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Debt Out of Control: The Links Between Self-Control, Compulsive Buying, and Real Debts

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Abstract

In a representative sample of the German population (n = 946), we explored the links between self-control, compulsive buying, and debts. Participants completed the self-control scale (Tangney, Boone, & Baumeister, 2004) and the German Addictive Buying Scale (Raab, Neuner, Reisch, & Scherhorn, 2005). Additionally, they gave information about their real debts. It was observed that self-control was negatively related to debts while compulsive buying was positively related to debts. Detailed analyses revealed that the link between self-control and debts was fully mediated by compulsive buying. Finally, there was a gender effect on compulsive buying: women were more prone to compulsive buying than men. Age also was significantly negatively related to compulsive buying and positively linked to self-control. Household income was not linked to self-control, compulsive buying, and debts. Implications for practice, policy, and research are discussed.

Keywords: Self-Control, Compulsive Buying, Consumer Debts, Indebtedness Factors

1. Introduction

The last 15 years have seen a rise of research on compulsive buying. However, the problem has been described as early as 1915 by Kraepelin and 1924 by Bleuler. Both describe it as a disorder that is characterized by impulse control problems. Compulsive buying is outlined as repeated extensive buying which cannot be controlled, moreover it occurs repetitively or frequently and it has negative consequences (Faber, 2004). Some of these consequences include negative effects on personal relationships, partnerships, domains of self-concept (e.g., feeling guilty), distress, and the behavior might lead to relatively high debts (see Black, 2007; Mueller et al., 2010a, b; O'Guinn & Faber, 1989).

Compulsive or addictive buying is defined by the following characteristics (Scherhorn, 1990): an irresistible urge to buy, a dependency on shopping (in the extreme leading to the loss of self-control), a tendency to increase the dosage (despite adverse consequences such as debts, personal or social losses), and by withdrawal syndromes ranging from uneasiness to psychosomatic indisposition. A cognitive and practical preoccupation with buying is the consequence. Unnecessary products are bought to cope with aversive events and negative emotional states (McEllroy, Keck, Pope, Smith, & Strakowski, 1994; Williams & Grisham, 2011). Hence, compulsive buying clearly carries a compensatory component – it is suggested that the act of buying is a way to counterbalance for other unmet needs and desires (Dittmar, 2004, 2005; Neuner, Raab, & Reisch, 2005; Scherhorn, Reisch, & Raab, 1990; Thornhill, Kellett, & Davies, 2012).

All in all, compulsive buying can be understood as consumption-related conspicuous behavior, affecting the individual as well as its social surrounding (Faber & O'Guinn, 1992). Compulsive buying regularly results in financial problems, such as indebtedness or bankruptcy (Goldsmith & McElroy, 2000), which are strongly linked to psychological distress, as for instance reduced optimism and financial self-esteem, feelings of stigmatization

(Mewse, Lea, & Wrapson, 2010), and in general reduced well-being (e.g., Brown, Taylor, & Wheatley Price, 2005). The negative consequences of compulsive buying and consumer debts were motivators of the present research, as they can strongly impact society on the long run.

The present study combined research on self-control, compulsive buying, and consumer debts to shed more light on the (causal) links between these phenomena. Previous literature strongly pointed to the importance of self-control as a psychological resource of controlling both compulsive buying (e.g., Baumeister, 2002) and the tendency to run into (and/or to stay with) debts (see Kamleitner, Hoelzl, & Kirchler, 2012). However, there is a lack of research testing the interactions between these three phenomena – the present research tried to fill this gap.

2. Theoretical Framework

2.1. Research on self-control

Self-control refers to attempts to override or alter one's dominant response tendencies and to interrupt undesired behaviors (Baumeister, 2002; Baumeister, Heatherton, & Tice, 1994; Baumeister, Sparks, Stillman, & Vohs, 2008; Baumeister & Vohs, 2004; Vohs & Faber, 2007). Thus, breaking bad habits, resisting temptations, and keeping self-discipline reflect the ability of the self to control itself. It is argued that a lack of self-control is behind the majority of social and personal problems (Baumeister et al., 1994). There is empirical evidence of individual differences concerning self-control capabilities – some people are better able than others to control their thoughts and emotions, resist temptations, hold their temper, and so on. In line with these considerations, self-control was conceptualized as a dispositional, trait-like construct that differs across individuals and that can be measured by questionnaires, as for instance the Self-Control Scale (SCS) by Tangney, Baumeister, and Boone (2004). The SCS was developed with the purpose to get an instrument that measures an overall index of self-control. Following the concept of self-control by Baumeister et al. (1994), this scale measures

four major domains of self-control: controlling thoughts, emotions, performance, and impulses.

