Precedents of the compulsive use of a credit card: an analysis of university students' buying behavior

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Abstract

Purpose – This study aims to identify the precedents of compulsively using a credit card, analyzing the influence of the following factors: power–prestige, anxiety, distrust and materialism.
Design/methodology/approach – Data collection was performed by the survey method, while the structural equation modeling technique was used for data analysis, adopting the confirmatory factor analysis and path analysis.
Findings – The impact that anxiety has on compulsive use of credit cards was confirmed. Furthermore, the influence of materialism present in an individual on the compulsive use of a credit card was also proven.
Research limitations/implications – As a limitation, the power–prestige construction did not obtain satisfactory average variance extracted in the modeling. Other limitations can be pointed out; for instance, it was a sample composed of university students and with geographic restrictions.
Practical implications – This study highlights the importance of promoting public policies oriented toward the conscious use of credit cards. Interference in the approach of financial institutions aimed at attracting new clients in universities is also necessary.
Social implications – This study aggregates information about the buying behavior of university students, how the precedents affect credit card use behavior and the harmful effects of compulsive use of credit cards.
Originality/value – The originality of this study is in offering a new approach to credit cards by analyzing their usage behavior, more specifically, the compulsive use of credit cards.

Keywords Compulsive use of credit cards, Precedents, Compulsive buying, Indebtedness
Paper type Research paper

1. Introduction

The excessive use of credit cards can be harmful to the financial well-being of consumers (Braun Santos, Mendes-Da-Silva, Flores, & Norvilitis, 2016). According to Roberts (1998) and Veludo-de-Oliveira, Ikeda, and Santos (2004), people tend to relate the money used as credit as something abstract (meaning they cannot correctly associate that the purchase price needs to be paid later). Nowadays, the association of credit as something abstract is even more evident, since numerous technological facilities have been created which do not necessarily require a physical credit card; for example, mobile wallets or digital cards which not only allow more

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convenience and technological innovation for the user (Kumar, Nim, & Sharma, 2019), but can also encourage consumption (Rimple, Srikant, Naseem, & Kumar, 2015).

The compulsion to buy things can be understood as compulsive buying, which occurs when an individual tends to acquire more than they really need and what they can afford with their reserves/savings (Veludo-de-Oliveira *et al.*, 2004). According to O'Guinn and Faber (1989), compulsive buyers have a bigger probability to possess more credit cards, have difficulty paying monthly card bills and are closer to the credit limit. Thus, compulsive buyers can intensely confront indebtedness, which also provokes negative feelings that harm work, social and family relations (Vieira, Flores, Kunkel, Campara, & Paraboni, 2014). Regarding indebtedness, when these people exceed the credit card limit and want to maintain their lifestyle, they end up seeking financial help from family members. This process becomes very stressful for those who lend money, as compulsive behavior tends to be like an addiction, affecting close people (Cordeiro, Wong, & Ponchio, 2019).

The existing literature emphasizes credit cards with a variable that can help explain a particular construct. Thus, important papers have investigated the credit card as a mediator or moderating element of certain factors in compulsive buying. Although these studies have contributed to the theoretical evolution around compulsive buying behavior, there are still some uncertainties regarding credit card use behavior and which factors can influence its use to become compulsive. We want to verify the precedents of compulsive credit card use because we believe that university students' personality dimensions can either encourage or inhibit this behavior.

We tested the influence of a new construction, materialism. As compulsive behavior can be linked to individuals' need to both receive subjective rewards and acquire material goods (Veludo-de-Oliveira, Falciano, & Perito, 2014), it makes sense to think that materialism would encourage people to consume more and more, especially when we understand that we live in a strong consumer culture (Shen, Sam, & Jones, 2014). Our paper presents theoretical and empirical advances. The objective of the work by Veludo-de-Oliveira *et al.* (2004) is to verify the intensity of credit card use by university students. We go beyond that and study what lies behind the compulsive use of credit cards by college students.

Compared with Felipe, Ceribeli, and Brandão (2017), we investigated the materialism construct as a new factor influencing compulsive behavior focused on credit card use. While Felipe *et al.* (2017) used the attitudes related to money and compulsive buying by Roberts and Jones (2001). In relation to the studies by Palan, Morrow, Trapp, and Blackburn (2011) and Veludo-de-Oliveira *et al.* (2014), we note that these studies treat the credit card as a mediator or moderator. In other words, by directing their attention to the use of credit cards only as a mediating or moderating element of compulsion, these studies may be neglecting relevant information for a more accurate understanding of those that stimulate compulsive consumption behavior.

The objective of this work is to identify the factors that precede the compulsive use of the credit card, from observing the consumption behavior of university students. We decided to observe university students because most of the time the first experience with a credit card is usually when a person enters a university (Mendes-Da-Silva, Nakamura, & de Moraes, 2012), seeking to increase their well-being through the process of achieving independence from parents (Lusardi, Mitchell, & Curto, 2010). In addition, this group presents spending behavior under financial practices and employment-related life events (Brüggen, Hogreve, Holmlund, Kabadayi, & Löfgren, 2017).

The relevance of this study permeates the possibility of examining how university students behave in relation to credit cards and identifying which factors may trigger compulsive credit card use (Robb, Moody, & Abdel-Ghany, 2012). This is still little explored in the Brazilian context (Santos, Mendes-Da-Silva, Norvilitis, Protin, & Onusic, 2021). Furthermore, since the precedents of compulsive credit card use are known, this study may be useful to identify the characteristics present in compulsive shoppers, elucidate how personality factors influence the behavior of credit card users and how compulsive credit card use can be detrimental to an individual's financial well-being (Brüggen *et al.*, 2017).

This paper advances the literature because it presents evidence which point out that the use of credit cards should stimulate compulsive consumption by young people, especially women who do not have any income. This suggests that young women may be more prone to indebtedness (Vieira *et al.*, 2014) and are more susceptible to compulsive buying behavior (Faber & O'Guinn, 1992), mainly due to excessive credit card use (Santos *et al.*, 2021). In addition, by investigating how materialism can influence compulsive behavior, we will be able to understand how people who attach importance to acquiring and possessing material goods in their life are motivated to compulsively consume using a credit card. In turn, our work brings some enrichment to the literature produced on the topic discussed herein.

