

# RESEARCH ARTICLE

# How materialism relates to attitude toward corporate social responsibility among Chinese college students? Mediation role of environmental concern

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#### **ABSTRACT**

This paper aimed (a) to examine whether materialism is related to attitude to corporate social responsibility (CSR) and (b) to test whether environmental concern mediates the relationship between materialism (and its dimensions: acquisition centrality, happiness, and success) and attitude to CSR among undergraduate students. This study used a cross-sectional research design. A questionnaire survey was used to obtain the study data. Participants were recruited from students in Chinese universities. Hayes's PROCESS and SPSS 22 were employed to analyze the data. The results showed that materialism is negatively related to attitude toward CSR among students. Environmental concern does not mediate the relationship between materialism and attitude to CSR. The relationship between centrality and attitude to CSR was statistically significant in the two models. Happiness and attitude to CSR are positively related. The mediating effect of environmental concern on the relationship between centrality and attitude to CSR was statistically significant.

*Keywords:* materialism; environmental concern; attitude toward corporate social responsibility; acquisition centrality; Chinese students

#### 1. Introduction

With its wide-reaching and adverse outcomes, materialism has recently received much attention in the literature<sup>[1]</sup>. The term materialism usually refers to the acquisition of things that makes people happy, such as material or lifestyle needs and desires, and sometimes neglect of spiritual matters that could make them worship their possessions, leading to the desire for more possessions<sup>[2]</sup>. In this case, possessions become central in their thought process and usually provide the greatest source of satisfaction and an internal guide for success. Materialistic persons are usually considered self-centered. Their desire for more possessions leads to selfishness and is incompatible with sharing and giving to others or concern for nature and the environment<sup>[3]</sup>. This raises a question of the importance of people's values in determining their attitude to corporate social

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responsibility (CSR). How do people's values, as measured by materialism, affect how they view and evaluate corporate social responsibility (CSR)?

CSR was initially introduced a long time ago by Bowen<sup>[4]</sup>, who posited that companies have an obligation and responsibility to consider social and environmental concerns in their decision-making process. The intent is for organizations to maintain a high level of moral and ethical conduct that could lead to a more motivated workforce and the ability to attract desired employees<sup>[5]</sup>. As a proven potential source of competitive advantage for organizations, CSR is also gaining importance because of its emphasis on an organization's commitment to ethical and socially responsible behavior<sup>[6]</sup>.

In line with the increased relevance in business, CSR represents an important research topic. Although research in areas such as China did not begin to appear in the literature until around the turn of this century, CSR is certainly not a phenomenon limited to Western culture. With the fast development of China's economy, organizations began to understand the importance of social responsibility and discovered that these desired outcomes were a great way to communicate to stakeholders why one should trade with their company. More and more companies are incorporating CSR principles into their business operations in China. For example, since the concept of CSR was included in corporate law in China in 2006, a considerable boost has been seen between 2006 and 2009, with 1600 CSR reports published in China compared to the meager numbers back at the beginning of the century<sup>[7]</sup>. A survey conducted by KPMG revealed that about 80% of China's largest companies report their CSR activities<sup>[8]</sup>. Accordingly, China has become an essential and distinctive CSR research arena.

Although CSR is increasingly studied in developed and developing countries, most studies focus on CSR itself<sup>[9]</sup>. There is a paucity of research on people's attitudes to CSR. Research sampling students to explore their values and attitude to CSR is lacking. Studies focusing on attitudes to CSR are especially rare in China. Searching in major databases and google scholar yielded no results regarding this topic. However, studies on attitudes to CSR have significant implications. First, an attitude is a relatively enduring organization of beliefs, feelings, and behavioral tendencies toward socially significant objects, groups, events, or symbols<sup>[9]</sup>. Since attitude is a good predictor of CSR behavior<sup>[10]</sup>, people with a positive attitude to CSR are likelier to engage in CSR activities, such as charitable giving, environmental protection, and sustainability practices at school and work. Second, several studies have demonstrated that CSR behaviors and activities enhance reputation and credibility, increase business economic value and innovation, and deepen customer trust, contributing to a better bottom line for companies<sup>[11–13]</sup>.

Moreover, the literature on CSR does not examine the role of Chinese students' materialistic values in shaping their attitudes to CSR. Therefore, in this study, we take the first step in this direction and investigate the relationship between materialism and attitude toward CSR among Chinese college students. Specifically, do materialistic concerns make students more aware of CSR? We focused on Chinese college students for several reasons. First, Studies focusing on attitudes to CSR are scarce in China as aforementioned. Study results generated from Western countries may not be necessarily generalizable to other cultures, particularly Chinese culture<sup>[14]</sup>. Second, the environmental crisis in China has been threatening the health and livelihoods of the country's 1.4 billion people due to decades of rapid industrialization. Students in some Chinese universities are required to take environment-related courses. It is assumed that they are more aware of major current environmental issues such as climate change, pollution, and environmental degradation, thus more concerned about the environment. Next, learning how Chinese college students' environmental awareness and concerns and their attitude to CSR is beneficial because the knowledge of Chinese students' attitude help colleges better address CSR content delivery issues, enabling college teachers to facilitate classroom dialogue and critical thinking of environmental issues. Lastly, knowing their attitudes and concerns might help them understand the

benefits of CSR-related activities and thus distinguish the CRS-conscious companies, ultimately helping them make better career decisions when they graduate.

This paper contends that materialism is negatively associated with an attitude to corporate social responsibility. However, this relationship is mediated by students' environmental concerns. The purposes of this paper are (a) to examine whether materialism (and its dimensions: acquisition centrality, happiness, and success) is related to attitude to CSR among Chinese college students, and (b) to test whether environmental concern mediates the relationship between materialism (and its dimensions) and attitude to CSR.

The following sections begin with a literature review of CSR, materialism, and environmental concern and the theoretical framework guiding this study. Then, we formulate four hypotheses to be tested regarding CSR, materialism and its dimensions, and environmental concern. Subsequently, we delineate the data collection procedures, measurements, and data analysis to test the hypotheses. We conclude by discussing this study's results, implications, and limitations.