Studies investigating individual differences in self-control revealed that high levels of self-control are linked to a broad range of positive outcomes. For instance, it was reported that goal achievement (Tangney et al., 2004), impulse control (Friese & Hofmann, 2009), and emotion regulation (Tangney et al., 2004) are strongly supported by peoples' self-control capacity. High levels of self-control are also associated with high interpersonal skills (Tangney et al., 2004), better grades among university students (e.g., Duckworth & Seligman, 2005), and lower levels of stress in university freshmen (Achtziger & Bayer, 2013).

2.2. The link between self-control and debts

The idea that psychological factors might be more important in explaining debts than economic factors is widely discussed (see Kamleitner et al., 2012). For instance, Webley and Nyhus (2001) argued that time preferences and self-control are important psychological factors that influence whether or not a consumer gets into debts. Especially consumers with a present orientation and a lack of self-control might be more likely to get and stay in debts (Kamleitner et al., 2012; Webley & Nyhus, 2001). Supporting this view, Meier and Sprenger (2010) reported a positive link between impatience (i.e., problems with impulse control) and credit card use (see also Wang, Lu, & Malhotra, 2011). Similarly Sutter, Kocher, Glätzle-Rützler, and Trautmann (2013) observed that time preferences as indicators of self-control were significant predictors of behavior in young children. Children and adolescents who were impatient (preferred options with immediate rewards) were less likely to save money and committed more violations of their school's code of conduct. Chabris, Laibson, Morris, Schuldt, and Taubinsky (2008) used individual discount rates to predict behavior that is usually claimed to indicate lack of self-control (e.g., BMI, smoking). Furthermore, it was also shown that card based payment systems might hinder self-control processes during purchase

situations and are likely to lead into an illusion of control during spending (Raab, 1998). Other studies argued that different aspects (we would rather say *consequences* of low self-control, see below) of self-control (e.g., drinking) are frequently related to debt. Especially money spending behavior and obesity were robustly associated with debt status (Webley & Nyhus, 2001). Webley and Nyhus (2001) reported that self-control in the domain of money spending – measured by four items that were highly specific for measuring spending styles (e.g., "I like to spend all my money immediately", p. 431) – was negatively associated with debts: the more an individual was able to control spending behavior, the less debts were reported. Similarly, Gathergood (2012) found that low levels of self-control predicted over-indebtedness. He also measured self-control by items that were highly specific for buying and money spending behavior (e.g., "I am prepared to spend now and let the future take care of itself", p. 595). Sometimes the body mass index (BMI) was used as an indicator of self-control, and some authors (e.g., Webley & Nyhus, 2001) reported that this index was positively associated with debts – but only weakly. In a study by Kuhnen and Melzer (2014), longitudinal household survey data were analyzed to explore the role of non-cognitive abilities in household borrowing. It was found that self-efficacy during childhood predicted differences in future delinquency on debt and bill payments. Self-efficacy concerns expectations of future success and can be interpreted as an important precondition of goal striving which in turn requires self-control.

Note that in all of these studies, self-control was not measured as a general psychological resource responsible for controlling thoughts, affect, performance, and impulses. Instead, they either focused on a very specific domain of self-control (e.g., money spending behavior) or even used variables as indicators of self-control that are usually discussed as consequences of a lack of self-control, but not as self-control itself (e.g., the BMI, drinking behavior; see Oaten & Cheng, 2005; Tangney et al., 2004).

2.3. The link between self-control and compulsive buying

Linking self-control and compulsive buying, Billieux, Rochat, Rebetez, and Van der Linden (2008) reported that three facets of impulsivity (urgency, lack of perseverance, and lack of premeditation; see Whiteside & Lynam, 2001) were positively correlated with compulsive buying. When controlling for gender, age, educational level and depression, however, urgency was the only significant predictor of compulsive buying. A recent study by Sansone, Chang, Jewell, Sellbom, and Bidwell (2013) also implied that compulsive buying might be primarily driven by impulsivity. In their study female patients with diagnosed borderline personality disorder, which is associated with high levels of impulsivity, showed increased levels of compulsive buying compared to a control group. Similar results are reported for patients with a bipolar disorder which is also characterized by high levels of impulsivity (Kesebir, İşitmez, & Gündoğar, 2012).