Finally, we understand that the discussions promoted herein can serve as inputs for formulating public policies to optimize the financial education of individuals, so that they can establish a stable financial life and positive financial habits (OECD, 2020). Furthermore, better financial education, especially regarding conscious consumption and safe investment, should allow individuals to better prepare for old age and have a more balanced financial life during youth (Lusardi *et al.*, 2010).

2. Literature

Compulsive buying can be understood as uncontrolled buying events (Medeiros, Diniz, Costa, & Pereira, 2015), in which the individual tends to idealize a sense of success and well-being through their purchases (Roberts, 1998). O'Guinn and Faber (1989) define it as a lasting and recurrent act, in which the consumer seeks to mitigate negative feelings. Edwards (1993) complements this idea and adds that compulsive buying can be characterized as an abnormal form of acquisition and expenditure. As pointed out by Harnish and Bridges (2015), compulsive buying in the field of psychology derives from a psychopathological disorder.

Although compulsive buying has similarities with impulsive buying, they have different definitions (Veludo-de-Oliveira *et al.*, 2004). Complementing what was mentioned above, compulsive buying can be understood as a vicious circle (Harnish & Bridges, 2015) that comes from negative emotional states (Matos & Bonfanti, 2016), such as anxiety. On the other hand, impulsive buying is characterized by the absence of planning (Santini, Ladeira, Vieira, Araujo, & Sampaio, 2019), associated with agility in decision-making and an intense need to buy (Lins & Pereira, 2011).

One of the most interesting characteristics of compulsive shoppers is the very recognition that the behavior they develop over time is excessive and inappropriate (Faber & O'Guinn, 1988). This situation tends to generate uncomfortable and embarrassing daily episodes, which provoke feelings of guilt and regret for lack of control (Sari & Suyasa, 2017). In addition to these feelings, compulsive shopping has more serious consequences for the individual and their social nucleus, which may compromise the future of families and individuals (Roberts & Jones, 2001).

It is important to state that one of the negative consequences of compulsive shopping is related to financial problems (Roberts, 1998), which arise from disorganized and irrational credit card management (Kunkel, Vieira, & Potrich, 2015). The compulsive use of credit cards can commonly result in indebtedness and the possibility of buyer default (Veludo-de-Oliveira *et al.*, 2014). Actions ruled by financial irresponsibility and lack of moral conscience (Kunkel *et al.*, 2015) have led individuals and families to buy without proper care to pay their bills. Awanis and Chi Cui (2014) suggest that credit card use encourages individuals to spend more.

2.1 Hypothesis

Yamauchi and Templer (1982) initially developed the money attitude scale, which presents four dimensions related to attitudes toward money: power–prestige, retention time, distrust and anxiety. Three of these dimensions were adapted by Roberts and Jones (2001) and later used in the study by Felipe *et al.* (2017), who examined how attitudes of power–prestige, distrust and anxiety influence compulsive buying relationships among students. In addition to analyzing how power–prestige, distrust and anxiety influence buying behavior, our work observes how materialism can act as a predictor of compulsion.

The power–prestige construct represents the use of money as a way of impressing other people, with this financial resource being considered synonymous with power for some individuals (Roberts & Jones, 2001). Thus, there is signaling that current society considers the ostentation of material possessions as the most assertive parameter for power over the other (Sharif & Yeoh, 2018). Khare (2014) complements such thought and argues that compulsive buyers consider that acquiring material goods which are representative of wealth can influence the rise of social position.

Faber and O'Guinn (1988) report that people are predisposed to make judgments regarding possessions, and therefore they aim to acquire material goods with the intention of being judged positively. Individuals can not only buy because of the need for a material good, but also because of the feeling of superiority in their social circle, or because of the ability to influence others (Veludo-de-Oliveira *et al.*, 2004). Both the material and the social aspects can induce people to use their credit card incorrectly (Veludo-de-Oliveira *et al.*, 2014).

Smith (2002) corroborates this thought and adds that people act differently from what they would normally act when they gain something in return that they highly value, such as recognition, acceptance or something material. Palan *et al.* (2011) agree with this and argue that power–prestige, meaning money as a source of power or prestige, has induced young people to exaggeratedly use credit cards for purchases, especially university students (Wang & Xiao, 2009). These authors also suggest that one of the causes attributed to this misguided behavior is consumer culture, which involves both prestige power and materialism. Therefore, we tested the following hypothesis H1:

H1. The power–prestige construct positively influences the compulsive use of credit cards.

The anxiety construct refers to the feeling of nervousness when the individual faces situations that need to deal with money (Rimple *et al.*, 2015). According to the study by Hayhoe *et al.* (2012), the relationship between savings and anxiety proved to be detrimental to attitudes regarding personal financial management, because people who had lower levels of anxiety were more assertive in their financial management behaviors. It should be complementarily emphasized that anxiety can be considered as an internal driving factor of individuals who buy uncontrolledly (Matos & Bonfanti, 2016).

The study by Roberts and Jones (2001) points out that the central motive of people who buy compulsively is an attempt to escape anxiety. However, when an individual seeks to eliminate anxiety through excessive shopping and spending, they acquire more and more objects, thus entering a vicious circle to feel good (Edwards, 1993). Accordingly, anxiety can be considered both an element that precedes the act of compulsively buying and a consequence of this scenario (Roberts & Jones, 2001). Therefore, this paper examines the following hypothesis H2:

H2. Anxiety positively influences the compulsive use of credit cards.

Individuals with higher levels of distrust tend to have feelings of hesitation and doubt regarding contexts involving spending money (Yamauchi & Templer, 1982). Phau and Woo (2008) argue that more distrustful people can have difficulty in relying on their own ability in situations involving shopping and become insecure; therefore, they do too much research to achieve the ideal acquisition.