# 2. Background and literature review

## 2.1. Background

Scholars have defined materialism in different ways. One of the most widely used definitions of materialism was coined by Richins and Dawson<sup>[15]</sup>, who noted that materialism is "a value that guides people's choices in various situations, including, but not limited to, consumption arenas". According to Richins and Dawson<sup>[15]</sup>, materialism has three main dimensions: acquisition centrality, happiness, and success. Acquisition centrality refers to materialists' importance in acquiring possessions "at the center of their lives". Materialists believe that acquisitions are valuable and that materials are essential to happiness, social progress<sup>[16]</sup>, and satisfaction<sup>[17]</sup>. While most humans seek and pursue happiness, materialists believe that happiness can be only achieved through acquisition, not by other means such as experiences and personal relationships<sup>[15]</sup>. Possession-defined success refers to materialists' tendency to judge themselves and others' success by the "number and quality of possessions accumulated" [15]. Possessions define success, symbolize achievement, and project the desired image<sup>[18]</sup>. According to Richins<sup>[19]</sup>, this approach believes that materialists value their possessions but also derive pleasure from showing their possessions and gaining social recognition. In short, as long as materialists acquire and possess products that project a certain desired image of themselves, materialists view themselves as successful<sup>[15]</sup>. As aforementioned, we aim to examine whether acquisition centrality, happiness, and success are related to attitudes to CSR among Chinese college students. Therefore, in this study, we adopted Richins and Dawson's dimensions of materialism; that is, materialism is divided into three main categories: acquisition centrality, happiness, and success.

CSR represents the voluntary commitment of organizations to behave appropriately, fairly, and responsibly in the environment in which they operate<sup>[20]</sup>. It refers to a business approach that considers economic, environmental, and social issues in a balanced, holistic, and long-term manner to benefit current and future stakeholders<sup>[5]</sup>. Instead of CSR, this study focuses on the attitude to CSR. Attitude is the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question<sup>[18]</sup>. Studies have elucidated that several factors affect individuals' attitudes to CSR. For example, Mazereeuw-van der Duijn Schouten et al.<sup>[12]</sup> found that religiosity significantly influences executives' attitudes to CSR. The study by Kolodinsky et al.<sup>[21]</sup> indicated that while ethical idealism has a positive relationship with attitudes to CSR, ethical relativism is negatively related to CSR attitudes among business students in the USA. These authors provided evidence showing that materialistic value is negatively associated with attitudes toward CSR. In Asian counties, Kasser and Ahuvia<sup>[22]</sup> administered a measure of materialistic value to 92 business students in

Singapore. They found that students with solid materialistic values reported low levels of self-actualization, vitality, and happiness and increased anxiety. In addition, a positive relationship has been found between environmental concerns and attitudes to CSR<sup>[23]</sup>. Moreover, family training and upbringing, traditional beliefs and customs, and the type of business activities are all factors determining individuals' attitudes to CSR<sup>[24]</sup>. Given the relationships between materialism, environmental concern, and attitude to CSR, we will delve deep and propose hypotheses about how they relate to each other.

## 2.2. Materialism and attitude to CSR

Several studies have revealed the negative impacts of materialism. Kasser and Ahuvia<sup>[11]</sup> concluded that students who attached importance to money, possessions, image, and popularity reported low-level self-actualization and increased anxiety. Richins and Dawson's<sup>[15]</sup> study revealed negative links between materialistic values and satisfaction with relationships with friends and family. Giacalone et al.<sup>[25]</sup> distinguished between materialistic and postmaterialistic values. While economic rewards and prosperity drive materialism, postmaterialist values embrace self-expression, belongingness, and equity<sup>[25]</sup>. The authors found the main effects of materialism to be negatively associated with ethics and social responsibility. In contrast, postmaterialism and hope had positive relationships with ethics and social responsibility. Their study revealed that the relationship between materialism and outcomes is more complicated than previously theorized and might be determined by other confounding variables. This complexity indicated that further studies are needed to examine such a relationship in various contexts and use different mediating or moderating variables to explore underlying mechanisms.

When examining the relationship between CEO materialism and CSR, Davidson et al.<sup>[26]</sup> found that firms run by materialistic CEOs have lower overall CSR net scores, fewer CSR strengths, and more CSR weaknesses. These authors concluded that materialistic CEOs are more likely to invest in CSR activities to increase their personal benefits. In contrast, non-materialistic CEOs invest in CSR activities to increase shareholder value<sup>[26]</sup>.

Furthermore, studies have found that materialism negatively affects CSR behavior and activities. A study by Kolodinsky et al.<sup>[21]</sup> confirmed that materialism is negatively associated with CSR attitudes. Mathur<sup>[27]</sup> found that materialism harmed both social responsibility and empathy. Conversely, she found that social responsibility and empathy positively affected charitable giving behavior. Tandon et al.<sup>[28]</sup> offer a possible explanation for a negative relationship between materialism and CSR. They argued that as a materialistic person is less likely to align with social impacts, materialists tend to have negative attitudes toward CSR<sup>[28]</sup>.

Kolodinsky et al.<sup>[21]</sup> contend that individuals with materialistic values may disagree with an organizational philosophy of social responsibility because they perceive that CSR activities may delay the possibility of achieving material goals. The results of their study revealed that students, who had materialistic values, were uncomfortable with companies and businesses prioritizing social responsibility beyond profits. The authors also suggest that materialistic values may impede students from working in organizations focusing on CSR unless these companies increase worker compensation.

The literature review presented thus far has led us to hypothesize:

Hypothesis 1: Materialism is related to attitude to CSR among Chinese college students.

Additionally, because materialism contains three dimensions, we broke materialism down to gain a deep understanding of the relationships between these two variables. That is, we were also interested in investigating the relationship between the dimensions of materialism and attitudes to CSR. Therefore, we hypothesize that each of the dimensions of materialism is also related to CSR attitudes.

Hypothesis 2: Success is related to attitude to CSR among Chinese college students.

Hypothesis 3: Centrality is related to attitude to CSR among Chinese college students.

Hypothesis 4: Happiness is related to attitude to CSR among Chinese college students.

#### 2.3. Mediation effect of environmental concern

As discussed above, the relationship between materialism and CSR is more complicated than previously theorized. Some studies demonstrated that materialism has a negative effect on social responsibility, whereas other research found that the relationship between these two variables is positive. While materialism is an example of self-enhancement, environmental concern reflects self-transcendent values because environmental values display a concern for the severity of an environmental problem<sup>[29]</sup>. People with environmental concerns recognize and support the resolution of ecological problems. After examining the relationship between materialism, environmental values and behavior, and life satisfaction, Gatersleben et al.<sup>[30]</sup> found that materialism was negatively associated with all the variables they studied. Segev et al.<sup>[31]</sup> argue that materialists do not exhibit concern for the environment and engage in fewer environmentally friendly behaviors. A possible explanation for this dichotomy could be related to conflicting value orientations between materialism and environmentalism<sup>[18,29]</sup>. Materialists are often perceived as self-centered or selfish, as opposed to having concern for others and the environment.

