



This file was downloaded from BI Open, the institutional repository (open access) at BI Norwegian Business School <http://biopen.bi.no>

It contains the accepted and peer reviewed manuscript to the article cited below. It may contain minor differences from the journal's pdf version.

Fenton-O'Creevy, M. and Furnham, A. (2020), Money Attitudes, Personality and Chronic Impulse Buying. *Applied Psychology*. doi:[10.1111/apps.12215](https://doi.org/10.1111/apps.12215)

**Copyright policy of *Wiley*, the publisher of this journal:**

Authors are permitted to self-archive the peer-reviewed (but not final) version of a contribution on the contributor's personal website, in the contributor's institutional repository or archive, subject to an embargo period of 24 months for social science and humanities (SSH) journals and 12 months for scientific, technical, and medical (STM) journals following publication of the final contribution.

<https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/self-archiving.html>

## Money attitudes, personality and chronic impulse buying

Mark Fenton-O’Creedy<sup>a</sup> and Adrian Furnham<sup>b</sup>

a. Corresponding author. Open University Business School, Walton Hall, Milton Keynes, MK7 6AA, [mark.fentonocreedy@open.ac.uk](mailto:mark.fentonocreedy@open.ac.uk), Tel. +441908 655804

b. BI Norwegian School of Management Oslo, [a.furnham@ucl.ac.uk](mailto:a.furnham@ucl.ac.uk), Tel. +44 207 607 6265

The authors gratefully acknowledge the collaboration of the BBC LabUK team and the BBC Watchdog production team, in promoting the surveys and managing the online data collection for the study reported on in this paper; and Michael Lamb and the team in Cambridge for making access available to the personality data from their survey.

## Money attitudes, personality and chronic impulse buying

### Abstract

This paper reports on a study of the relationship between demographic, personality and attitudinal variables and impulsive buying (a consumer's tendency to buy spontaneously, unreflectively, and immediately); using secondary analysis of data from common participants in two large national surveys of British adults: one survey contributing data on impulsive buying, demographics and money attitudes; and the second, a Big Five personality trait measure. In particular, we focus on the attitudes characterized by the extent to which individuals associate money with security, freedom, power and love. Younger females and those with higher household income were more likely to engage in impulsive buying. Correlational and regression analysis showed that those high on Neuroticism and Extraversion and those low on Conscientiousness were more likely to be impulse buyers. All four money attitudes were related to impulsive buying (Money as Security most strongly). A hierarchical regression indicated that demographic variables accounted for 3%, personality a further 9% and money attitudes a further 13% of the variance showing that these three sets of variables accounted for around a quarter of the variance. Implications are considered for educational and therapeutic interventions in reducing maladaptive impulsive buying.

Impulsive buying is a topic that has been investigated for over 60 years (Muruganatham & Bhakat, 2013). Rook and Fisher (1995) defined impulsive buying as a consumer's tendency to buy spontaneously, unreflectively, and immediately. The extensive literature has concentrated on the definition and measurement of impulsive buying including attempts to identify different types, as well as model and theory building. Many authors distinguish impulsive buying from compulsive buying; with compulsive buying typically distinguished as a pathological condition that involves repeated and excessive purchases leading to serious detriment to quality of life. However as Harnish and Roster (2018 ) noted, there is a strong conceptual overlap and compulsive buying may simply represent the more extreme case of impulsive buying; a view reinforced by evidence of the financial harm associated with impulsive buying (Fenton-O'Creedy, Dibb, & Furnham, 2018).

Muruganatham and Bhakat (2013) documented 32 important studies published between 1950 and 2011 many of which tried to identify internal and external factors that exacerbate impulsive buying. They classify these into external and situational factors (e.g. store design and ambiance), as well as internal and sociocultural factors (e.g. personality and internalized social norms). More recent meta-analyses on the antecedents and consequences have also attempted to determine which factors are most closely related to impulsive buying. Santini, Ladeira, Vieira, Araujo, and Sampaio (2018) found ten factors that were reliably related to impulsive buying including positive emotions.