Cho (2006) suggests that distrust should play a critical role in consumer behavior, as distrust is a type of encoding that exists in the memory of these individuals and induces deviations from social norms. The theory is that people tend to make economic and financial decisions based on an assessment of potential gains or losses, with greater weight given to decisions in loss scenarios (Tversky & Kaneman, 1986). This reveals that negative information or messages can have a greater impact on personal behavior (Barros and Felipe, 2015).

Distrust is also closely related to the fear the individual has about the price paid for a material good and the benefits of obtaining it (Felipe *et al.*, 2017). Roberts and Jones (2001) describe that price-sensitive people are less likely to become compulsive buyers since they are always questioning prices and are less likely to buy material goods in an exacerbated way. The price-sensitive dimension contains people for whom it is more common to compare prices before buying, and as a result they are able to calmly select items (Roberts & Jones, 2001). A good example of this is people who take advantage of promotions to accumulate things (Klontz, Britt, Mentzer, & Klontz, 2011). They do not necessarily keep their work environment or staff organized, but when they do, they realize how many unnecessary things they have (Rimple *et al.*, 2015). In view of this, we tested the following hypothesis H3:

H3. Distrust negatively influences the compulsive use of credit cards.

Another important factor to complement the study of precedents of the compulsive use of credit cards is materialism, defined as the emphasis that an individual gives to the possession of material goods in their life (Richins & Dawson, 1992). Materialism can be measured through the material values scale, developed by Richins and Dawson (1992) and later improved by Richins (2004). This measurement scale of materialism presents questions about centrality, happiness and success, as the three main domains of materialism (Richins & Dawson, 1992).

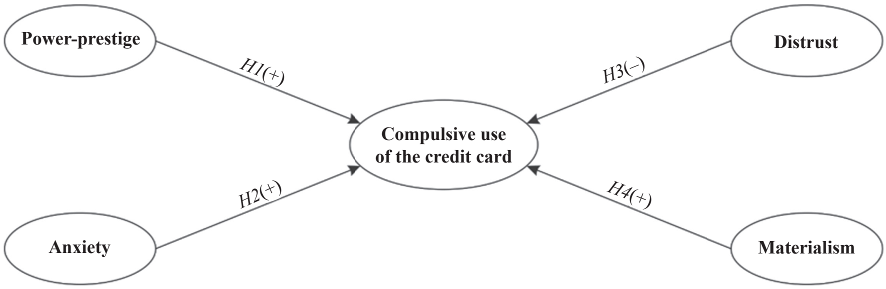
According to Burroughs and Rindfleisch (2002), a materialistic individual tends to associate increased well-being with material possession. Furthermore, Medeiros *et al.* (2015) add that materialistic people consider the acquisition of material goods as being primordial to being happy and having a successful life. In this sense, especially when it comes to happiness, what distinguishes the materialist is that this person aims for happiness through acquiring objects and not through lived experiences (Richins & Dawson, 1992). In addition, it is important to point out that higher levels of materialism can influence the difficulty of controlling the act of buying in the face of external stimuli (Santini *et al.*, 2019). From this, we tested the following hypothesis H4:

H4. Materialism positively influences the compulsive use of credit cards.

Thus, it is predicted that the power–prestige, anxiety, distrust and materialism constructs may exert some influence on the compulsive use of credit cards. Therefore, the presentation of the constructs of this study and their respective hypotheses were gathered in an initial theoretical model (Figure 1).

3. Method

The target population of the study included university students from a federal institution of higher education in the city of Mariana (Minas Gerais), Brazil, who were credit cardholders at the time of data collection. About 506 respondents were surveyed (June–October 2019), and no participant was excluded. We opted for the survey method in this study using an online self-completion questionnaire as the data collection instrument. The Google Forms platform



Source(s): Authors' calculation

Figure 1.
Initial theoretical model

was used for its elaboration, and it was then applied through the access link of its electronic version. This data collection method is advantageous, as the questionnaire is usually answered without the presence of the researchers, and so the costs involved for its application are lower.

The questionnaire was organized into three sections, the first of which is informative in addressing the research objective and pertinent explanations. The second section is related to the demographic data of the respondents. Then, the third section presents questions related to the following constructs: power–prestige, anxiety, distrust, materialism and credit card use.

A seven-point Likert scale was employed to analyze the agreement degree of the respondents to each affirmation related to the precedents of the compulsive use of credit cards, mentioning only the extremes as "I totally disagree" and "I totally agree." This scale option was used following the recommendations of Hair, Babin, Money, and Samouel (2005) and Joshi, Kale, Chandel, and Pal (2015), and offers a greater chance of considering the objective reality of people.

Twenty questions adapted from the Yamauchi and Templer scale (1982) were applied to investigate the power–prestige, anxiety and distrust dimensions, as also employed by Roberts and Jones (2001) and Felipe *et al.* (2017). It is worth highlighting that all the questions on this scale were applied. Then, six questions adapted from Richins and Dawson's (1992) and Richins's (2004) scale were posteriorly applied to investigate the respondents' level of materialism. Thus, two questions were used about the centrality dimension, one question related to success and three questions related to happiness. Finally, ten questions adapted from Roberts and Jones (2001) were used to verify the use of the credit card by the respondents; we used this scale because the items on the scale refer to the incoherent use of credit card.

It is worth mentioning that a pre-test was carried out with 35 respondents before the questionnaire was applied to verify understanding of the questions and the duration of the questionnaire. Adjustments were made to questions about materialism and the use of the credit card due to ambiguity in the Portuguese translation; therefore, we only considered the questions that did not cause ambiguity to the respondents.

The structural equation modeling statistical technique was adopted for data analysis, using confirmatory factor analysis (CFA) and path analysis. CFA was used to group the 36 variables observed in the study into five latent variables, representing each analyzed construct. The asymmetry and kurtosis of the observed variables were first used in the validation of the CFA to verify the normality of the data studied (Hair, Black, Babin, Anderson, & Tatham, 2009) and we calculated Cronbach's alpha to analyze the internal consistency of the scales before testing the first model (Bonett & Wright, 2015; Hair, Hult, Ringle, & Sarstedt, 2017).