As aforementioned, success from the perspective of materialists means the number and quality of possessions they or others accumulated. They tend to view material well-being as an indicator of success<sup>[20]</sup>. For example, in their mind, the most important<sup>[32]</sup> achievements in life include acquiring material possessions. They admire people who own expensive homes, cars, and clothes. Therefore, they attempt to own things that impress people. In addition, for materialists, possessions and their acquisition are placed at the center of their personal life. They tend to value acquisition more than other life goals. For instance, they usually buy things only to give them much pleasure. They aspire to live a luxurious life and enjoy spending money on things that are not practical. One of the reasons materialists possess and acquire wealth is that wealth, and the processes of its acquisition make them happy. They consider possessions and acquisition critical to their happiness and life satisfaction<sup>[19]</sup>. For example, they may think their life would be better if they owned certain things they don't have or would be happier if they could afford more. These materialistic values of success, centrality, and happiness distinguish them from non or less-materialists. These materialistic values decrease individuals' importance of the pro-social value and simultaneously increase the importance of environmentally damaging values<sup>[33,34]</sup>. Therefore, these values have the potential to be a strong and negative influence on environmental attitudes and behaviors.

After a meta-analysis assessing the relationship between materialism and environmental attitudes and behaviors, Hurst et al. found materialism to be negatively associated with both pro-environmental attitudes and behaviors<sup>[33]</sup>. Based on the results, the authors noted that materialists are more likely to engage in "higher levels of environmentally damaging behavior" and less likely to believe that they need to change their behavior to protect the environment<sup>[33]</sup>. Kilbourne and Pickett<sup>[35]</sup> concluded that the dimensions of materialism—namely success, happiness, and centrality—are associated with environmental concern. Specifically, they note that as beliefs in materialism as measured by centrality, success, and happiness increase, the belief in the existence of environmental problems decreases.

Value-basis theory posits that environmental concerns reflect an awareness of the harmful consequences of environmental problems to an individual's underlying value or valued object<sup>[36]</sup>. Environmental concern predicts consumers' decision-making<sup>[37]</sup>. According to Schultz, there are three types of environmental concern: egoistic (i.e., concern for the self), altruistic (i.e., concern for others), and bio-spheric, all representations of ecological value orientation. Attitudes are the response resulting from our values<sup>[38]</sup>. The more environmental

concerns one individual has, the more likely he or she cares about the environment and becomes socially responsible. Empirical evidence has shown that when people are highly concerned about the environment, they are more likely to evaluate the effects of their behaviors on the environment<sup>[39]</sup>. Further, the study by Naatu et al.<sup>[23]</sup> demonstrated that there is a positive relationship between environmental concern and consumers' attitudes to patronizing socially and environmentally responsible restaurants. Thus, we expect environmental concerns to lead to a positive attitude toward CSR among Chinese college students. Based on the above reasoning, we further propose that environmental concern mediates the effect of materialism on attitude toward CSR. In addition to examining the relationship between materialism and CSR as a whole, we also attempted to investigate if the effects of three dimensions of materialism on CSR attitude are mediated by *Environmental concern*. Therefore, we proposed the following hypotheses:

Hypothesis 5: Environmental concern mediates the relationship between materialism and attitude to CSR.

Hypothesis 6: Environmental concern mediates the relationship between success and attitude to CSR.

Hypothesis 7: Environmental concern mediates the relationship between centrality and attitude to CSR.

Hypothesis 8: Environmental concern mediates the relationship between happiness and attitude to CSR.

Based on the theoretical underpinnings and hypotheses, we provided two conceptual models to capture these associations (see **Figure 1**).

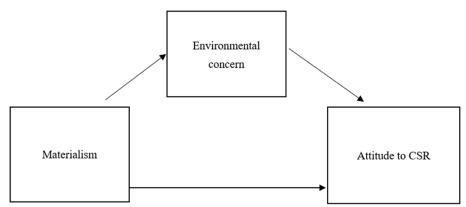


Figure 1. Conceptual model of mediation regarding materialism.

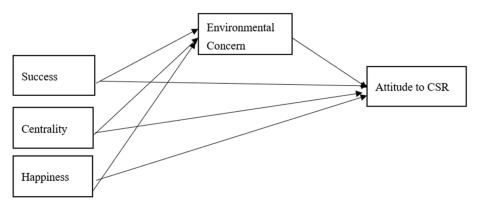


Figure 2. Conceptual model of mediation concerning three dimensions of materialism.

## 3. Methods

#### 3.1. Sample and data collection

Convenience sampling was utilized to obtain the study data using a questionnaire survey. Participants were recruited from students at four universities in China from October through December 2019. We used this

sampling technique for two reasons. First, two authors have connections with these universities. Second, we had time and budget constraints, and this technique allowed us to generate more samples with less investment to obtain the data. Prior to administering the survey, a pilot study was conducted on 42 students in one university in central China. The feedback was used to revise the questionnaire items. We first contacted the department heads to request permission to solicit students. Then, department counselors familiar with the students were invited to distribute the survey. Students' confidentiality and anonymity were ensured in this study. We utilized some reverse items in the questionnaires to reduce the likelihood of common method bias (CMB)<sup>[40]</sup>. Also, we used two rounds of data collection and separated the measurement of predictor variables and outcome variable in time. We included materialism, environmental concern, and control variables in the first round. A total of 1600 surveys were distributed, and 815 responses were collected. After screening and eliminating 132 invalid responses due to missing data, 683 valid questionnaires were collected with a valid response rate of 42.7%. One month later, we distributed the second-round survey to the 683 students who provided valid data in the first round. We only included the instrument measuring attitude toward CSR in this round. A total of 439 students completed the survey, of which 104 either had missing information or did not match the code of the first round. Therefore, the final case we obtained was 335, yielding a valid response rate of 49.0%.

Most students were freshmen (n = 192, 57.3%), whereas junior students (n = 70) comprised 20.9% of participants. There were 247 male (73.7%) and 88 female students (26.3%). Most students were between 19–21 years old (92.1%). Additionally, the monthly income of most students' families (30.4%) was 3000–5000 RMB yuan.

#### 3.2. Measures

The survey measures included materialism, environmental concern, and attitude toward CSR. The construct of materialism possesses three dimensions: success, centrality, and happiness. There are, accordingly, three subscales in the measure of materialism to measure these three dimensions. All measurement scales were well-established and validated in Western countries. The survey was administered in Mandarin Chinese. All these measures were back-translated to ensure word accuracy in meaning. A five-point Likert scale format was used for all the items (1 = strongly disagree; 5 = strongly agree).