Otero-López and Villardefrancos Pol (2013) reported that individuals with a high propensity for compulsive buying showed low scores on the facets dutifulness (fulfilling moral obligations) and self-discipline (capacity to begin tasks and to follow them) of the conscientiousness subscale of the NEO-PI-R (Costa & McCrae, 1992). Other facets of this subscale (degree of organization, competence, and achievement striving) were not associated with compulsive buying.

In summary, previous research that explored the link between self-control and debts, or the link between self-control and compulsive buying, often measured self-control on a very (domain) specific level. This was done by asking participants directly for problems with controlling their spending or buying behavior, or by measuring completely different indicators of self-control (e.g., the BMI, drinking etc.; see Webley & Nyhus, 2001). For this reason we explored the links between self-control, compulsive buying, and debts from a perspective that defines (and measures) self-control as a general psychological resource that is necessary for

controlling (unwanted) thoughts, feelings, impulses, and behavior (see Baumeister, Zhang, & Vohs, 2004; Tangney et al., 2004).

Another motive for running the present research was that to the best of our knowledge, there has not been any study investigating the links between self-control, compulsive buying, and debts within one model. Previous research concentrated on the investigation of the relations between two of these concepts (e.g., self-control and debts) and some other variables (often socio-demographic data, like income), but not on the relations between all three phenomena. Especially, we tested whether the link between self-control and debt might be mediated by compulsive buying. Also, we investigated how self-control is related to compulsive buying and debts in a non-clinical sample (in contrast to earlier research that often explored clinical samples, see above), in order to generalize our findings to a more representative population.

3. The Present Study

In the present study we explored the relations between self-control, compulsive buying, and real debts. We expected significant links between self-control and debts, self-control and compulsive buying, and between compulsive buying and debts. Specifically, we predicted a negative relation between self-control and debts as well as a negative link between self-control and compulsive buying. Moreover, a positive link between compulsive buying and debts was postulated.

Most importantly, the negative link between self-control and debts was predicted to be mediated by compulsive buying. Specifically, we assumed that the causal effect of self-control on debts would be transmitted by compulsive buying. Self-control affects debts because self-control affects compulsive buying, and compulsive buying in turn affects debts (see Preacher, Rucker, & Hayes, 2007). Hence we assumed that individuals low in self-

control should be prone to compulsive buying, resulting in heightened levels of debts (compared to individuals low in self-control). In other words, individuals low in self-control should be less able not to run into debts, for instance because they are not able to either resist temptations (e.g., not to buy something they heavily desire in a given moment) or to control negative emotions (that might trigger a compensatory response such as buying). Due to the assumed mediation of the link between self-control and debts by compulsive buying, the negative relation between self-control and debts should (at least) be reduced if one controls for compulsive buying. Finally, related to previous research on compulsive buying (e.g., Black, 2007; Dittmar, 2005; Faber & O'Guinn, 1992; Kollmann & Kautsch, 2011; Kollmann & Unger, 2010; Koran, Faber, Aboujaoude, Lareg, & Serpe, 2006; Lejoyeux, McLoghlin, & Ades, 2000; Mueller et al., 2011; Reisch, Gwozdz & Raab, 2011), we controlled for the influence of gender and age on compulsive buying.

3.1. Survey design and data collection

To compile data to test the above derived hypotheses, a representative survey was conducted by TNS Emnid in Germany. The research institute used Computer Assisted Personal Interview (CAPI) for data collection which was based on a multi-stage sampling procedure (ADM master sample; Behrens & Löffler, 1999). The households were selected randomly and visited up to five times on different days of the week and at different times to meet the interviewee. The participants were chosen by using the "next birthday-method" and were members of a representative pool of the German population above 14 years. Our random sample was not a panel, and no method mix was used. In the first step, a randomized selection of sample points of the ADM sample system was drawn. Within these sample points an address to start with data collection was randomly assigned. Based on this random address, there was an exact rule that instructed interviewers who they should interview in which street, which house, and which household. By following this rule every third household was

contacted. Within a household an individual was randomly chosen by using the kish-selection-grid (Kish, 1949). Hence, the selection of participants did not depend on being a computer-owner, their intellectual ability, or interest on the study. There was a rule that suggested stopping the interview if the interviewee was not able to follow the interview due to language problems. However, this was rarely the case. In the few cases were an interview was stopped based on this rule, it was only due to language problems and not due to intellectual difficulties. Participants typed their answers into a laptop, while the interviewer stepped aside to guarantee the anonymity of data collection. The interviews were spread across more than 210 sampling points and hence across all East and West German federal states.