The factorial loads were verified to ensure good fit quality indexes (Hair *et al.*, 2009). The fit indexes adopted were goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI) and root mean square error of approximation (RMSEA); normed fit index (NFI) and comparative fit index (CFI); Tucker–Lewis's index (TLI) and standardized root mean squared residual (SRMR). The convergent validity was posteriorly verified, accessed by average variance extracted (AVE) and composite reliability (CR). We also analyzed the discriminant validity, accessed by the Fornell–Larcker criterion.

The path analysis was applied to examine the relationships between the endogenous latent variable "the compulsive use of the credit card" and the exogenous latent variables "power–prestige," "anxiety," "distrust" and "materialism," as well as the relationship between the mentioned exogenous variables.

4. Results

4.1 Analysis of the sample

The survey sample was composed of 506 respondents, of which 63% were women and 37% men. The majority of respondents were between 18 and 29 years old at the moment of data collection, composing 79.6% of the total sample; 12.5% were between 30 and 36 years old; 5.3% were between 37 and 50 years old and 2.6% were over 50 years old. Of the respondents, 81.4% were single; 14.4% were married; 1.4% were divorced and 2.8% signaled as others. Regarding monthly income, the majority did not have any income, integrating 37% of the total sample; 20.7% had a monthly income of up to R$998.00; 22.9% had a monthly income of from R$998.01 to R$1,996.00; 8.5% had a monthly income from R$1,996.01 to R$2,994.00; 2.8% had a monthly income from R$2,994.01 to R$3,992.00; 3% had a monthly income from R$3,992.01 to R$4,990.00 and 5.1% earned above R$4,990.00.

Of the respondents, 63% are women, 79.6% of the sample were young and 37% of the sample has no income. These data should indicate that women are more prone to indebtedness (Vieira *et al.*, 2014), which could be because they may be more likely to engage in compulsive buying behaviors, according to Faber and O'Guinn (1992). Furthermore, young people are more prone to indebtedness, an argument that is in line with a study by Ponchio (2006). These young people are also at the beginning of their financial lives, and in many situations, without income or with family financing (Bricker *et al.*, 2012).

4.2 Precedents of compulsive use of the credit card

As suggested by Hair *et al.* (2009), a range of ±2.58 for asymmetry and ±3 for kurtosis was adopted as the parameter. Based on the values obtained, it was decided to preliminarily exclude the following variables: P3 ("I use money to influence other people to do things for me"), P4 (I seem to find that I show more respect to people with more money than I have") and C3 ("I frequently use available credit on one credit card to make a payment on another credit card"), because they did not follow a normal distribution (Hair *et al.*, 2009).

We calculated Cronbach's alpha to evaluate the reliability of the scales used, as it is a traditional and widely used measure to verify the internal consistency of the variables of a study. Thus, as recommended by Hair *et al.* (2009) and Hair *et al.* (2017), the Cronbach's alpha value should be higher than 0.6 or, being more conservative, 0.7. After measuring this value, it was possible to conclude that the adopted scales obtained satisfactory internal consistency (Table 1).

Once the normality of the data and the reliability of the scales were confirmed, the first model consisting of five latent variables was elaborated: power–prestige, anxiety, distrust, materialism and credit card use, totaling 33 observed variables. We calculated the latent variables representative of the constructs studied using CFA. Thus, the scores of the latent constructs were the factorial scores. The factor loads in this model were examined to ensure that the fit quality indexes were satisfactory, considering that the factor loads should be higher than 0.5. However, it was found that the fit quality indexes would be unsatisfactory, so we initially discarded the first model.

A second model was tested promoting some modifications in the variables observed as satisfactory for the fit quality indexes. These modifications refer to excluding the following items in relation to the initially tested model: P2 ("People I know tell me that I place too much emphasis on the amount of money a person has as a sign of success"), A4 ("I spend money to make myself feel better"), A5 ("I am bothered when I have to pass up a sale"), A6 ("It is hard for me to pass up a bargain"), D1 ("I automatically say, 'I cannot afford it' whether I can or not"), D2 ("When I make a major purchase, I have a suspicion that I have been taken advantage of"), D5 ("I hesitate to spend money, even on necessities"), C1 ("My credit cards are usually at their maximum credit limit"), C2 ("I have too many credit cards"), C4 ("I worry how I will pay off my credit card debt"), C5 ("I often make only the minimum payment on my credit card bills"), C9 ("I rarely go over my available credit limit") and C10 ("I seldom take cash advances on my credit cards").

Thus, five measures of adjustment quality were tested to validate this model: χ^2 normed, GFI, AGFI, RMSEA and SRMR. It was subsequently verified that the values obtained in the quality of fit index measures were in line with what the literature reports. However, some values obtained when calculating the AVE were not satisfactory, and so therefore it was decided to not follow this model because the minimum acceptable value is 0.5 (Hair *et al.*, 2017).

A third model was sequentially tested in which some tests were performed with the observed variables, and then it was necessary to exclude the observed variable M2 ("I like a lot of luxury in my life") and the latent variable prestige-power (H1) in order to increase the AVE of latent variables (maximum likelihood for both models). As a result, we obtained satisfactory values for seven measures of fit quality in this model GFI, AGFI, NFI, CFI, RMSEA, TLI and SRMR, as shown in Table 2.

According to the literature, the GFI should be close to 0.90–0.95, with the GFI obtained being 0.93. AGFI should also be close to 0.90–0.95, and the AGFI obtained was 0.90. As recommended by Byrne (2010), the NFI and the CFI should be close to 0.95, with an NFI value of 0.92 and the CFI of 0.94 being obtained, respectively. The acceptable RMSEA should be between 0.05 and 0.08, and the RMSEA obtained is 0.07. Also, the TLI should be close to 0.90–1.00, and the TLI obtained was 0.92. To finish, the SRMR must be less than 0.08, and the SRMR obtained was 0.05. Thus, all the values found indicated compliance with the established parameters, indicating that this model has a satisfactory quality of fit (Figure 2).