#### 3.2.1. Materialism

We measured materialism using Richins and Dawson's 18-item scale<sup>[15]</sup>. On this scale, 6 items assess the dimension of success, 7 assess centrality, and 5 evaluate happiness. Three sample items that measure respective dimensions are "I admire people who own expensive homes, cars, and clothes", "Buying things gives me a lot of pleasure", and "It sometimes bothers me quite a bit that I cannot afford to buy all the things I'd like". The Cronbach's  $\alpha$  for the whole scale was 0.84. The internal consistencies for the three subscales were 0.75, 0.78, and 0.76, respectively.

## 3.2.2. Environmental concern

Environmental concern was assessed utilizing a 5-item scale developed by Kim and Choi<sup>[41]</sup>. Two example items were: "When humans interfere with nature, it often produces disastrous consequences" and "The balance of nature is very delicate and easily upset". The internal consistency of Cronbach's  $\alpha$  was 0.77.

#### 3.2.3. Attitude toward CSR

A six-item scale developed by Kolodinsky et al.<sup>[21]</sup> was utilized to measure students' attitudes toward CSR. Two items are "The overall effectiveness of a business can be determined to a great extent by the degree to which it is ethical and socially responsible" and "Business has a social responsibility beyond making profits".

The alpha coefficient for this scale was 0.81.

#### 3.2.4. Control variables

We controlled for gender, age, grade level, and family monthly income in the current study. Prior research showed that these demographic variables affect the extent to which attitude toward CSR is affected<sup>[42–44]</sup>.

## 3.3. Statistical assumption, reliability, validity, and common methods issues

After data collection, we checked statistical assumption, reliability, validity, and common methods issues. First, we tested whether statistical assumptions were met for the data and checked normality, linearity, and multicollinearity. Skewness and kurtosis absolute values were all below 3, indicating the data were normally distributed<sup>[45]</sup>. Any two variables predominantly displayed a linear relationship because of elliptical scatter plots. All variance inflation factor (VIF) values were less than 5.00, meaning no issues with multicollinearity. Then, reliability was checked. As computed previously, the internal consistencies of Cronbach's  $\alpha$  were all greater than 0.75. Cortina<sup>[46]</sup> argued that Cronbach's  $\alpha$  greater than 0.70 is acceptable. Next, we conducted confirmatory factor analysis (CFA) to test the measurement model. Hu and Bentler<sup>[47]</sup> suggested the following cutoff scores for an acceptable model: RMSEA = 0.10, CFI = 0.90, TLI = 0.90, and SRMR = 0.10. The results showed that the model and the data had an acceptable fit:  $\chi$ 2 (19) = 57.19, RMSEA = 0.08, CFI = 0.91, TLI = 0.93, SRMR = 0.05. The fit indices satisfied typical cutoff scores, indicating adequate construct validity. Last, although some measures were taken to minimize the CMB issue, we still conducted Harman's single-factor test to identify the extent to which the data were contaminated due to the CMB. A single factor only accounted for 18.65% of the variance in all the variables, much less than 50%, indicating no major CMB issue with the data<sup>[48]</sup>.

## 4. Results

PROCESS with SPSS version 27 and Mplus were used in this study to conduct statistical analysis. In this section, we first presented descriptive statistics such as mean and standard deviation and reliability and correlations between all the variables. Then, we provided the results derived from the hierarchical multiple regression analysis to test the proposed hypotheses.

#### 4.1. Descriptive statistics and correlations

**Table 1** presented an overview of descriptive statistics such as means and standard deviations, reliability, and correlation matrix for the variables used in this study. As can be seen from Table 1, both environmental concern (M = 3.92) and attitude toward CSR (M = 4.07) had higher means. Materialism is negatively related to both environmental concern (r = -0.13, p < 0.05) and attitude toward CSR (r = -0.14, p < 0.05). Success is not correlated to environmental concern and attitude toward CSR, nor is happiness. Other correlations between main variables are statistically significant. Centrality is negatively correlated to environmental concern (r = -0.15, p < 0.01) and attitude toward CSR (r = -0.23, p < 0.01). The correlation between environmental concern and attitude toward CSR is positive and statistically significant (r = 0.62, p < 0.01). For the control variables, only gender was significantly correlated to environmental concern (r = 0.20, p < 0.01) and attitude toward CSR (r = 0.21 p < 0.01).

## 4.2. Hypotheses testing

To test the relationship between materialism, environmental concern, and CSR, that is, the simple model in **Figure 1**, we performed hierarchical multiple regression analysis using PROCESS with SPSS 27. **Table 2** provides the results of hierarchical multiple regression. However, the second model is more complicated. Therefore, structural equation modeling (SEM) was employed to examine relationships between materialism

Table 1. Means, standard deviations, reliabilities, and correlations.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	1.74	0.50			·	•				·	•	
2. Age	20.53	1.47	-0.16**									
3. Grade	2.05	1.33	-0.15**	0.91**								
4. Income	2.80	1.53	-0.07	-0.03	-0.03							
5. Materialism	2.99	0.47	0.05	$0.13^{*}$	$0.12^{*}$	0.08	0.84					
6. Success	3.13	0.63	0.04	0.08	0.07	0.08	0.83**	0.75				
7. Centrality	2.77	0.57	0.04	0.12	0.11	0.08	0.83**	$0.50^{**}$	0.78			
8. Happiess	3.11	0.56	0.05	0.11	0.10	0.04	0.74**	$0.47^{**}$	0.45**	0.76		
9. EC	3.92	0.62	$0.20^{**}$	-0.10	-0.09	0.08	$-0.13^*$	-0.03	-0.15**	-0.07	0.77	
10. ATT	4.07	0.51	0.21**	-0.16	-0.15	0.07	$-0.14^*$	-0.05	-0.23**	-0.04	0.62**	0.81

Note: N = 335. M represents the mean. SD denotes standard deviation. EC = environmental concern, ATT = attitude toward CSR. \* Correlation is significant at 0.05 level (2-tailed). \*\* Correlation is significant at 0.01 level (2-tailed). On the diagonal are Cronbach's  $\alpha$  of the main variables.