3.2. Sample characteristics

946 participants (524 female; age: M = 48.96, SD = 17.54, range = 14 to 88 years) were individually interviewed (see above). Summary statistics for the survey sample are provided in Table 1.

INSERT TABLE 1

Participants completed the following three questionnaires: "Statements on Purchasing Behavior" (i.e., the GABS; Raab et al., 2005); "Statements on Personality Traits" (i.e., the subscale self-discipline of the SCS; Tangney et al. (2004), and the "Statement on Private Debt Situation" (see below).

3.3. Self-control

The subscale self-discipline with 11 items of the SCS (Tangney et al., 2004) was administered. Items were rated on 5-point Likert-type scales ranging from 1 (*not at all like me)* to 5 (*very much like me*). A sum score was used as an index of self-control, with higher

ratings representing higher self-appraised self-control. Reliability and internal consistency of this scale are usually good (Tangney et al., 2004).

3.4. Compulsive buying

The tendency to compulsive buying was measured by the German Addictive Buying Scale (GABS; Raab et al., 2005; Scherhorn et al., 1990). It contains 16 items (e.g. impulsivity, shopping procedures, shopping behavior) to measure tendencies to compulsive/addictive buying behavior with a 4-point Likert scale ranging from 1(*not at all like me*) to 4 (*very much like me*), without a neutral response option. A sum score (ranging from 16 to 64) was used as an index of compulsive buying tendency with higher ratings representing a higher tendency to compulsive buying and vice versa. Reliability and internal consistency of this questionnaire were sufficiently established in earlier studies (Hubert, Hubert, Gwozdz, Raab, & Reisch, 2014; Raab et al., 2005; Scherhorn et al., 1990) and the GABS has become the standard screening instrument for addictive buying tendencies in German speaking countries (including Switzerland; Glasemer & Singer, 2008; Mueller & de Zwaan, 2008).

3.5. Debts

With debts, we did not refer to over-indebtedness as a special case of excessive financial burdens of debt (see Gathergood, 2012), but concentrated on current debts as private loans, general bank loans, and other debts. The questionnaire asked participants whether they had real debts using the following wording: "Disregarding possible real estate credits or loans, please calculate the sum of your current debt, including debt at banks, savings banks and companies (e.g. installment plans), and with friends and family members. If you are not in debt at all, please insert '0'. If you are in debt, please enter: _____Euros". Finally, participants answered questions on socio-demographic data (e.g., gender, age, work status, household net income).

4. Results

Table 2 contains means, standard deviations, correlations, and reliabilities of all relevant measures. Cronbach's alpha of the self-control scale (Tangney et al., 2004) was high enough to further analyze this scale. The GABS (Raab et al., 2005) showed a very high reliability (see Table 2).

INSERT TABLE 2

4.1. Gender and age effects

We controlled for gender differences with regard to age (M_{female} = 49.58, *SD* = 17.72; M_{male} = 48.18, *SD* = 17.31, *t* = 1.22, p = .223), and explored whether gender, age, and household net income should be included as control variables in the data analysis. First, a gender effect on the GABS (Raab et al., 2005) was found – women reported a higher tendency for compulsive buying than men (M_{female} = 27.88, *SD* = 10.85; M_{male} = 25.67, *SD* = 10.44, *t* = 3.17, p = .002). However, there were no gender differences for self-control (M_{female} = 38.61, *SD* = 5.73; M_{male} = 39.03, *SD* = 6.33, *t* = 1.06, p = .290) and debts (M_{female} = 2834.26, *SD* = 16457.31; M_{male} = 3688.20, *SD* = 16826.89, *t* = 0.76, p = .448).