Next, AVE and the CR were calculated to analyze the convergent validity of the adopted model (Table 3). The AVE represents the amount of variation of the observed variables of the respective constructs (Hair *et al.*, 2009). The CR consists of an internal consistency measure of the variables observed concerning each construction (Hair *et al.*, 2009). As suggested by Hair *et al.* (2017), the AVE and CR values should be respectively equal to or higher than 0.5 and above 0.7.

Table 1.
Cronbach's alpha

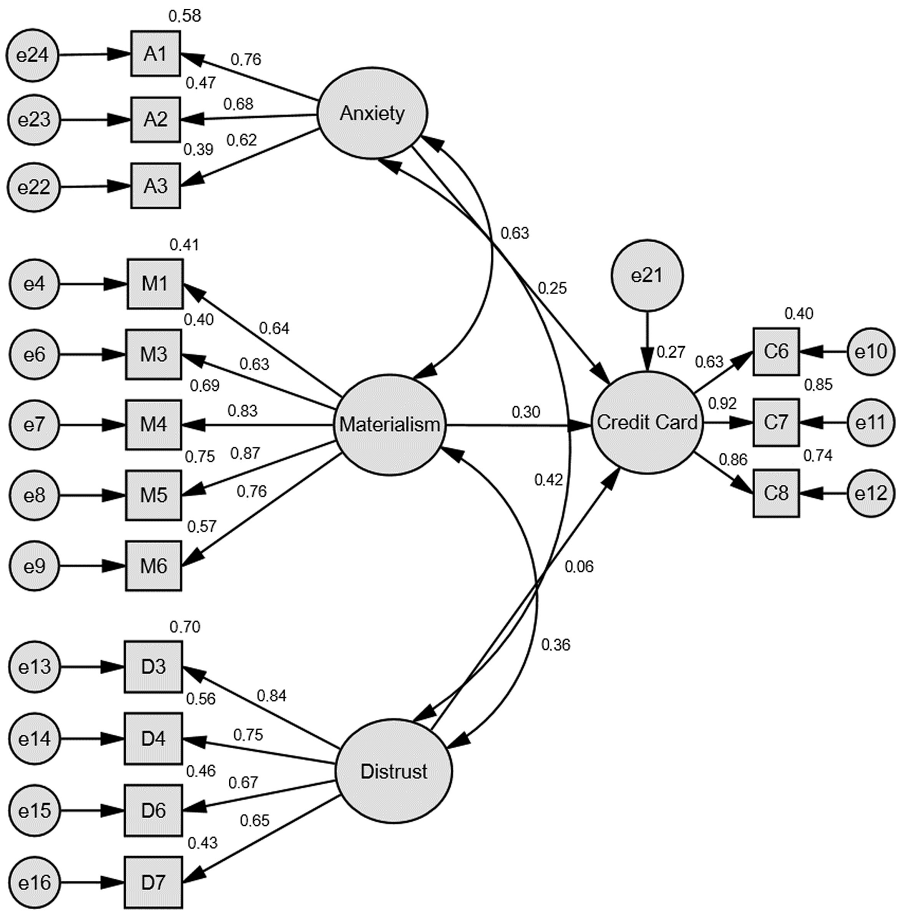
Latent variables	Cronbach's alpha
Power–prestige	0.78
Anxiety	0.77
Distrust	0.82
Materialism	0.87
Credit card use	0.70

Source(s): Authors' calculation

Index	Parameter	Literature	Value obtained
GFI	Close to 0.90–0.95	Schumacker and Lomax (2010)	0.93
AGFI			0.90
NFI	Close to 0.95	Byrne (2010)	0.92
CFI			0.94
RMSEA	0.05–0.08	Schumacker and Lomax (2010)	0.07
TLI	Close to 0.90–1.00	Bentler and Bonett (1980)	0.92
SRMR	<0.08	Cao (2016)	0.05

Note(s): AGFI, adjusted goodness-of-fit index; CFI, comparative fit index; GFI, goodness-of-fit index; NFI, normed fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean squared residual; TLI, Tucker–Lewis's index
Source(s): Authors' calculation

Table 2.
Model fit indexes



Note(s): $R^2 = 0.27$

Figure 2.
Model of structural equations adopted

The Fornell–Larcker criterion was used to verify the discriminant validity which makes a comparison between the square root of the AVE and the correlations of each construct (Yee, Seong, & Chin, 2019). The discriminant validity (Table 4) is obtained when the square root of the AVE of each construct is greater than the correlation between these constructs analyzed in the study.

The values achieved by AVE, CR and discriminant validity were satisfactory. Moreover, all factor loads were higher than 0.6, and as proposed by Hair *et al.* (2009) and Hair *et al.* (2017), this value must be higher than 0.5 for the groupings to have practical significance. It should also be noted that the last model presented obtained the best fit quality indexes.

At this point, the *p*-values of the relationships between the observed variables and their respective latent variables were verified to validate the performed CFA. We also confirmed that all the indicated groupings were significant (level of 10%). Therefore, the performed CFA (Table 5) can be validated based on the concomitant analysis of AVE, CR, discriminant validity and *p*-values obtained.

Latent variable	AVE	CR
Anxiety	0.50	0.83
Distrust	0.54	0.88
Materialism	0.56	0.90
Credit card use	0.66	0.94

Note(s): AVE, average variance extracted; CR, composite reliability
Source(s): Authors' calculation

Table 3.
AVE and CR

	Anxiety	Distrust	Materialism	Credit card use
Anxiety	*0.71*			
Distrust	0.42	*0.73*		
Materialism	0.63	0.36	*0.75*	
Credit card use	0.46	0.27	0.48	*0.81*