**Table 2** Results of hierarchical multiple regression.

	β	SE	t	p	LLCI	ULCI
MA-EC	-0.38	0.072	-1.93	0.054	-0.280	0.002
EC-ATT	0.502	0.035	14.222	0.000	0.433	0.571
MA-ATT	-0.149	0.059	-2.538	0.012	-0.264	-0.033
MA-EC-ATT	-0.070	0.047			-0.184	0.035

Note: MA = materialism, EC = environmental concern, ATT = attitude toward CSR. All regression coefficients are standardized. Direct effect: MA-ATT, indirect effect: MA-EC-ATT.

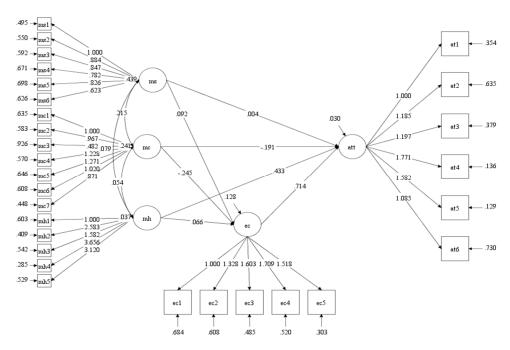
Table 3. Results for the relationships between MS, MC, MH, EC, and ATT.

-	β	SE	p	Hypothesis	Decision
MS-ATT	0.004	0.047	0.935	H2	Reject
MC-ATT	-0.191	0.168	0.005	Н3	Support
MH-ATT	0.433	0.178	0.015	H4	Support
MS-ES-ATT	0.066	0.053	0.209	Н6	Reject
MC-ES-ATT	-0.175	0.070	0.013	H7	Support
MH-ES-ATT	0.047	0.148	0.749	Н8	Reject

Note: MS = success, MC = centrality, MH = happiness, EC = environmental concern, ATT = attitude toward CSR All regression coefficients are standardized. Direct effect: MS-ATT, MC-ATT, and MH-ATT; Indirect effect: MS-EC-ATT, MC-ES-ATT, and MH-ES-ATT.

(or its three dimensions) and attitude to CSR, as well as mediation effects of environmental concern. Mplus 7 was used to analyze the data to test the hypotheses. **Table 3** and **Figure 3** provide the results. For both analyses. Bootstrapping with 1000 replacements was used to estimate the standard errors and confidence intervals accurately.

In Hypothesis 1, we proposed that materialism is related to attitude to CSR, while Hypothesis 5 posted that environmental concern mediates the relationship between materialism and attitude to CSR. As can be seen from **Table 2**, the effect of materialism on attitude toward CSR is negatively significant ( $\beta = -0.149$ , p = 0.012), whereas the indirect effect through environmental concern is not ( $\beta = -0.070$ , p = 0.012, [-0.184, 0.035]). This result indicated that environmental concern does not mediate the relationship between materialism and attitude toward CSR. However, environmental concern is significantly related to attitude toward CSR ( $\beta = 0.502$ , p < 0.001, [0.433, 0.571]). Therefore, Hypothesis 1 is supported, while Hypothesis 5 is rejected.



**Figure 3.** SEM results for the relationships between MS, MC, MH, EC, and ATT. Note: MS = success, MC = centrality, MH = happiness, EC= environmental concern, ATT = attitude toward CSR.

As found, environmental concern does not mediate the relationship between materialism and attitude toward CSR. However, materialism consists of three factors. We delved further and attempted to unravel the deep relationships between three dimensions of materialism, environmental concern, and attitude to CSR. Therefore we further proposed that success, centrality, and happiness are all related to attitude to CSR in Hypotheses 2, 3 and 4. Also, we hypothesized that environmental concern mediates the relationship between these three dimensions of materialism and attitude to CSR.

As indicated in **Table 3**, the relationship between centrality and attitude to CSR was statistically significant ( $\beta = -191$ , p = 0.005). Happiness and attitude to CSR are positively related to each other ( $\beta = 0.433$ , p = 0.015). However, the path coefficient from success to attitude to CSR is not significant ( $\beta = 0.04$ , p = 0.935). Thus, H3 and H4 were supported, but H2 is not confirmed. Last, the mediation effect of environmental concern on the relationship between centrality and attitude to CSR was statistically significant ( $\beta = -0.175$ , p = 0.013), as indicated in **Table 3**. Because the direct link between centrality and attitude to CSR is also significant, environmental concern only partially mediates this relationship. Thus, H7 was partially supported. However, H6 and 8 were not conformed as path coefficients of mediation terms between two dimensions (success and happiness), and attitude to CSR were not significant ( $\beta = 0.066$ , p = 0.209;  $\beta = 0.047$ , p = 0.749).

## 5. Discussion

In this study, we first examined whether materialism is negatively related to attitude to CSR, as well as if environmental concern acts as a mediator between them among Chinese college students. The results showed a significant relationship between materialism and attitude to CSR. This finding supports previous studies by Kolodinsky et al.<sup>[21]</sup> and Do and Sum<sup>[9]</sup>. However, the indirect link between these two variables through environmental concern is not statistically significant. As a self-centered value, materialism relates to devotion to acquisition and possession-based entirely on material interest<sup>[49]</sup>. Materialists regard success as defined by the possessions they own. They tend to put more value on acquiring tangible possessions and focus less on social others and relationships<sup>[10]</sup>. Therefore, it seems logical to conclude that people with materialistic values

are less likely to hold a positive attitude toward CSR. Note that Kolodinsky et al.<sup>[21]</sup> and Do and Sum<sup>[9]</sup> conducted their study in the US and Vietnamese universities, respectively. The consistency of these findings might indicate that the negative relationship between materialism and attitude toward CSR is a universal phenomenon. This argument needs to be confirmed by generalizing to other cultures. The fact that environmental concern does not function as a mediator suggests that materialism possesses enough power to affect people's attitudes toward CSR directly. According to Jung et al.<sup>[50]</sup>, attitudes arise out of, thus determined by core value systems. Therefore, the influence of materialism on attitude toward CSR does not need environmental concern to transfer through among Chinese college students.

Given that materialism contains three dimensions: success, centrality, and happiness, we delved deep and further examined whether these three dimensions are related to attitude toward CSR. If any, what dimensions contribute most to the variance of attitude to CSR? Also, we continued to investigate whether these relationships between the three dimensions of materialism and attitude toward CSR are mediated by environmental concern. In this study, success is not related to attitude toward CSR. College students' attitudes to CSR do not hinge on how they define success. There might be several reasons. First, environmental and CSR classes in sampled colleges might effectively reshape students' attitudes to CSR. These pieces of training make no difference in attitude between those who judge success by possessions and those who do not. The second reason might be a success is inherently not a predictor of attitude to CSR. So far, no empirical evidence in the literature supports this hypothesis. Future research certainly is encouraged to replicate this study in other contexts.