However, whilst earlier work on impulsive buying has demonstrated that individuals' impulsive purchasing behavior is significantly affected by perceptions of social norms (Rook & Fisher, 1995), there has been relatively little attention to date paid to the ways in which broader attitudes to money impact impulsive buying. This is important for two reasons. First, there is evidence that impulsive buying is a contributor to poor financial wellbeing, and

not just at the pathological levels studied in compulsive buying research (Fenton-O'Creevy et al., 2018). Second, if attitudes to money significantly affect impulsive buying behavior, this may provide greater opportunities for effective educational and therapeutic intervention than links between personality traits and impulsive buying or links between contextual influences and impulsive buying. That is, because attitudes are less stable and more prone to change than personality traits, it seems sensible to attempt to address problems of impulsive buying through known attitudes to money and financial behavior.

This study adds to the modest emerging research evidence on money attitudes and impulsive buying by demonstrating the significant and substantive contribution of key money attitudes to explaining impulsive buying over and above the role of personality variables. A particular contribution is to go beyond much prior research, which has focused on students and young people, to draw on data from a broad cross-section of the adult population in the UK.

The study achieved this through combining data from two large national (UK) surveys with overlapping participants (one focused on personality the second on financial attitudes and behavior).

### Personality correlates

Many studies that have looked at individual difference correlates of impulsive buying (IB) have concentrated on dysfunctional emotional regulation or prevention and promotion focus. For example Fenton-O'Creevy et al. (2018) showed that Behavioral Inhibition and Activation (BIS/BAS) was logically and significantly related to IB. Some studies have attended to specific personality correlates of IB. For example, Verplanken and Herabadi (2001) found an inverse association between conscientiousness and IB. Fewer studies have looked at all

Big Five factors in relation to IB. Olsen, Tudoran, Honkanen, and Verplanken (2016) examined the relationship between personality (using an extended version of the TIPI big five scale) and IB in a nationally representative sample of 1644 Norwegian adults. They found Extraversion and Neuroticism to be positively and significantly associated with IB whilst Conscientiousness was negatively and significantly associated with IB. Associations for Agreeableness and Openness with IB were non-significant. Farid and Ali (2018) found the same pattern of results with a sample of 400 Pakistani adults.

The extensive literature on personality suggests that two traits are implicated in a range of positive outcome variables like health, success at work and relationships. These are Neuroticism and Conscientiousness. Those who are low in the former and high in the latter lead healthier lives and tend to be happier and more successful. Specifically, in relation to IB, Neuroticism through its relationship to emotional lability may increase reliance on behaviors aimed at mood enhancement or repair, underpinning the 'retail therapy' aspect of buying (Atalay & Meloy, 2011). Conscientiousness is associated with greater impulse control and the planning and self-regulation of behavior (Carver, 2005); thus likely reducing IB tendencies. The other trait implicated in IB is Extraversion because of its association with need for stimulation and impulsive social behavior (Furnham & Heaven, 1999).

Thus, it is predicted that IB is negatively associated with Conscientiousness (H1) but positively associated with Neuroticism (H2) and Extraversion (H3).

### Money attitudes

Attitudes, (opinions, feelings and general orientation towards a person or object) unlike personality, are often influenced by situations, learning and circumstances and hence, are less stable than personality traits (Armstrong, Su, & Rounds, 2011). Consequently, attitudes

whilst influencing behavior, are more tractable to change through interventions than personality. Researchers have identified a range of money attitudes that underpin differences in individual orientations to money and its uses (Furnham & Murphy; Furnham, Von Stumm, & Fenton-O’Creevy, 2014a; Furnham, Wilson, & Telford, 2012; Tang, 1992). Money attitudes have been linked with many *demographic* variables (Furnham, 1996). Studies have found money attitudes related to *gender* (Furnham et al., 2014a; Furnham et al., 2012; Gresham & Fontenot, 1989; Tang, 1992), *culture* (Burgess, 2005; Lynn, 1991; Medina, Saegert, & Gresham, 1996), *education level* (Furnham, 1984; Klontz, Britt, Mentzer, & Klontz, 2011), and *political and religious values* (Furnham et al., 2012; Tang, 1992).