Source(s): Authors' calculation

Table 4.
Discriminant validity

Latent variable	Observed variables
Anxiety	A1 – I show signs of nervousness when I do not have enough money
	A2 – I show worrisome behavior when it comes to money
	A3 – I worry that I will not be financially secure
Distrust	D3 – When I buy something, I complain about the price I paid
	D4 – I argue or complain about the cost of things I buy
	D6 – After buying something, I wonder if I could have gotten the same for less elsewhere
	D7 – It bothers me when I discover I could have gotten something for less elsewhere
Materialism	M1 – I admire people who own expensive homes, cars and clothes
	M3 – Buying things gives me a lot of pleasure
	M4 – My life would be better if I owned certain things that I do not have
	M5 – I would be happier if I could afford to buy more things
	M6 – It sometimes bothers me quite a bit that I cannot afford to buy all the things I would like
Credit card use	C6 – I am less concerned about the price of a product when I use a credit card
	C7 – I am more impulsive when I shop with credit cards
	C8 – I spend more when I use a credit card

Source(s): Authors' calculation

Table 5.
CFA

After confirming the validity of the CFA, the tested relationships between the latent variables were examined through path analysis, which can be verified through the p-values obtained and the beta coefficient. First, the relationship between anxiety and compulsive use of the credit card was examined, which obtained a p-value of 0.001, proving its statistical significance. As the beta coefficient was 0.247, we noted that this was a directly proportional relationship (i.e. the greater the anxiety of the consumer, the greater the compulsive use of their credit card). From this, we understand that H2 was supported.

The finding that anxiety positively influences the compulsive use of credit cards can be reinforced through the study of Veludo-de-Oliveira *et al.* (2014). In this study, interviewees demonstrated that the anxiety level generated in daily life could be mitigated through purchases. Thus, it is considered that more anxious people tend to buy and spend too much. This evidence converges with the arguments in the study by Hayhoe *et al.* (2012), in which individuals with higher levels of anxiety were less willing to save some money. Veludo-de-Oliveira *et al.* (2014) also confirm that anxiety and credit cards act together in increasing uncontrolled purchases.

The relationship between distrust and compulsive use of credit cards was subsequently verified, in which we found a p-value of 0.238 and a beta coefficient of 0.062. Therefore, it was not possible to attest to its statistical significance, and we can therefore reject H3. This result differs from similar studies such as Roberts and Jones (2001), in which it was found that distrust of situations involving money reduces the possibility of individuals compulsively buying. However, the results regarding distrust are similar to those obtained by Sharif and Yeoh (2018).

The relationship between materialism and the compulsive use of credit card was analyzed, which reported a p-value of 0.000. As the beta coefficient was 0.299, we understand that this is a directly proportional relationship, meaning that the greater the materialism present in the individual, the greater the compulsive use of a credit card tends to be. As a result, the H4 was sustained. Confirmation of this finding can be explained by the fact that materialistic people tend to buy excessively (Medeiros *et al.*, 2015), and this reinforces their behavior of uncontrolled acquisition of goods and attachment to material things (Moulding, Duong, Nedeljkovic, & Kyrios, 2017).

Our finding converges with the study of Limbu, Huhmann, and Xu (2012), in which it they found that young university students with higher levels of materialism used credit cards more often than less materialistic young people. In a complementary way, the studies of Pirog and Roberts (2007) and Sidoti and Devasagayam (2010) suggest that the greater the materialism, the greater the misuse of credit cards. As compulsive buying behavior has grown (Santos *et al.*, 2021), we understand that our research has interesting implications for addressing compulsive credit card use. We point out the need for education of credit card users in relation to the responsible, conscious and balanced use of this means of payment. We believe that in order to formalize such action, it would be essential that colleges and universities include courses and lectures on financial management, and not only address this issue in elective subjects but also in mandatory subjects. We also emphasize the need for parents to help their children with the use of credit cards. We know that learning from healthy financial habits is not easy, takes time and requires efforts, so we believe that companies should also play a role in promoting the conscious and proper use of credit cards.

5. Concluding remarks

The objective of this study was to identify the precedents of the compulsive use of credit cards. We identified that there are some factors that influence the compulsive use of credit cards, especially anxiety and materialism. Anxiety can stimulate excessive purchases and spending, because, as described in the literature, the individual seeks to eliminate bad feelings caused by anxiety through purchases (Edwards, 1993). This behavior tends to be cyclical and vicious, in which an association of comfort provided by credit card purchases tends to increase the individual's dependence to obtain pleasure in the act of buying (Roberts & Jones, 2001).

Regarding materialism, we understand that it promotes an excessive valorization of material possessions, whether due to exhibitionism, as a reason for happiness or the main goal of life. Credit cardholders who have a lifestyle focused on acquiring goods usually use their card too much and this intensifies their compulsive behavior, as well as the behavior of people with higher levels of anxiety at the time of purchase; materialistic behavior can also promote negative consequences such as indebtedness (Khare, 2014).

This study contributes to the new perspective on the behavior of credit card use, which was the analysis of factors that influence compulsive credit card use. Unlike other studies, this study has the compulsive use of credit cards as its central focus, and the findings of this study may contribute to the theory, mainly in the context of Brazilian studies, in which the precedents of compulsive credit card use have not yet been studied.

Regarding the practical and theoretical implications, the results of this study can be useful for society to understand that anxiety and a materialistic lifestyle can harm the social, financial and emotional life of a person who compulsively uses a credit card. Thus, the information contained in this survey can help people to avoid using credit cards in an irrational way and understand how the characteristics of each of the factors discussed can promote the compulsive use of credit cards.

This study also highlights the importance of promoting public policies oriented toward the conscious use of credit cards; for example, the government can promote campaigns aimed at the harm of indebtedness, showing that happiness of purchase ends when the individual becomes increasingly more sunk in debt, and reporting that it is not beneficial for people to try to escape daily anxiety through shopping (Campbell & Pugliese, 2022). This study focused on the issue of credit card use among university students, as many students are responsible for their credit (Robb *et al.*, 2012) and the proper use of credit can allow these students greater financial autonomy (Campbell & Pugliese, 2022). Furthermore, when we consider that compulsion can be seen as a disorder, treatment by health professionals and psychology should be recommended. In extreme cases, for instance, the disorganization of individuals in personal financial crises can be a reason for suicide (Ming and Chen, 2021; Santos *et al.*, 2021).

