) = 3.314$, $p = 0.001$.

A moderation analysis (PROCESS Model 1 by Hayes (2012)) tested whether narcissism influenced the relationship between materialism–success and pro-environmental attitudes. Results showed no significant interaction effect (SE = 0.0102, $p = 0.5675$), thus H2a was not supported. *Fig. 2* illustrates the non-significant moderation pattern.

Fig. 2. *Narcissism moderation pattern on the relationship between materialism-success and pro-environmental attitudes*

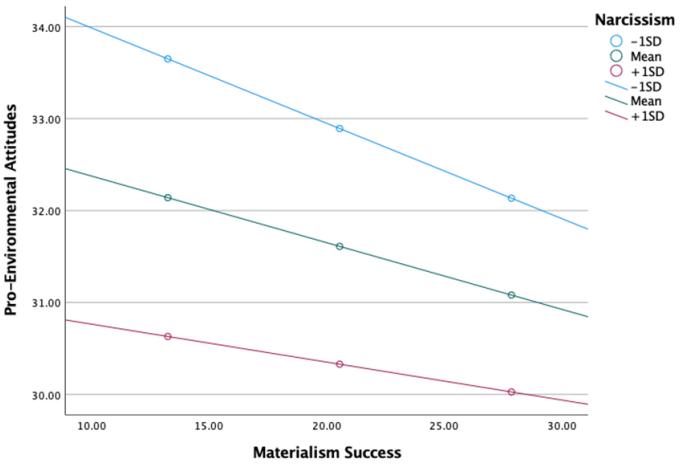
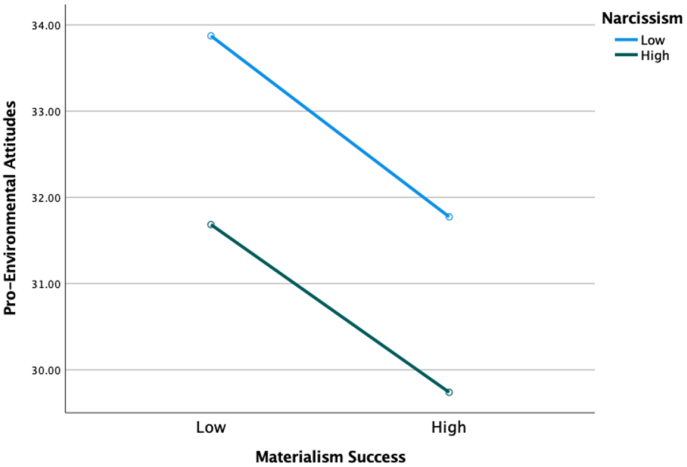


Fig. 3. *Materialism-success and narcissism effect on pro-environmental attitudes*



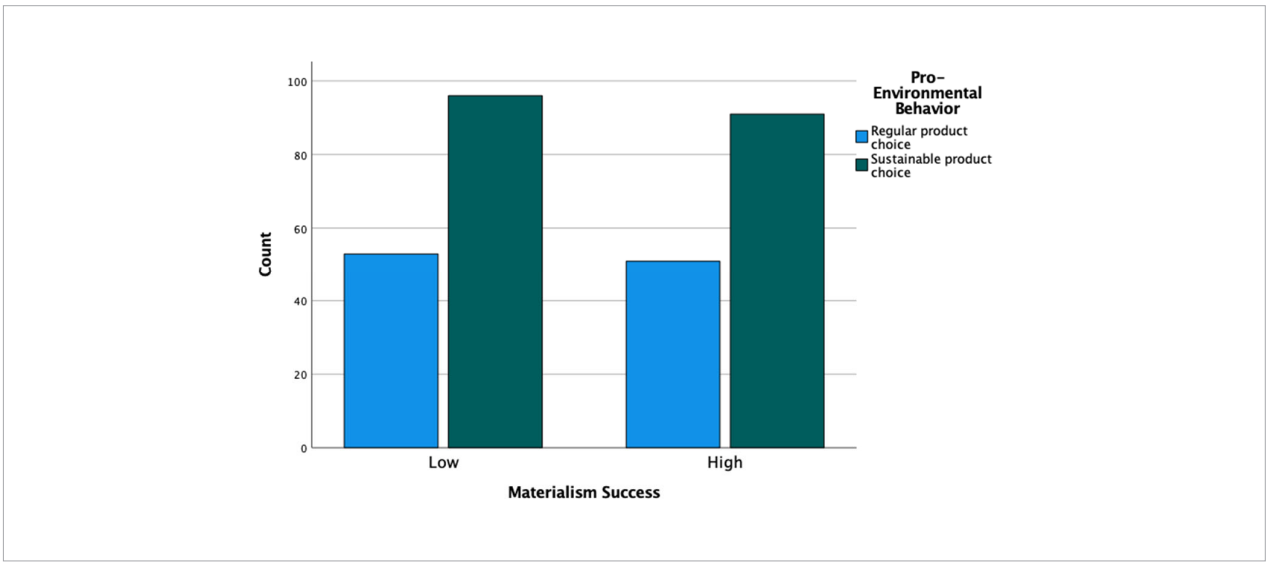
A two-way ANOVA further confirmed a main effect of materialism–success ($F(1, 197) = 5.719$, $p = 0.018$) and narcissism ($F(1, 197) = 6.239$, $p = 0.013$) on pro-environmental attitudes but found no significant interaction ($F(1, 197) = 0.008$, $p = 0.928$), again suggesting the absence of a moderation effect (see *Fig. 3*).