While happiness is positively related to CSR, the relationship between centrality and CSR is negative. The results indicated that happiness and centrality versus success are critical predictors affecting an individual's attitude to CSR. This finding suggests that the dependence of happiness on material acquisitions and possessions could lead students to regard CSR positively. Although people with materialist values believe that acquisitions are valuable and materials are essential to happiness, they also view acquiring materials as critical to social progress<sup>[15]</sup>. To date, materialism is common among Chinese students. As Chinese people have become wealthier and environmental issues have become severe, more Chinese students are environmentally conscious and emphasize social well-being. They are more likely to be intrinsically motivated to empathize and care for others, thus holding a positive attitude toward CSR. Therefore, happiness positively relates to attitude to CSR among Chinese college students. However, this is different for the students who attach great importance to acquiring possessions at the center of their lives. To them, accumulations and possessions of materials are regarded as central and ultimate goals in their life. This self-centered focus on materials drives them to socially disengage from others and society, leading to a negative attitude toward CSR<sup>[48]</sup> That is why we witnessed a negative relationship between centrality and attitude to CSR in Chinese college students.

Results indicated that although happiness positively affects the attitude to CSR, environmental concern does not mediate this positive relationship. However, environmental concern partially mediates the negative effect of environmental concern on the relationship between centrality and CSR. On the one hand, centrality negatively affects students' attitudes to CSR. Students attaching importance to acquiring possessions tend to hold a negative attitude toward CSR. For them, the most crucial concern for a business is making a profit, while business ethics and social responsibility are not crucial to the survival of an enterprise. On the other hand, centrality is a predictor to determine students' concern about the environment, which, in turn, will affect their attitude to CSR. Students with a high level of centrality tend to be less concerned about the environment, contributing to their negative attitude to CSR.

Our study showed that age is not associated with attitude to CSR. This result contradicts some previous studies<sup>[43,51,52]</sup>. For example, a study conducted in Latvia revealed that age is a significant predictor of attitude

to CSR. More specifically, the older generation values CSR higher than the youngsters. A close examination uncovered that the age ranges of participants in all these studies were much broader and grouped by generation. Our participants, however, were recruited from Chinese universities. A vast majority of participating students are 18–22 years old. They are all Z-generation born after 2000. Therefore, there is no difference in Attitude to CSR regarding their age.

# 6. Implications

Given that researchers rarely examine relationships between materialism (and its three dimensions) and attitude toward CSR in the Chinese context, this study has significant implications. The primary theoretical contribution of this study is that it supports the results of prior similar studies by sampling Chinese college students. It is indicated that materialism is negatively associated with Chinese students' attitudes to CSR. Second, this study contributes to the literature by breaking down materialism into three dimensions and examining the relationships between the three dimensions of materialism and attitudes toward CSR, respectively. While success is not related to students' attitude to CSR, happiness and centrality are its strong predictors. This might be one of the first research studies that revealed such relationships among Chinese students. Third, it might be the first study that used environmental concern as a mediator to examine how materialism affects CSR attitude. While environmental concern does not transfer the effect of materialism on CSR attitude, the effect of centrality flows through environmental concern to influence CSR attitude. These findings are significant because it is indicated that centrality is more critical in predicting students' attitudes versus the other two dimensions of materialism.

This study also has several practical implications. First, knowing that highly materialistic students are less likely to have positive attitudes toward CSR, Chinese colleges might need to develop some ethics and CSR courses to increase students' awareness of CSR, helping them understand CSR's importance to society. Colleges also need to emphasize the detriments of materialism in their classes. Second, because environmental concern is positively related to CSR attitude, students should be instructed to be more environmentally conscious and care about air pollution, water and soil pollution, climate change, global warming, and others. Third, students' acquisition centrality strongly predicts their CSR attitude. Students with acquisition centrality attach more importance to acquiring possessions at the center of their lives. They are less likely to be concerned about the environment, resulting in a negative attitude to CSR. Therefore, students with more acquisition centrality should be acknowledged and receive more focused instruction and counseling.

## 7. Limitations and future research

Although this study provides important insights, future studies can address several limitations. First, the data of this study were collected from students of four universities in China. Even though these four universities are located in different parts of China, a convenience sample drawn from only four universities raises an issue of generalizability. Therefore, future studies should replicate our study in different universities and countries. Given the various campus cultures across so many universities in China and the globe, how students' materialism affects their attitudes toward CSR might vary depending on universities and cultures. In addition, we only sampled college students. The scope of the sample might also limit its generalizability. For example, we found that success does not predict attitude to CSR among Chinese college students. Future studies are encouraged to replicate this research and examine their relationship in other cultures or contexts. Second, the conceptual model we used in this study was relatively simple. We only utilized environmental concern as a mediator to examine the relationship between materialism (and its three dimensions) and students' attitudes toward CSR. Researchers have already warned that a materialistic person's attitude is a complicated construct

in psychology<sup>[51]</sup>, other factors might exist that can dilute the effect of materialism on attitude to CSR, or there must be multiple conditions under which materialism influences students' attitude to CSR. It would be interesting for future studies to identify and examine these mediating and moderating effects. Third, we methodologically adopted a cross-sectional design to collect data using self-report measures. Therefore, we cannot derive causality among the study variables. Future researchers might benefit if they employ a longitudinal study design such that a causal relationship can be examined. In addition, we utilized some reverse items in the questionnaires and separated the measurement of predictor variables and outcome variable in time. Harman's single-factor test showed that one single factor accounted for only 18.65% of the variance in all the variables. However, CMB might still exist. Future studies will obtain more accurate estimations if they measure predictor and criterion variables from different sources to reduce CMB further.

## 8. Conclusions

In conclusion, this study demonstrated that materialism is negatively related to attitudes to CSR among Chinese college students. Materialistic students tend to be negative toward CSR. While both happiness and centrality are predictors, centrality is more important in affecting students' attitudes to CSR. Students' concern about the environment serves as a partial mediator between materialism and attitude to CSR. Students with a high level of centrality tend to be less concerned about the environment, resulting in a negative attitude to CSR.

Given that little research has investigated the relationship between materialism, environmental concern, and attitude toward CSR among Chinese college students, this study adds value to the literature by examining the relationship between the three dimensions of materialism and attitudes toward CSR. This study used environmental concern as a mediator to examine the above relationships. Colleges and universities should pay more attention to students with more acquisition centrality and give them more focused instruction and counseling.