The study we report in this paper focused on four attitudes associated with money, following an approach developed by Furnham et al. (2012). Many popular writers have attempted to differentiate money types such as the hoarder, spender, binger, monk, avoider, amasser, worrier, risk taker, and risk avoider. The four most common unique money-associated goal orientations have been identified: Security, Power, Love and Freedom (Furnham et al., 2014a) and it is these we focus on in the current study.

Having and saving money, for many, can stand for *Security*. Money is a sort of an emotional lifejacket, a security blanket, a method to stave off anxiety. These individuals tend to be savers, collectors, and self-deniers and can be distrustful of others (Furnham, 2015). Having money reduces dependence on others and vulnerability to adverse events, thus reducing anxiety.

For some, money also represents *Power and Prestige* because money can buy goods, services and loyalty. It can be used to acquire importance, domination and control. Psychoanalysts argue that money and the power it brings can be understood as a search to regress to infantile fantasies of omnipotence (Goldberg & Lewis, 1978).

For many, money is also associated with *Love*. It is given as a substitute for emotion and affection. Those who give presents and spoil their children, are buying love. Money, through generosity, can be used to buy loyalty and self-worth but can result in very superficial relationships

For some people, money represents and provides *Freedom*. This is the more acceptable and more frequently admitted attribute attached to money. It buys time to pursue one's whims and interests and frees one from the daily routine and restrictions of a paid job. For individuals who value autonomy and independence, money buys escape from orders and commands and can breed emotions of anger, resentment and greed (Furnham, Von Stumm, & Milner, 2014b). In this, this association can be unhealthy which is demonstrated by a positive association with impulsive buying.

Prior data using these concepts suggests that attitudes to money associated with security and freedom tend to be healthy while attitudes associated with power, prestige and love tend to be unhealthy. Previous results suggest that men tend to associate money with Achievement, Power and Freedom (Furnham et al., 2012) more than women, who in turn are more inclined to see money as a source of anxiety (Gresham & Fontenot, 1989), as well as associate money with retention (Gresham & Fontenot, 1989) and budgeting (Tang, 1992). Furnham (1984) and Furnham et al. (2012) both found associations between money beliefs and socio-political ideology. While for political and religious values, Furnham et al. (2012) found those who are more affiliated with right wing political views are more likely to endorse power and freedom related emotions towards money.

There have been very few studies on money attitudes and impulsive buying. Rita and Argentina (2015) tested 150 business students in Indonesia and found those who associated money with power and prestige were more like to be high in impulsive buying.



Similarly, Roberts and Jones (2001), in a survey-based study of 406 US college students, found that the money attitudes power/prestige, distrust, and anxiety were closely related to compulsive buying and that credit card use often moderates these relationships. More recently, Harnish and Roster (2018 ) in a study of 286 young adults (18-25) in the USA, found compulsive buying to be positively associated with an orientation to money as power and money anxiety, and inversely associated with an orientation to money retention and distrust.

The data on attitudes to money suggests that those who see Money as Security are more successful money managers than those who associate it with Power and Love (von Stumm, Fenton O’Creedy, & Furnham, 2013). Hence it was predicted that impulsive buying would be positively correlated with associating money with Love (H4) and Power (H5) but negatively correlated with associating it with Security (H6).

This study differs from others in the area in that it has a large sample (N=3577), covering a broad cross-section of the adult population. Further, through regressions as well as correlations we were able to test the extent to which three categories of variables (demographic, personality, attitudinal) contributed to impulsive buying. Previous studies have established the relationship between demographic factors such as age, gender, income and some personality dimensions and impulsive buying so this study was partly replicative. However, we were particularly interested in the incremental validity of money attitudes over and above demographic and personality factors.