Study 2: Materialism-Success and Pro-Environmental Intentions and Behavior (H1b, H1c). Study 2 (N = 291) examined whether materialism–success values influence pro-environmental intentions and behavior, treating materialism–success as the independent variable and pro-environmental intentions and behavior as dependent variables. Materialism–success and pro-environmental intentions were measured using self-reported scales, while pro-environmental behavior was assessed through a product choice task designed to capture real-time decision-making. Contrary to expectations, regression analysis revealed a positive and statistically significant effect of materialism–success on pro-environmental intentions ($B = 0.265$, $p = 0.001$,

R^2 = 0.07), thus H1b was not supported. An independent samples *t*-test further confirmed this pattern: participants with high materialism–success reported significantly higher pro-environmental intentions (M = 3.80, SD = 1.67) compared to those with low materialism–success (M = 3.10, SD = 1.64), *t*(289) = –3.579, *p* = 0.001.

A binary logistic regression indicated that materialism–success was a positive predictor of pro-environmental behavior (B = 0.587, *p* = 0.001), again not supporting H1c. However, a Chi-square test revealed no significant difference in pro-environmental behavior between high and low materialism–success groups, x^2(1, N = 289) = 0.004, *p* = 0.951 (see *Fig. 4*). This discrepancy between two different analysis methods (logistic regression vs. Chi-square test) likely reflects the limitations of dichotomizing continuous variables and underscores the importance of preserving variable granularity in analyses.

Fig. 4. *Pro-environmental behavior between materialism-success low and high groups*



Study 3: Two-way Interaction Effects on Pro-Environmental Outcomes (H2b, H2c). A two-way ANOVA (N = 100) was conducted to further examine the effects of materialism–success and narcissism on pro-environmental intentions, with materialism–success as the independent variable and pro-environmental intentions and behavior as dependent variables. Narcissism was included as a moderator of these relationships. Materialism–success, pro-environmental intentions, and narcissism were measured using self-reported scales, while pro-environmental behavior was assessed through a product choice task reflecting actual decision-making. Results indicated a main effect of materialism–success (F(1, 96) = 8.169, *p* = 0.005), but no significant main effect of narcissism (F(1, 96) = 0.013, *p* = 0.909), and no significant interaction between the two variables (F(1, 96) = 0.578, *p* = 0.449), providing no support for H2b (see *Fig. 5*).

To explore pro-environmental behavior, Chi-square tests showed no significant differences between low and high materialism–success groups (x^2(1, N = 100) = 2.596, *p* = 0.107) or between narcissism groups (x^2(1, N = 100) = 2.227, *p* = 0.136). However, a significant difference emerged when comparing combined groups: individuals high in both materialism–success and narcissism were more likely to engage in pro-environmental behavior compared to those low in both characteristics (x^2(1, N = 100) = 5.702, *p* = 0.017). This provides partial support for H2c (see *Fig. 6*).