Second, age correlated significantly negatively with compulsive buying (*r* = -.16, *p* < .001) and significantly positively with self-control (*r* = .22, *p* < .001), but not with debts (*r* = -.04, p = .260). Third, household net income did neither correlate with compulsive buying (*r* = -.03, p = .402), nor with self-control (*r* =.03, p = .286) or debts (*r* = -.04, p = .363). Based on these findings, we included gender and age as control variables of compulsive buying in our further analyses.

4.2. Exploring the links between compulsive buying, self-control, and debts

To test our predictions, we used the process toolbox (Hayes, 2012) to model a mediation effect including self-control as the independent variable, compulsive buying as a mediator, and gender and age as control variables for compulsive buying; being in debt was included as the dependent variable. When testing the link between self-control and compulsive buying, we observed that compulsive buying was significantly predicted by self-control (R^2 = .18, $F(3, 881) = 63.25$, $p < .001$). Specifically, lower levels of self-control were associated with higher levels of compulsive buying (β = -.38, $p < .001$; controlling for gender, β = .10, $p <$ .001, and age, β= -.08, $p < .001$).

When analyzing the link between self-control and debts (total effect), self-control significantly predicted debts (R^2 = .004, $F(1, 883) = 3.74$, p = .0534). Lower levels of self-control were significantly associated with higher levels of debts and vice versa (β= -.06, p = .0534). Testing the link between compulsive buying and debts, we found that debts were significantly predicted by compulsive buying (R^2 = .013, $F(1, 884) = 12.04$, p = .001). Specifically, higher levels of compulsive buying were associated with high debts (β = .12, p = .001). When testing for conditional (mediator) effects – the relation between self-control, compulsive buying, and debts – we found that compulsive buying still significantly predicted the amount of debts (β = .11, p = .01), but self-control was no longer significant (β = -.02, p = .553). We concluded that the influence of self-control on debts was fully mediated by compulsive buying. This result was supported by a significant *Sobel*-test ($z = 2.86$, p = .0042) (see Figure 1).

Furthermore, a moderation was found that indicated that the positive link between compulsive buying and debts was only observed in individuals low in self-control, but not in individuals high in self-control (see Appendix for further details).

INSERT FIGURE 1

5. Discussion

Previous research often focused on clinical samples (e.g., bipolar disorder patients; Kesebir et al., 2012), investigating the influence of self-control on compulsive buying or consumer debts. The strength of the present study was that it analyzed field data of a sample (n = 946) that was representative for the German population. To our best knowledge, our study was the first to analyze the links between self-control, compulsive buying, and debt within one model. We explored these links by a mediation analysis and controlled for the effects of gender and age. Specifically, it was tested whether the link between self-control and debt was mediated by compulsive buying.

A significant negative link between self-control and debts was observed. Individuals low in self-control reported high levels of debts, while individuals high in self-control reported lower levels of debts. Self-control also turned out to be a significant negative predictor of compulsive buying. People with high levels of self-control reported fewer problems with compulsive buying than people with low levels. The present study differed from earlier research as it investigated the links between self-control and compulsive buying and between self-control and debts by measuring self-control as *a general psychological resource*. Previous research often used the *consequences* of a lack of self-control (e.g., the BMI, drinking) as indicators of self-control. Or, alternatively, self-control was sometimes only measured by a few items that exclusively focused on the control of spending or buying behavior (e.g., "I am prepared to spend now and let the future take care of itself"; Gathergood, 2012, p. 595) and hence measured self-control for highly specific domains, but not as a general trait that influences behavior across situations. Thus, we provided evidence that the ability to control unwanted behavior (e.g., to avoid browsing in one's preferred online store)

and to alter inner states (e.g., to get over a negative mood that otherwise might lead to a [compensatory] excess of buying) is linked to both compulsive buying and debts.

We went beyond earlier research by testing mediator and moderator effects. A full mediation of the link between self-control and debts by compulsive buying was found. Low self-control skills lead to compulsive buying and compulsive buying in turn leads to debts. In this sense, the present data provided some hints on causal links between these three variables. Besides this mediation effect, we observed that the link between compulsive buying and debts was moderated by self-control. Individuals with low levels of self-control, but not individuals with high levels of self-control, showed a significant link between these two variables. Hence people with high self-control skills do not have so many problems with controlling their (compulsive) buying impulses and they spend their money wisely. As in previous research (e.g., Reisch et al., 2011) household net income did neither correlate with compulsive buying nor with debts in the present study. Hence the tendency to run into debts and to buy compulsively seems to be more a problem of low self-control (of psychological factors) and less a matter of financial problems (of economic factors).