## Method

### Procedure

Data for this study were derived through secondary analysis of data combined from two existing data sets, with a significant overlap in participants (who were identifiable from the use of unique participant IDs common to the two surveys). Both surveys were carried out in collaboration with the BBC public broadcaster. The first study provided measures of personality (Jokela, Bleidorn, Lamb, Gosling, & Rentfrow, 2015). The second was a survey of attitudes to money and financial capability. This contributed data on money attitudes, impulsive buying and key demographic variables (Fenton-O'Creevy & Furnham, 2017). A common approach to generating unique user logons meant it was possible to identify common participants in the two surveys and track them via a unique id code. To access the surveys, participants needed to create a password protected account with the BBC using their email address as the id, or log in using a previously created account. Each account was assigned a unique numeric id. Thus, it was possible to combine data from each dataset by matching on these unique id numbers. Since both data sets also had common demographic questions, we were able to carry out a check for consistency of demographic data between responses to the two surveys with the same id number. A small number of cases with inconsistent data on age or gender were dropped. The resulting dataset combining responses from both surveys is deposited with the UK data service (Fenton-O'Creevy & Furnham, 2017). The two surveys were carried out approximately a year apart. Both surveys opened with information for subjects on how data would be used and how their privacy would be protected and by asking participants to explicitly indicate their informed consent to participation and use of their data and understanding of their right to withdraw such

consent. All data was anonymized. Both studies received approval after institutional ethics review.

#### Participants.

There were 3577 participants who completed both surveys (after discarding 292 responses with only partial data); of which 32% were male. 42.4% were between 18 and 30 years, 44.1% between 31 and 50 years and the remainder 50 and older. 92.2% classified themselves as white British. 33% had secondary school qualifications or lower, 47% had an undergraduate degree or equivalent and 20% a postgraduate degree. 24% earned less than £20,000 p.a., 47% between £20,000 and £49,999, 18% between £50,000 and £74,999 and 11% earned £75,000 or more.

#### Measures

Dependent variable, Impulsive Buying. Rook and Fisher's (1995) Buying Impulsiveness Scale. The original scale (9 item) was shortened due to space constraints in the survey, choosing the five items loading most strongly on the single factor in the original study. Items "I often buy things without thinking", "I often buy things spontaneously", "I see it, I buy it' describes me", "Just do it' describes the way I buy things", "Buy now, think about it later' describes me" (Cronbach's Alpha ( $\alpha$ ) = 0.90).

Control measures (demographic variables). In a recent meta-analysis, Santini et al. (2018) find modest but significant positive associations between gender and income and impulsive buying and a modest but significant inverse association between age and impulsive buying (although a range of studies do not find these effects, this is often with modest samples or restriction of range on demographic samples and thus low power to detect small effects). Many prior studies have been on student samples restricting the possibility of studying the impact of education level. However, there is some prior evidence

that higher education levels are associated with more planful behavior and hence lower impulsive buying (d'Astous, 1990). Whilst, Wood (1998) showed college graduates to be less prone to impulsive buying than those with only high school or lower education. Given this prior evidence it seemed important to control for these demographic variables. Further, given the large sample available to us and the broad adult population surveyed with large variability in income, age and education, it provides an important opportunity to examine the effects of these demographic variables more effectively. Thus, we control for: Age (in years); gender (female = 1, male = 0); education (1, "did not complete GCSE, CSE, O levels", to 6, "postgraduate degree"); and household income (1 "up to £9,999 per year", to 8, "£150,000 or more per year").

**Personality.** Personality traits were assessed by the 44 questions from the Big Five Inventory (John, Naumann, & Soto, 2008) to provide scores on the big five personality traits: Extraversion ( $\alpha = .85$ ), Emotionality/Neuroticism ( $\alpha = .83$ ), Conscientiousness ( $\alpha = .83$ ), Agreeableness ( $\alpha = .76$ ), and Intellect/Openness ( $\alpha = .80$ ), scored to range from 1 to 5.

**Money Attitudes Scale.** This short 16-item questionnaire (Furnham et al., 2014a) assesses attitudes to money, rated on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). There are four subscales: money as security ( $\alpha = .63$ ), money as freedom ( $\alpha = .61$ ), money as power ( $\alpha = .73$ ) and money as love ( $\alpha = .64$ ). Sample questions are: security, "I'd rather save money than spend it"; freedom, "With enough money, you can do whatever you want"; power, "Money is important because it shows how successful and powerful you are"; love, "I often demonstrate my love to people by buying them things".