Moderation analyses (PROCESS Model 1 by Hayes (2012)) were performed to test whether narcissism moderated the effects of materialism–success on pro-environmental intentions (see *Fig. 7*). Results showed no significant interaction effect for intentions: SE = 0.0042, p = 0.8965. Patterns in the relationship between materialism-success and pro-environmental intentions remain consistent across all levels of narcissism. Therefore, H2b was not supported.

Fig. 5. *Materialism-success and narcissism effect on the pro-environmental intentions*

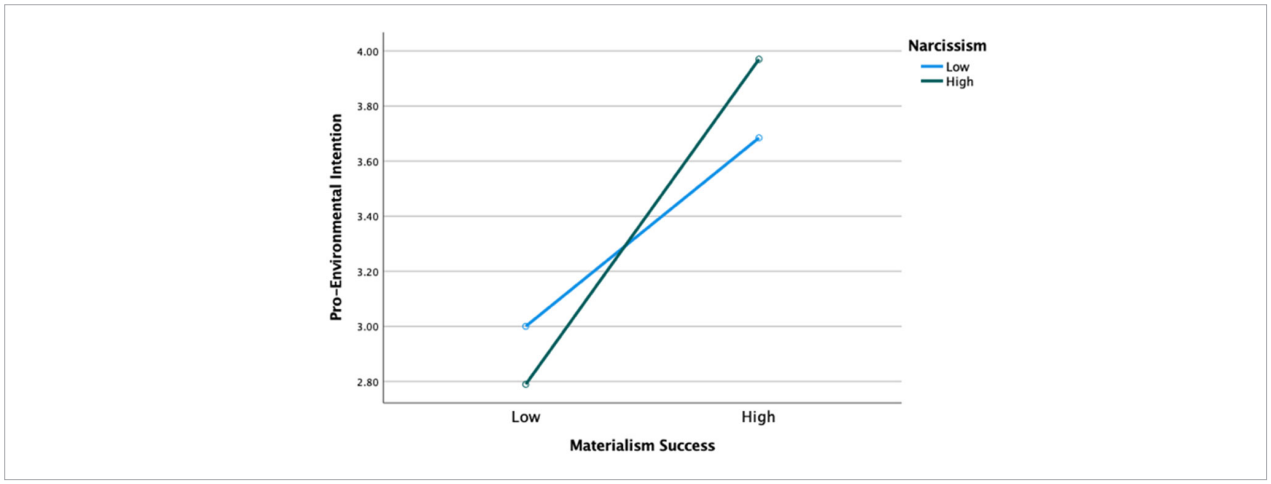


Fig. 6. *Materialism-success and narcissism effect on the pro-environmental behavior in terms of choosing sustainable product*

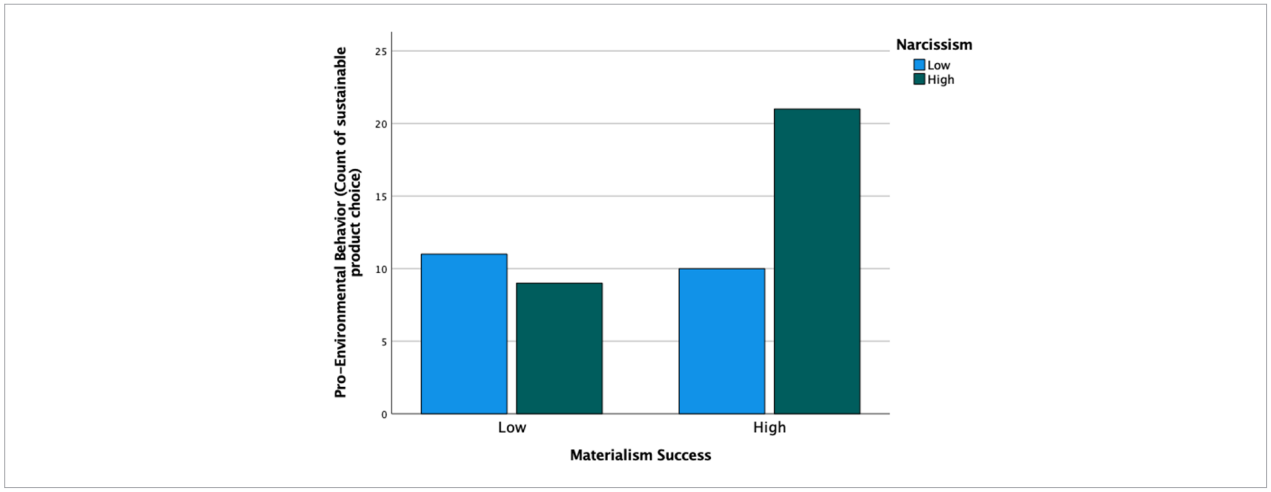


Fig. 7. *Narcissism moderation pattern on the relationship between materialism-success and pro-environmental intentions*