6. Implications for Practice and Policy

Interventions based on the concept of self-control as a general psychological resource can be derived. Strengthening people's self-control could be promising for reducing compulsive buying tendencies (see Lades, 2014) and debts. By increasing self-control strength, people will be able to resist the strong urge to buy something, for instance by altering their negative mood that otherwise would lead to excessive buying as a defective compensatory coping strategy. The literature on self-control suggests that training self-control is possible (Baumeister, Gailliot, DeWall, & Oaten, 2006; Muraven, Baumeister, & Tice, 1999; Oaten & Cheng, 2006, 2007).

Another way of helping people to control their compulsive buying behavior (and thus also controlling not to run into debts) might be trainings in forming implementation intentions (Gollwitzer, 1999; specific action plans: see Achtziger, Gollwitzer, & Sheeran, 2008). The benefits of using planning strategies to reach difficult financial goals (saving money) were demonstrated by Rabinovich and Webley (2007). Self-control was shown to be a buffer of ego-depletion (a temporary state of reduced self-control capacities; Muraven, Tice, and Baumeister, 1998). For this reason, one could recommend people prone to compulsive buying to never go shopping in a state of ego-depletion (e.g., due to being in negative mood, or due to being hungry), but to take a break to recover self-control resources first (see Baumeister, 2002). Increasing people's financial literacy (i.e. understanding economic and financial concepts, knowledge about financial instruments) has also been investigated as a possible intervention to prevent over-indebtedness in the long run (see Hoelzl & Kapteyn, 2011).

7. Limitations and Future Research

One of the limitations of the present study was that the data were collected cross-sectional. Hence we have no information on how self-control influences compulsive buying and debts in the long run – for instance from a younger age to some years later. For the same reason we could speculate whether the negative link between age and compulsive buying observed in the present study is caused by a cohort effect (i.e., that young people currently tend more to engage more in compulsive buying than older people, for instance due to cultural or economic changes) or by age (i.e., not a matter of a specific generation), as indicated in earlier research.

Another critical aspect of the present study was that we did not have many individuals fitting the clinical category of compulsive buyers, since our participants were a representative sample of the German population and not a sample of extreme compulsive buyers. In fact, only about 9.4 % of our participants (89 participants in total) could be categorized as

"clinical" in the sense of strongly deviating from non-compulsive buying behavior (see Neuner et al., 2005; Raab et al., 2005; Scherhorn et al., 1990). However, the present study was especially designed to shed light on the links between self-control, compulsive buying, and debts in a representative sample of the German population. Nevertheless, future research could explore the links between self-control, compulsive buying, and debts in a sample of individuals with extremely high scores on compulsive buying (and debts), to test whether our pattern of findings also holds true for clinical samples.

Another limitation is inherent in the fact that only German-speaking subjects participated. It stays unclear whether our results can be generalized across cultures. Previous research suggested that the level of debts has normative aspects (something shameful that should be avoided; see Lunt & Livingstone, 1992; Webley & Nyhus, 2001). Hence the question remains whether our results only hold true for Germany, or if, and this could also be possible, our pattern of results is even stronger in countries with less social pressure on not having financial debts as, for instance, the USA (for cultural differences in compulsive buying, see Baker, Moschis, Benmoyal-Bouzaglo, & dos Santos, 2013; Reisch et al., 2011).

Finally, the present study collected self-report data. Hence data might be biased due to social desirability issues, as people tried to present themselves as more "normal" concerning self-control, buying behavior, and debts than they actually were. Therefore, future research should try to validate the present data by linking individuals' answers on the self-control scale to behavioral measures of self-control, answers on the GABS (Raab et al., 2005) to actual buying behavior, and by taking a look on the actual level of real debts.