## Results

The dependent variable, Impulsive Buying, exhibited a left censored normal distribution; a common outcome from shortening scales. Thus, analysis used Tobit regression (Long, 1997)

which adjusts parameter estimates and standard errors to account for the censored distribution. Prior to conducting the regression analysis, we examined the data to detect any problems of multicollinearity within the set of independent and control variables. Common research-justified heuristics for detecting problematic levels of multicollinearity include high correlations ( $|r| > .7$ ), or a high variance inflation factor ( $VIF > 10$ ) (Dormann et al., 2013). The highest correlation was between money as freedom and money as power ( $r = .45$ ) and the highest VIF was for money as power (1.39); both well below their relevant thresholds for concern.

Table 1 shows Pearson correlations, for all variables, with descriptive statistics on the diagonal. All six hypotheses were supported; with all correlations with impulsive buying (4 demographic, 5 personality, 4 attitudinal) being significant, except for household income.

[TABLE 1 about here]

[TABLE 2 about here]

Table 2 shows the results of a three-stage hierarchical Tobit regression. The significant Wald statistic at each stage shows each model to explain significantly more variance than an intercept only model. The changes in  $\log(\text{scale})$ ,  $\log$  likelihood and  $R^2_w$  show an improvement in fit at each stage, with the largest improvement in fit due to the contribution of the money attitudes variables. At the suggestion of an anonymous reviewer we also reversed the order of entering the attitude and personality variables to show the improvement in model fit from adding attitude variables without personality variables. This shows marked improvement in fit (Loglikelihood = -9817.32 (df. 10); Wald = 958.83 (d.f. 8);  $R^2_w = .21$ ); giving a change on  $R^2_w$  of .18. Subsequently adding the personality variables increases  $R^2_w$  by .04. This reinforces the evidence that money attitudes are the strongest

predictors of impulsive buying. Consistent with prior research, impulsive buying is inversely associated with age and higher for females. Education is significantly inversely associated with impulsive buying in the first two regression stages (with demographic and personality variables) but not the third, suggesting the relationship of education with impulsive buying may be mediated via its impact on money attitudes.

[TABLE 3 about here]

To assist with interpretation of relative size of relationships between independent variables and Impulsive Buying, Table 3 shows standardized regression parameters for model 3 for all significant variables, ordered by absolute size (Nieminen, Lehtiniemi, Vähäkangas, Huusko, & Rautio, 2013). These can be interpreted as the size of change in Impulsive Buying in standard deviations for a one standard deviation increase in the independent variable of interest. This confirms that the Money as Security attitude ( $\beta = -.31$ ) and the Conscientiousness personality factor ( $\beta = -.21$ ) have the strongest associations with impulsive buying followed by Money as Love, Gender and Money as Power. Whilst the demographic variables Age and Income have significant parameters the size of their association to impulsive buying is rather modest. A statistical power calculation for sample size needed to detect the size of effect we found for the jointly entered demographic variables at .8 statistical power and .05 confidence level gives a minimum sample size of 388. Since the effect for gender is significantly larger than other demographics, reliably detecting effects for age and income requires even larger samples. This may offer some explanation for inconsistent findings in prior research as sample sizes are often modest and, in some cases, have a restriction of range problem with age and income variables.

Personality variables explain a significant amount of variance, with Extroversion and Neuroticism showing a positive association with Impulsive Buying, no significant association

for Agreeableness; and Conscientiousness and Openness showing an inverse association with Impulsive Buying. This supports H1 to H3 and is consistent with prior findings. The significant association between Openness and Impulsive Buying is different to prior results but the correlation is small, suggesting the difference to be primarily due to the greater sensitivity of analysis in this sample which is large compared to prior studies.

Turning to the money attitude variables, Money as Security has the strongest association with Impulsive Buying and is the only one to show an inverse association. Money as Power, Money as Freedom and Money as Love all show a positive association with Impulsive Buying, supporting H4 to H6.

In summary, demographically, youth, being female and higher household income were associated with the greatest risk of impulsive buying. In personality terms, low Openness and Conscientiousness but high Extraversion and Neuroticism were associated with higher impulsive buying. Finally, associating money with freedom, love or power increased likelihood and associating money with security decreased likelihood of impulsive buying. Of these variables Money as Security, Conscientiousness, Money as Love and Gender showed the strongest associations with Impulsive Buying.