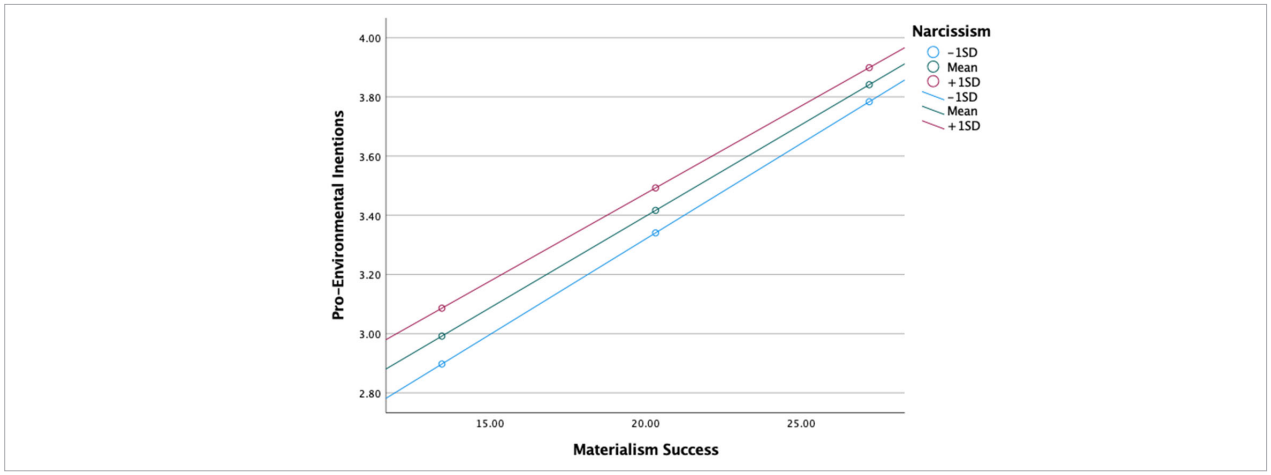
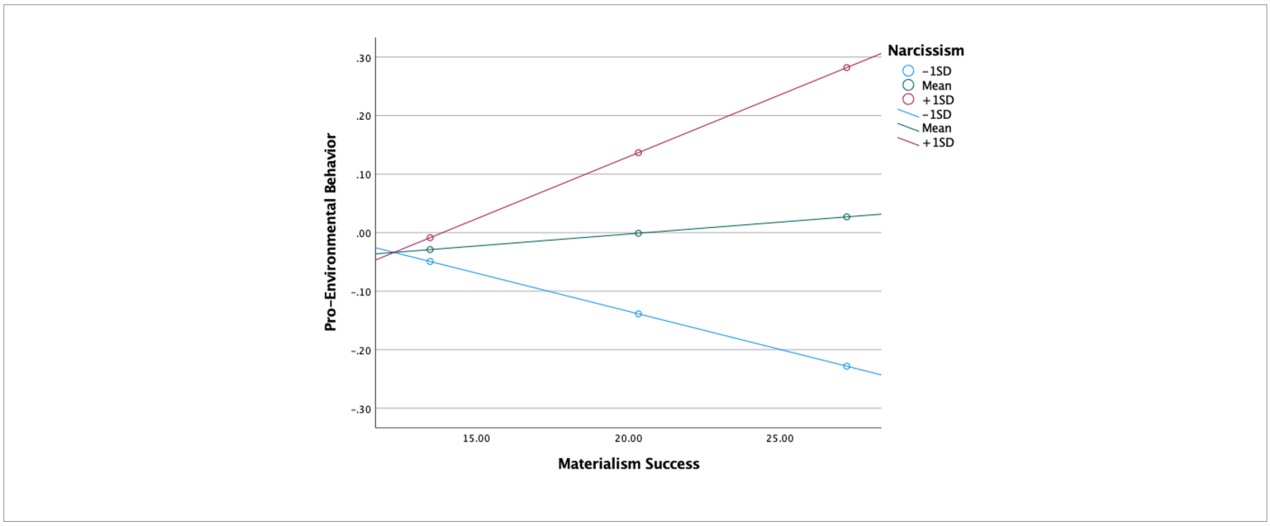