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8. Appendix

To test for the robustness of our main model, a second model was computed using the process toolbox (Hayes, 2012) to measure a moderated mediation with self-control as the independent variable and as a moderator for the interaction between compulsive buying and debts, compulsive buying as a mediator, and debts as the dependent variable. Additionally, gender and age again were added as control variables for compulsive buying. For the conditional effects – the link between self-control, compulsive buying, and debts – again a fully mediated effect of self-control on debts was observed. Compulsive buying still significantly predicted debts (β= .09, p = .0136), but self-control did not (β= -.02, p = .5221). Additionally, we found a significant interaction between compulsive buying and self-control on debts (β= -.06, p = .0512; see Figure 1 for complete results).

This result was further scrutinized by following the Johnson-Neyman procedure implemented in the process toolbox (Hayes, 2012; for the moderation effect). We found a cut-off point of 40.21 for self-control, where we observed a significant moderation effect of self-control on the link between compulsive buying and debts below the threshold (range from 16 to 40.21 with $p < .05$ (at least)) compared to a non-significant moderation effect of self-control above the threshold (range from 40.22 to 55, p > .1188 (at least)).

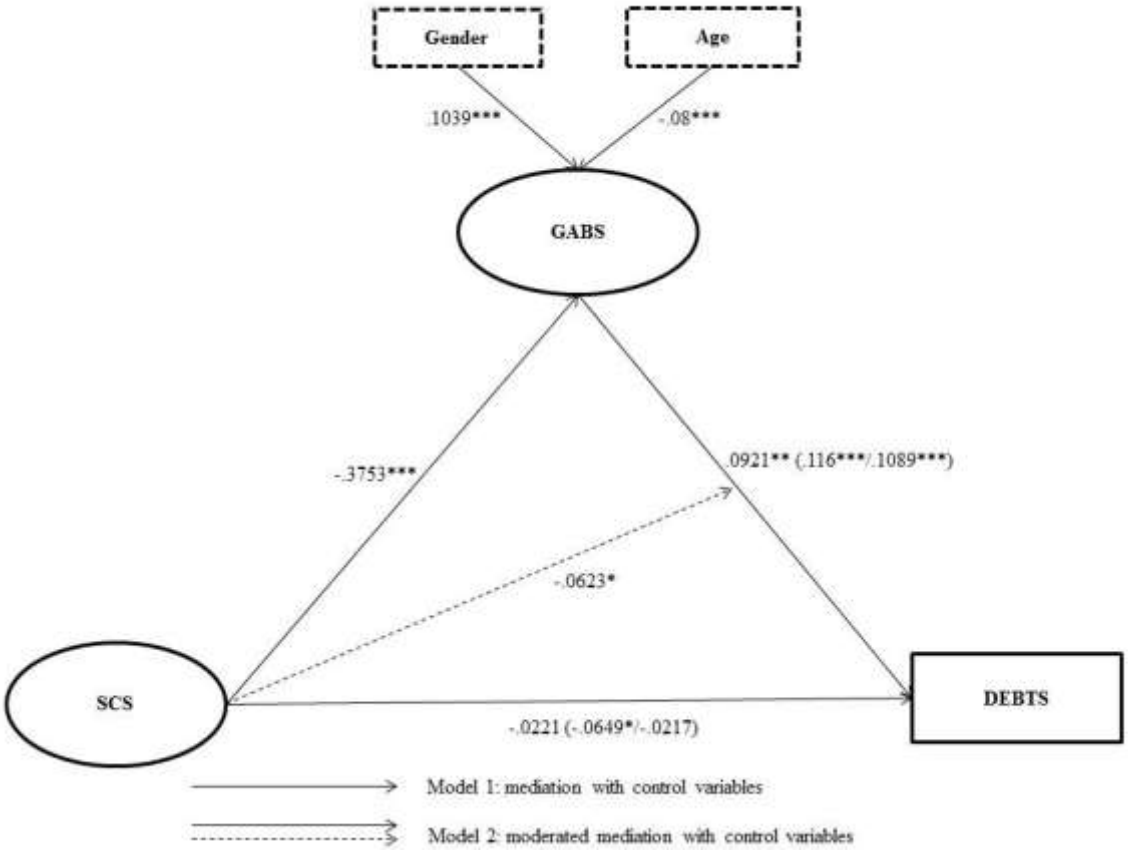
Gender
Age
.1039***
-.08***
GABS
-.3753***
.0921** (.116***/.1089***)
-.0623*
SCS
DEBTS
-.0221 (-.0649*/-.0217)
Model 1: mediation with control variables
Model 2: moderated mediation with control variables

Figure 1