# **Author contributions**

Conceptualization, SQ and LMD; methodology, SQ; software, SQ; validation, SQ, ZH and WT; formal analysis, SQ; investigation, SQ; resources, ZH; data curation, WT; writing—original draft preparation, SQ, SS, LMD; writing—review and editing, SQ, SS, LMD; supervision, SQ; project administration, SQ. All authors have read and agreed to the published version of the manuscript.

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#### **Conflict of interest**

Authors declare no conflicts of interest.

# References

- 1. Smith B, Monforte J. Stories, new materialism and pluralism: Understanding, practising and pushing the boundaries of narrative analysis. *Methods in Psychology* 2020; 2: 100016. doi: 10.1016/j.metip.2020.100016
- 2. Atanasova A, Eckhardt GM. The broadening boundaries of materialism. *Marketing Theory* 2021; 21(4): 481–500. doi: 10.1177/14705931211019077
- 3. Khan KA, Yansheng WU, Aigerim D. Gratitude: Building bridges between buddhism and positive psychology. *Journal of Contemporary Issues in Business and Government* 2021; 27(2): 929. doi: 10.47750/cibg.2021.27.02.110
- 4. Bowen HR. Social Responsibilities of the Businessman. University of Iowa Press; 2013.
- 5. Marco-Lajara B, Zaragoza-Sáez P, Falcó JM, Millan-Tudela LA. Corporate social responsibility: A narrative

- literature review. In: Frameworks for Sustainable Development Goals to Manage Economic, Social, and Environmental Shocks and Disasters. Engineering Science Reference; 2022. pp. 16–34.
- 6. Teixeira A, Ferreira MR, Correia A, Lima V. Students' perceptions of corporate social responsibility: Evidences from a Portuguese higher education institution. *International Review on Public and Nonprofit Marketing* 2018; 15(2): 235–252. doi: 10.1007/s12208-018-0199-1
- 7. Jiang W, Wong JK. Key activity areas of corporate social responsibility (CSR) in the construction industry: A study of China. *Journal of Cleaner Production* 2016; 113: 850–860. doi: 10.1016/j.jclepro.2015.10.093
- 8. King A, Bartels W. The KPMG survey of corporate responsibility reporting 2015. Available online: https://assets.kpmg.com/content/dam/kpmg/pdf/2015/12/KPMG-survey-of-CR-reporting-2015.pdf (accessed on 6 April 2018).
- 9. Do H, Sum CC. Business student attitudes toward corporate social responsibility: A Vietnamese study. *Journal of Management & Organization* 2021: 1–24. doi: 10.1017/jmo.2021.28
- 10. Minson JA, Dorison CA. Toward a psychology of attitude conflict. *Current Opinion in Psychology* 2022; 43: 182–188. doi: 10.1016/j.copsyc.2021.07.002
- 11. Kuzey C, Uyar A, Nizaeva M, Karaman AS. CSR performance and firm performance in the tourism, healthcare, and financial sectors: Do metrics and CSR committees matter? *Journal of Cleaner Production* 2021; 319: 128802. doi: 10.1016/j.jclepro.2021.128802
- 12. Mazereeuw-van der Duijn Schouten C, Graafland J, Kaptein M. Religiosity, CSR attitudes, and CSR behavior: An empirical study of executives' religiosity and CSR. *Journal of Business Ethics* 2014; 123: 437–459. doi: 10.1007/s10551-0
- 13. Uyar A, Kuzey C, Kilic M, Karaman AS. Board structure, financial performance, corporate social responsibility performance, CSR committee, and CEO duality: Disentangling the connection in healthcare. *Corporate Social Responsibility and Environmental Management* 2021; 28(6): 1730–1748. doi: 10.1002/csr.2141
- 14. Hamamura T. A cultural psychological analysis of cultural change. *Asian Journal of Social Psychology* 2018; 21(1–2): 3–12. doi: 10.1111/ajsp.12194
- 15. Richins ML, Dawson S. A consumer values orientation for materialism and its measurement: Scale development and validation. *Journal of Consumer Research* 1992; 19(3): 303–316. doi: 10.1086/209304.
- 16. Ward S, Wackman D. Family and media influences on adolescent consumer learning. *American Behavioral Scientist* 1971; 14(3):415–427. doi: 10.1177/000276427101400315
- 17. Belk RW. Materialism: Trait aspects of living in the material world. *Journal of Consumer Research* 1985; 12(3): 265–280. doi: 10.1086/208515
- 18. Ajzen I. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 1991; 50(2): 179–211. doi: 10.1016/0749-5978(91)90020-T
- 19. Richins ML. Special possessions and the expression of material values. *Journal of Consumer Research* 1994; 21(3): 522–533. doi: 10.1086/209415
- 20. Jones TM. Corporate social responsibility revisited, redefined. *California Management Review* 1980; 22(3): 59–67. doi: 10.2307/41164877
- 21. Kolodinsky RW, Madden TM, Zisk DS, Henkel ET. Attitudes about corporate social responsibility: Business student predictors. *Journal of Business Ethics* 2010; 91: 167–181.
- 22. Kasser T, Ahuvia A. Materialistic values and well-being in business students. *European Journal of social psychology* 2002; 32(1): 137–146. doi: 10.1002/ejsp.85
- 23. Naatu F, Nyarko SA, Munim ZH, Alon I. Crowd-out effect on consumers attitude towards corporate social responsibility communication. *Technological Forecasting and Social Change* 2022; 177: 121544. doi: 10.1016/j.techfore.2022.121544
- 24. Abdul Z, Ibrahim S. Executive and management attitudes towards corporate social responsibility in Malaysia. *Corporate Governance: International Journal of Business in Society* 2002; 2(4): 10–16. doi: 10.1108/14720700210447641
- 25. Giacalone RA, Jurkiewicz CL, Deckop JR. On ethics and social responsibility: The impact of materialism, postmaterialism, and hope. *Human Relations* 2008; 61(4): 483–514. doi: 10.1177/0018726708091019
- 26. Davidson RH, Dey A, Smith AJ. CEO materialism and corporate social responsibility. *Accounting Review* 2019; 94(1): 101–126. doi: 10.2308/accr-52079
- 27. Mathur A. Materialism and charitable giving: Can they co-exist? *Journal of Consumer Behaviour* 2013; 12(3): 149–158. doi: 10.1002/cb.1404
- 28. Tandon AK, Mishra SK, Singh E. What discriminates the prospective manager's attitude towards corporate social responsibility? An insight from psychological variables. *IUP Journal of Corporate Governance* 2011; 10(3): 52–70
- 29. Takács-Sánta A. Barriers to environmental concern. Human Ecology Review 2007; 14(1): 26-38.
- 30. Gatersleben B, Jackson T, Meadows J, et al. Leisure, materialism, well-being and the environment. *European Review of Applied Psychology* 2018; 68(3): 131–139. doi: 10.1016/j.erap.2018.06.002