Fig. 8. *Narcissism moderation pattern on the relationship between materialism-success and pro-environmental behavior*



Also, moderation analyses (PROCESS Model 1 by Hayes (2012)) were performed to test whether narcissism moderated the effects of materialism–success on pro-environmental behavior (see *Fig. 8*). Results showed no significant interaction effects for behavior: SE = 0.0055, p = 0.5193. Therefore, H2c were not supported.

The results across three studies showed that materialism–success was negatively associated with pro-environmental attitudes but positively associated with pro-environmental intentions and behavior. Narcissism did not significantly moderate these relationships in most analyses. However, a significant difference in pro-environmental behavior was found between individuals high in both materialism–success and narcissism versus those low in both traits. These findings provide partial support for the hypothesized effects.

Discussion

The present study aimed to examine the intricate relationship between materialism-success, narcissism as moderator, and pro-environmental attitudes, intentions, and behaviors. Our findings provide insights into the nuanced dynamics among these variables. The regression analysis indicated a weak negative association between materialism-success and pro-environmental attitudes supporting H1a. This suggests that individuals with higher materialistic inclinations tend to exhibit lower pro-environmental attitudes and this finding was in line with findings by other scientists (Hurst et al., 2013). Unexpectedly, regression analysis revealed a positive significant association between materialism-success and pro-environmental intentions, contradicting H1b. Logistic regression also indicated a positive effect of materialism-success on pro-environmental behavior, contrary to H1c. This can be explained in a few ways. In this study pro-environmental intentions and behavior were measured in a specific way by using real world examples, real product options from real existing e-shop, thus there potentially could be some situational factors or limitations, which influenced materialistic people act differently. On the other hand, there are observed cases where materialism and its dimensions are positively associated with pro-environmental outcomes (Dermody et al., 2021). For example, materialism is positively associated with pro-environmental behavior when green products serve as status symbols, allowing materialistic individuals to signal wealth, prestige, or moral superiority through sustainable consumption (Griskevicius et al., 2010). Further analyses explored the moderating role of narcissism on the relationship between materialism-success and pro-environmental attitude, intentions, and behavior. Moderation analyses revealed that narcissism did not significantly moderate these relationships, contrary to H2a, H2b and H2c. However, Chi-square analysis indicated a significant interaction pattern between narcissism and materialism–success in predicting pro-environmental behavior. Specifically, individuals high in both narcissism and materialism–success

were more likely to engage in pro-environmental product choices compared to those low on both traits. This finding suggests a potential compounding effect, where ego-centric and status-driven motivations may jointly diminish the likelihood of engaging in pro-environmental behaviors, particularly when such behaviors are not perceived as reputation-enhancing. This result, while exploratory, highlights the value of further investigating how combinations of personality traits influence environmentally relevant decision-making. Existing literature provides evidence that narcissism directly affects materialism (Rose, 2007) or pro-environmental behavior (Bergman et al., 2014). Future research could further explore the underlying motivations associated with narcissism, particularly examining when and why individuals with narcissistic traits do or do not perceive pro-environmental behavior as a status-enhancing or reputation-boosting opportunity. Although narcissism is commonly conceptualized as a stable personality trait, emerging evidence suggests it also possesses a state-like component, fluctuating across time and contexts (Giacomin and Jordan, 2016). Therefore, future studies are encouraged to experimentally manipulate both narcissism and materialism to assess their causal effects on pro-environmental outcomes.

In addition, this study focused on only one dimension of materialism. Future research should replicate and extend these findings by examining the effects of all three dimensions of materialism on pro-environmental behavior, as well as their interactions with narcissism. Given the distinct motivational underpinnings of each materialism dimension, different interaction patterns with narcissism may emerge. For example, success-oriented materialism is primarily instrumental, viewing possessions to an end. In such cases, individuals may be more inclined to suppress indulgent behaviors in favor of achieving status. In contrast, happiness-oriented materialism is more hedonistic, potentially interacting with narcissism in a different manner.