As a limitation of this research, it is evident that the power–prestige construction did not obtain the satisfactory AVE in the modeling, the same as in the study by Lee, Lalwani and Wang (2020). This may have occurred due to a particular behavior in the variables of interest of this construction or by the existence of some other unobserved intervening variable. We believe that this situation did not compromise the results of the work and offers a new research opportunity for future studies. A good part of our sample is composed of young people, university students, we look only at one region of the vast Brazilian territory and we also recognize that our study may contain a common method bias and correlational study.

We recommend the inclusion of other constructs such as financial education as a suggestion for future studies in order to verify how the individual's level of financial education can exert some influence on the compulsive use of credit cards. Furthermore, we suggest an analysis of the compulsive use of credit cards with a more heterogeneous sample composed of different generations, for the purpose of verifying how each generation behaves regarding credit card use.

References

Awanis, S., & Chi Cui, C. (2014). Consumer susceptibility to credit card misuse and indebtedness. *Asia Pacific Journal of Marketing and Logistics*, *26*(3), 408–429.

Barros, T., de Souza, Felipe, I. J., & dos,S. (2015). Teoria do prospecto: Evidências aplicadas em finanças comportamentais. *Revista de Administração FACES Journal.*

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of Organizational Behavior*, *36*(1), 3–15.

Braun Santos, D., Mendes-Da-Silva, W., Flores, E., & Norvilitis, J. M. (2016). Predictors of credit card use and perceived financial well-being in female college students: A Brazil-United States comparative study. *International Journal of Consumer Studies*, *40*(2), 133–142.

Bricker, J., Bucks, B., Kennickell, A., Mach, T., & Moore, K. (2012). The financial crisis from the family's perspective: evidence from the 2007–2009 SCF panel. *Journal of Consumer Affairs*, *46*(3), 537–555.

Brüggen, E. C., Hogreve, J., Holmlund, M., Kabadayi, S., & Löfgren, M. (2017). Financial well-being: A conceptualization and research agenda. *Journal of Business Research*, *79*, 228–237.

Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. *Journal of Consumer Research*, *29*(3), 348–370.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). New York: Routledge.

Campbell, C., & Pugliese, M. (2022). Credit cards and the receipt of financial assistance from friends and family. *Journal of Family and Economic Issues*, *43*(1), 153–168.

Cao, X. J. (2016). How does neighborhood design affect life satisfaction? Evidence from twin cities. *Travel Behaviour and Society*, *5*, 68–76.

Cho, J. (2006). The mechanism of trust and distrust formation and their relational outcomes. *Journal of Retailing*, *82*(1), 25–35.

Cordeiro, R. A., Wong, N., & Ponchio, M. C. (2019). A gift economy perspective on the cycle of financial vulnerability. *Journal of Macromarketing*, *39*(1), 25–36.

Edwards, E. (1993). Development of a new scale for measuring compulsive buying behavior. *Financial Counseling and Planning*, *4*(1), 67–84.

Faber, R. J., & O'Guinn, T. C. (1988). Compulsive consumption and credit abuse. *Journal of Consumer Policy*, *11*(1), 97–109.

Faber, R. J., & O'Guinn, T. C. (1992). A clinical screener for compulsive buying. *Journal of Consumer Research*, *19*(3), 459–469.

Felipe, I. J. D. S., Ceribeli, H. B., & Brandão, R. M. (2017). Antecedentes da compra compulsiva dos universitários em Mariana (MG). *Revista Ciências Administrativas*, *23*(2), 322–335.

Hair, J. F., Babin, B., Money, A., & Samouel, P. (2005). *Fundamentos de métodos de pesquisa em administração* (p. 472). Sao Paulo: Bookman Companhia Ed.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2009). *Análise multivariada de dados* (6th ed., p. 688). Porto Alegre: Bookman.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed). Thousand Oaks, CA: Sage.

Harnish, R. J., & Bridges, K. R. (2015). Compulsive buying: The role of irrational beliefs, materialism, and narcissism. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *33*(1), 1–16.

Hayhoe, C. R., Cho, S. H., DeVaney, S. A., Worthy, S. L., Kim, J., & Gorham, E. (2012). How do distrust and anxiety affect saving behavior? *Family and Consumer Sciences Research Journal*, *41*(1), 69–85.

Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. *British Journal of Applied Science and Technology*, *7*(4), 396.

Khare, A. (2014). Money attitudes, materialism, and compulsiveness: Scale development and validation. *Journal of Global Marketing*, *27*(1), 30–45.

Klontz, B., Britt, S. L., Mentzer, J., & Klontz, T. (2011). Money beliefs and financial behaviors: Development of the Klontz money script inventory. *Journal of Financial Therapy*, *2*(1), 1–22.

Kumar, V., Nim, N., & Sharma, A. (2019). Driving growth of mwallets in emerging markets: A retailer's perspective. *Journal of the Academy of Marketing Science*, *47*(4), 747–769.

Kunkel, F. I. R., Vieira, K. M., & Potrich, A. C. G. (2015). Causas e consequências da dívida no cartão de crédito: uma análise multifatores. *Revista de Administração*, *50*(2), 169–182.

Lee, H., Lalwani, A. K., & Wang, J. J. (2020). Price no object!: The impact of power distance belief on consumers' price sensitivity. *Journal of Marketing*, *84*(6), 113–129.

Limbu, Y. B., Huhmann, B. A., & Xu, B. (2012). Are college students at greater risk of credit card abuse? Age, gender, materialism, and parental influence on consumer response to credit cards. *Journal of Financial Services Marketing*, *17*(2), 148–162.

Lins, S. L. B., & Pereira, R. D. C. D. F. (2011). Comprou sem querer? Entenda o porquê. *Revista Brasileira de Gestão de Negócios*, *13*(41), 376–395.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, *44*(2), 358–380.

Matos, C. A., & Bonfanti, K. (2016). Comportamento compulsivo de compra: Fatores influenciadores no público jovem. *REGE - Revista de Gestão*, *23*(2), 123–134.

Medeiros, F. G. D., Diniz, I. S. F. N., Costa, F. J. D., & Pereira, R. D. C. F. (2015). Influência de estresse, materialismo e autoestima na compra compulsiva de adolescentes. *Revista de Administração Contemporânea*, *19*, 137–156.