- 31. Segev S, Shoham A, Gavish Y. A closer look into the materialism construct: The antecedents and consequences of materialism and its three facets. *Journal of Consumer Marketing* 2015; 32(2): 85–98. doi: 10.1108/JCM-07-2014-1082
- 32. Banerjee B, McKeage K. How green is my value: Exploring the relationship between environmentalism and materialism. In: Chris TA, Deborah RJ (editors). *Advances in Consumer Research*. Association for Consumer Research; 1994. Volume 21. pp. 147–152.
- 33. Hurst M, Dittmar H, Bond R, Kasser T. The relationship between materialistic values and environmental attitudes and behaviors: A meta-analysis. *Journal of Environmental Psychology* 2013; 36: 257–269. doi: 10.1016/j.jenvp.2013.09.003
- 34. Maio GR, Pakizeh A, Cheung WY, Rees KJ. Changing, priming, and acting on values: Effects via motivational relations in a circular model. *Journal of Personality and Social Psychology* 2009; 97(4): 699. doi: 10.1037/a0016420
- 35. Kilbourne W, Pickett G. How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research* 2008; 61(9): 885–893. doi: 10.1016/j.jbusres.2007.09.016.
- 36. Schwartz SH. Normative influences on altruism. *Advances in Experimental Social Psychology* 1977; 10: 221–279. doi: 10.1016/S0065-2601(08)60358-5
- 37. Jain SK, Kaur G. Green marketing: An attitudinal and behavioural analysis of Indian consumers. *Global Business Review* 2004; 5(2): 187–205. doi: 10.1177/097215090400500203
- 38. Schultz PW. New environmental theories: Empathizing with nature: The effects of perspective taking on concern for environmental issues. *Journal of Social Issues* 2000; 56(3): 391–406. doi: 10.1111/0022-4537.00174
- 39. Nath V, Kumar R, Agrawal R, et al. Consumer adoption of green products: Modeling the enablers. *Global Business Review* 2013; 14(3): 453–470. doi: 10.1177/0972150913496864
- 40. Podsakoff PM, MacKenzie SB, Podsakoff NP. Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology* 2012; 63: 539–569. doi: 10.1146/annurev-psych-120710-100452
- 41. Kim Y, Choi SM. Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *North American Advances* 2005; 32(1): 592–599.
- 42. Khurshid MA, Al-Aali A, Soliman AA, et al. Awareness of corporate social responsibility in an emerging economy. *Life Science Journal* 2013; 10(4): 2229–2240.
- 43. Titko J, Svirina A, Tambovceva T, Skvarciany V. Differences in attitude to corporate social responsibility among generations. *Sustainability* 2021; 13(19): 10944. doi: 10.3390/su131910944
- 44. Murphy MJ, MacDonald JB, Antoine GE, Smolarski JM. Exploring Muslim attitudes towards corporate social responsibility: Are Saudi business students different? *Journal of Business Ethics* 2019; 154: 1103–1118. doi: 10.1007/s10551-016-3383-4
- 45. Kline TJ. Psychological Testing: A Practical Approach to Design and Evaluation. Sage Publications; 2005.
- 46. Cortina JM. What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology* 1993; 78(1): 98. doi: 10.1037/0021-9010.78.1.98
- 47. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal* 1999; 6(1): 1–55. doi: 10.1080/10705519909540118
- 48. Change S, Witteloostuijn AV, Eden L. From the editors: Common method variance in international research. *Journal of International Business Studies* 2010; 41(2): 178–184. doi: 10.1057/jibs.2009.88
- 49. Tatzel M. "Money worlds" and well-being: An integration of money dispositions, materialism and price-related behavior. *Journal of Economic Psychology* 2002; 23(1): 103–126. doi: 10.1016/S0167-4870(01)00069-1
- 50. Jung CG, Schmid-Guisan H. The Question of Psychological Types. Princeton University Press; 2012.
- 51. Haski-Leventhal D, Pournader M, McKinnon A. The role of gender and age in business students' values, CSR attitudes, and responsible management education: Learnings from the PRME international survey. *Journal of Business Ethics* 2017; 146: 219–239. doi: 10.1007/s10551-015-2936-2
- 52. Wisse B, van Eijbergen R, Rietzschel EF, Scheibe S. Catering to the needs of an aging workforce: The role of employee age in the relationship between corporate social responsibility and employee satisfaction. *Journal of Business Ethics* 2018; 147: 875–888. doi: 10.1007/s10551-015-2983-8

# **Appendix: Items of variables**

#### **Materialism**

#### **Success**

- I admire people who own expensive homes, cars, and clothes.
- Some of the most important achievements in life include acquiring material possessions.
- I don't place much emphasis on the amount of material objects people own as a sign of success\*.
- The things I own say a lot about how well I'm doing in life.
- I like to own things that impress people.
- I don't pay much attention to the material objects other people own\*.

## Centrality

- I usually buy only the things I need\*.
- I try to keep my life simple as far as possessions are concerned\*.
- The things I own aren't all that important to me\*.
- I enjoy spending money on things that aren't practical.
- Buying things gives me a lot of pleasure.
- I like a lot of luxury in my life.
- I put less emphasis on material things than most people I know\*.

#### **Happiness**

- I have all the things I really need to enjoy life\*.
- My life would be better if I owned certain things I didn't have.
- I wouldn't be any happier if I owned nicer things\*.
- I'd be happier if I could afford to buy more things.
- It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.

#### **Environmental concern**

- I am extremely worried about the state of the world's environment and what it will mean for my future.
- Mankind is severely abusing the environment.
- When humans interfere with nature, it often produces disastrous consequences.
- The balance of nature is very delicate and easily upset.
- Humans must live in harmony with nature in order to survive.

#### Attitudes towards CSR

- The most important concern for a firm is making a profit, even if it means bending or breaking the rules\*.
- The overall effectiveness of a business can be determined to a great extent by the degree to which it is ethical and socially responsible.
- Social responsibility and profitability can be compatible.
- Business ethics and social responsibility are critical to the survival of a business enterprise.
- Business has a social responsibility beyond making profits.
- Good ethics is often good business.

Note: An asterisk (\*) indicates reverse-scored items.