Conclusions

Our findings suggest a complex relationship between materialism-success, narcissism as moderator, and pro-environmental variables. While materialism-success demonstrated a negative association with pro-environmental attitudes, unexpected positive associations were observed with pro-environmental intentions and behavior. Narcissism did not significantly moderate these relationships, indicating that the effect of materialism-success on pro-environmental outcomes may operate independently of narcissistic tendencies. The nuanced nature of these associations underscores the need for further research to untangle the intricate interplay of individual characteristics in shaping environmental attitudes and behaviors. This study has certain limitations. For instance, it only examined pro-environmental intentions and behavior inside a simulated e-shop environment using a single product. It is possible that different product groups may provide different results. Studies were conducted in a digital or internet-based setting, thus behavior in real world might be different.

References

Bamberg S., Möser G. (2007) Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. Journal of environmental psychology 27(1): 14-25. Available at: https://doi.org/10.1016/j.jenvp.2006.12.002

Bergman J. Z., Westerman J. W., Bergman S. M., Westerman J., Daly J. P. (2014) Narcissism, Materialism, and Environmental Ethics in Business Students. Journal of Management Education 38(4): 489-510. Available at: https://doi.org/10.1177/1052562913488108

Burroughs J. E., Rindfleisch A. (2002) Materialism and well-being: A conflicting values perspective. Journal of Consumer research 29(3): 348-370. Available at: https://doi.org/10.1086/344429

Clayton S., Devine-Wright P., Stern P. C., Whitmarsh L., Carrico A., Steg L., Swim J., Bonnes M. (2015) Psychological research and global climate change. Nature climate change 5(7): 640-646. Available at: https://doi.org/10.1038/nclimate2622

Dermody J., Zhao A. L., Koenig-Lewis N., Hanmer-Lloyd S. (2021) Evaluating the challenge of China's crossverging young "Enviro-Materialists". Journal of Consumer Behaviour 20(3): 695-708. Available at: https://doi.org/10.1002/cb.1896

Dittmar H., Bond R., Hurst M., Kasser T. (2014) The relationship between materialism and personal well-being: A meta-analysis. Journal of personality and social psychology 107(5): 879.Available at: https://doi.org/10.1037/a0037409

Giacomin M., Jordan C. H. (2016) The wax and wane of narcissism: Grandiose narcissism as a process or state. Journal of personality 84(2): 154-164. Available at: https://doi.org/10.1111/jopy.12148

Griskevicius V., Cantú S. M., Van Vugt M. (2012) The evolutionary bases for sustainable behavior: Implications for marketing, policy, and social entrepreneurship. Journal of Public Policy and Marketing 31(1): 115-128. Available at: https://doi.org/10.1509/jppm.11.040

Griskevicius V., Tybur J. M., Van den Bergh B. (2010) Going green to be seen: status, reputation, and conspicuous conservation. Journal of personality and social psychology 98(3): 392.Available at: https://doi.org/10.1037/a0017346

Hayes A. F. (2012) PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Hawcroft L. J., Milfont T. L. (2010) The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. Journal of Environmental psychology 30(2): 143-158. Available at: https://doi.org/10.1016/j.jenvp.2009.10.003

Hornsey M. J., Harris E. A., Bain P. G., Fielding K. S. (2016) Meta-analyses of the determinants and outcomes of belief in climate change. Nature climate change 6(6): 622-626. Available at: https://doi.org/10.1038/nclimate2943

Hurst M., Dittmar H., Bond R., Kasser T. (2013) The relationship between materialistic values and environmental attitudes and behaviors: A meta-analysis. Journal of Environmental Psychology 36: 257-269. Available at: https://doi.org/10.1016/j.jenvp.2013.09.003

Kasser T. (2016) Materialistic values and goals. Annual review of psychology 67: 489-514. Available at: https://doi.org/10.1146/annurev-psych-122414-033344

Kesenheimer J. S., and Greitemeyer T. (2021) Greenwash yourself: The relationship between communal and agentic narcissism and pro-environmental behavior. Journal of Environmental Psychology 75: 101621. Available at: https://doi.org/10.1016/j.jenvp.2021.101621