Mendes-Da-Silva, W., Nakamura, W. T., & de Moraes, D. C. (2012). Credit card risk behavior on college campuses: Evidence from Brazil. *BAR - Brazilian Administration Review*, *9*(3), 351–373.

Ming, Y., Li, C., & Chen, J. (2021). Acquisition mode and credit card overspending behavior: An empirical analysis of the credit card industry. *Journal of Consumer Affairs*, *55*, 232–253.

Moulding, R., Duong, A., Nedeljkovic, M., & Kyrios, M. (2017). Do you think that money can buy happiness? A review of the role of mood, materialism, self, and cognitions in compulsive buying. *Current Addiction Reports*, *4*(3), 254–261.

O'Guinn, T. C., & Faber, R. J. (1989). Compulsive buying: A phenomenological exploration. *Journal of Consumer Research*, *16*(2), 147–157.

OECD. (2020). PISA 2018 results (Volume IV): Are students smart about money? PISA. OECD Publishing. available from: https://www.oecd.org/daf/pisa-2018-results-volume-iv-48ebd1ba-en.htm

Palan, K. M., Morrow, P. C., Trapp, A., & Blackburn, V. (2011). Compulsive buying behavior in college students: The mediating role of credit card misuse. *Journal of Marketing Theory and Practice*, *19*(1), 81–96.

Phau, I., & Woo, C. (2008). Understanding compulsive buying tendencies among young Australians: The roles of money attitudes and credit card usage. *Marketing Intelligence and Planning*, *26*(5), 441–458.

Pirog, S. F., & Roberts, J. A. (2007). Personality and credit card misuse among college students: The mediating role of impulsiveness. *Journal of Marketing Theory and Practice*, *15*(1), 65–77.

Ponchio, M. C. (2006). *The influence of materialism on consumption indebtedness in the context of low-income consumers from the city of são Paulo* (175). São Paulo: Escola de Administração de Empresas de São Paulo da Fundação Getúlio Vargas.

Richins, M. L. (2004). The material values scale: Measurement properties and development of a short form. *Journal of Consumer Research*, *31*(1), 209–219.

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale development and validation. *Journal of Consumer Research*, *19*(3), 303–316.

Rimple, M., Srikant, M., Naseem, A., & Kumar, M. J. (2015). A study of interaction of materialism and money attitude and its impact on car purchase. *Management and Marketing*, *10*(3), 245–269.

Robb, C. A., Moody, B., & Abdel-Ghany, M. (2012). College student persistence to degree: The burden of debt. *Journal of College Student Retention: Research, Theory and Practice*, *13*(4), 431–456.

Roberts, J. (1998). Compulsive buying among college students: An investigation of its antecedents, consequences, and implications for public policy. *Journal of Consumer Affairs*, *32*(2), 295–308.

Roberts, J. A., & Jones, E. (2001). Money attitudes, credit card use, and compulsive buying among American college students. *Journal of Consumer Affairs*, *35*(2), 213–240.

Santini, F. D. O., Ladeira, W. J., Vieira, V. A., Araujo, C. F., & Sampaio, C. H. (2019). Antecedents and consequences of impulse buying: A meta-analytic study. *RAUSP Management Journal*, *54*, 178–204.

Santos, D. B., Mendes-Da-Silva, W., Norvilitis, J. M., Protin, P., & Onusic, L. (2021). Parents influence responsible credit use in young adults: Empirical evidence from the United States, France, and Brazil. *Journal of Family and Economic Issues*, 1–16.

Sari, M. P., & Suyasa, P. T. (2017). Materialistic value and credit card usage as predictors of compulsive clothing buying among young adult women. *Makara Human Behavior Studies in Asia*, *21*(2), 83–91.

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Oxfordshire: Routledge/Taylor & Francis Group.

Sharif, S. P., & Yeoh, K. K. (2018). Excessive social networking sites use and online compulsive buying in young adults: The mediating role of money attitude. *Young Consumers*.

Shen, S., Sam, A. G., & Jones, E. (2014). Credit card indebtedness and psychological well-being over time: Empirical evidence from a household survey. *Journal of Consumer Affairs*, *48*(3), 431–456.

Sidoti, P. M., & Devasagayam, R. (2010). Credit cards and college students: Effect of materialism and risk attitude on misuse. *The Marketing Management Journal*, *20*(2), 64–79.

Smith, W. A. (2002). Social marketing and its potential contribution to a modern synthesis of social change. *Social Marketing Quarterly*, *8*(2), 46–48.

Tversky, A., & Kaneman, D. (1986). Rational choice and the framing of decisions. *Journal of Business*, *59*(4).

Veludo-de-Oliveira, T. M., Ikeda, A. A., & Santos, R. D. C. (2004). Compra Compulsiva e a Influência do Cartão de Crédito. *RAE-Revista de Administração de Empresas*, *44*(3), 89–99.

Veludo-de-Oliveira, T. M., Falciano, M. A., & Perito, R. V. B. (2014). Effects of credit card usage on young Brazilians' compulsive buying. *Young Consumers*, *15*(2), 111–124.

Vieira, K. M., Flores, S. A. M., Kunkel, F. R., Campara, J. P., & Paraboni, A. L. (2014). Níveis de Materialismo e Endividamento: Uma Análise de Fatores Socioeconômicos na Mesorregião Central do Estado no Rio Grande Do Sul. RACEF. *Revista de Administração, Contabilidade e Economia da Fundace*, *10*, 1–20.

Wang, J., & Xiao, J. J. (2009). Buying behavior, social support and credit card indebtedness of college students. *International Journal of Consumer Studies*, *33*(1), 2–10.

Yamauchi, K. T., & Templer, D. I. (1982). The development of a money attitude scale. *Journal of Personality Assessment*, *46*(5), 522–528.

Yee, T. S., Seong, L. C., & Chin, W. S. (2019). Patient's intention to use mobile health app. *Journal of Management Research*, *11*(3), 18.

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