Konuk F. A., and Otterbring T. (2024) The dark side of going green: Dark triad traits predict organic consumption through virtue signaling, status signaling, and praise from others. Journal of Retailing and Consumer Services 76: 103531. Available at: https://doi.org/10.1016/j.jretconser.2023.103531

Leary M. R., and Kowalski R. M. (1990) Impression management: A literature review and two-component model. Psychological bulletin 107(1): 34. Available at: https://doi.org/10.1037//0033-2909.107.1.34

Leckelt M., Wetzel E., Gerlach T. M., Ackerman R. A., Miller J. D., Chopik W. J., Penke L., Geukes K., Küfner A. C., and Hutteman R. (2018) Validation of the Narcissistic Admiration and Rivalry Questionnaire Short Scale (NARQ-S) in convenience and representative samples. Psychological Assessment 30(1): 86. Available at: https://doi.org/10.1037/pas0000433

Naderi I. (2018) I'm nice, therefore I go green: An investigation of pro-environmentalism in communal narcissists. Journal of Environmental Psychology 59: 54-64. Available at: https://doi.org/10.1016/j.jenvp.2018.08.010

Naderi I., and Strutton D. (2015) I support sustainability but only when doing so reflects fabulously on me: can green narcissists be cultivated? Journal of Macromarketing 35(1): 70-83. Available at: https://doi.org/10.1177/0276146713516796

Richins M. L., and Dawson S. (1992) A consumer values orientation for materialism and its measurement: Scale development and validation. Journal of consumer research 19(3): 303-316. Available at: https://doi.org/10.1086/209304

Rose P. (2007) Mediators of the association between narcissism and compulsive buying: the roles of materialism and impulse control. Psychology of addictive behaviors 21(4): 576. Available at: https://doi.org/10.1037/0893-164X.21.4.576

Seddon N., Daniels E., Davis R., Chausson A., Harris R., Hou-Jones X., Huq S., Kapos V., Mace G.M., Rizvi A.R., reid H., Roe D., Turner B., Wicander S. (2020) Global recognition of the importance of nature-based solutions to the impacts of climate change. Global Sustainability 3: e15. Available at: https://doi.org/10.1017/sus.2020.8

Sirgy M. J., Yu G. B., Lee D. J., Joshanloo M., Bosnjak M., Jiao J., Ekici A., Atay E.G., Grzeskowiak S. (2021) The dual model of materialism: Success versus happiness materialism on present and future life satisfaction. Applied Research in Quality of Life 16: 201-220. Available at: https://doi.org/10.1007/s11482-019-09763-8

Steg L., Bolderdijk J. W., Keizer K., Perlaviciute G. (2014) An integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors and goals. Journal of Environmental Psychology 38: 104-115. Available at: https://doi.org/10.1016/j.jenvp.2014.01.002

Schwartz S. H. (1992) Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In Advances in experimental social psychology 25: 1-65. Academic Press. Available at: https://doi.org/10.1016/S0065-2601(08)60281-6

World Economic Forum. (2025) The global risks report 2025 (20th ed.). Available at: https://www.weforum.org/reports/global-risks-report-2025

Zacher H. (2024) The dark side of environmental activism. Personality and Individual Differences Volume 219: 112506, Available at: https://doi.org/10.1016/j.paid.2023.112506.

Zhao X., Wence Y., Haiyuan Z. (2025) Sustainability in action: policy, innovation, and Globalization's influence on ecological footprint sub-components in G20 nation. Frontiers in Environmental Science 13: 1520629. Available at: https://doi.org/10.3389/fenvs.2025.1520629

Appendix A

Appendix A provides detailed visual and descriptive information on the stimulus materials used in the shopping task. Product 1 the Nike Court Vision Low Next Nature unisex shoes, made from sustainable materials and priced at $80 (see *Fig. 9*), and product 2 the Nike Court Vision Low unisex shoes, made from conventional materials and priced at $75 (see *Fig. 10*). These stimuli were used to examine participants' pro-environmental behavior via product choices and pro-environmental intentions via intentions measurement. Both products were obtained from the official Nike.com website.

Fig. 9. *Nike Court Vision Low Next Nature unisex shoes, made from sustainable materials*

Nike Court Vision Low

Fig. 10. *Nike Court Vision Low unisex shoes, made from conventional materials*

Sustainable Materials

Nike Court Vision Low Next Nature