### Discussion

This study showed that both personality and attitudes to money are important and significant correlates of impulsive buying, whilst demographic variables (gender, age income and education) have rather modest associations. This data supports and extends previous literature in this field. For instance, it confirms that females more than males, and younger rather than older people are likely to indulge in impulsive buying, whilst demonstrating that these effects are sufficiently modest to require large samples to reliably detect them.

The personality data indicate that a somewhat “unattractive” personality profile is associated with impulsive buying; notably neurotic, closed-to-experience, extravert and low on conscientiousness. It is self-evident why conscientiousness is the strongest correlate as it is manifest in being organized, planful, and with the ability to delay gratification. In fact, conscientiousness could be seen as the ability to master any form of impulsivity. It is also no surprise that extraversion is associated with impulsive buying as it is associated with excitement and stimulation. Indeed, early conceptions of extraversion had it having two major facets namely sociability and impulsivity (Furnham & Heaven, 1999).

The association of neuroticism with impulsive buying could explain the popular concept of “retail therapy” where shopping is understood as means of mood repair and enhancement and is consistent with ‘mood repair’ explanations of impulsive buying (e.g. Atalay & Meloy, 2011; Fenton-O’Creedy et al., 2018).

Dickman (1990) distinguished between functional and dysfunctional impulsivity: Functional impulsivity is a tendency to make quick decisions when it is optimal and beneficial. while dysfunctional impulsivity is a tendency to make quick decisions when it is not optimal. While there might be occasions when quick decisions are important in buying, most of the impulsive buying literature is clearly associated with dysfunctional beliefs and behaviors.

Overall the attitudes to money were more powerful correlates of impulsive buying than personality. Nearly all the studies that have examined correlates of these attitudes have found that associating money as security was most adaptive (Furnham et al., 2014a; von Stumm et al., 2013) and this attitude was the strongest predictor (inversely) of impulsive buying in the current study. The study also showed that impulsive buying was substantially and significantly related to the attitude that money is associated with love. The



data show clear gender differences here in that females are more likely to associate money as love than males and they are equally more prone to impulse buying Furnham (2015).

This study had the obvious limitations of many in this area. It was a correlational study based on self-report which leaves possibilities of method invariance inflating statistical associations, as well as impression management and self-deception; although this is less of an issue for personality relationships with impulsive buying since personality data were collected around a year earlier than impulsive buying and money attitude data, in a separate survey. Further, causation cannot be established but only inferred. Thus, for example, it is unclear whether attitudes to money are a cause or consequence of impulsive buying. That is, does the individual with poor emotional regulation and impulse control develop corresponding money attitudes or associations or do the latter “permit or oppose” all impulsive buying? That we control for personality, including factors associated with impulsive behavior lends support to the latter, but we cannot be certain.

These results give some hope to those treating impulsive buying (and its more extreme variant of compulsive buying). It is clearly easier to change attitudes than personality. For example, Klontz, Bivens, Klontz, Wada, and Kahler (2008) described an experimental treatment utilizing experiential therapy on money disordered people aimed at correcting disordered money beliefs and attitudes. The treatment outcomes of 33 individuals with problematic financial behaviors who participated in a 6-day experiential therapy program was monitored. Following treatment, participants showed significant and lasting reductions in psychological distress, anxiety, and worry about money and finance related situations. Indeed, they showed measurable signs of better overall financial health.

The results also suggest that discussion of attitudes to money may be a promising area of development in financial education. There is increasing attention to financial literacy

in school and higher education around the world driven by OECD evidence of poor financial literacy in many countries (Lusardi, 2015). Indeed, it now forms a compulsory part of school education in some countries such as the UK. However, typically, this aspect of education is treated as the transmission of knowledge and often embedded in mathematics curricula. There is little if any attention to the role of attitudes and psychological relationships with money. Our results and other evidence on the role of money attitudes suggests that greater attention to these matters in financial education would be highly worthwhile.

## References

- Armstrong, P. I., Su, R., & Rounds, J. (2011). The Road Less Traveled. *The Wiley-Blackwell handbook of individual differences*, 608 - 631.
- Atalay, A. S., & Meloy, M. G. (2011). Retail therapy: A strategic effort to improve mood. *Psychology and Marketing*, 28(6), 638-659. doi:10.1002/mar.20404
- Burgess, S. M. (2005). The importance and motivational content of money attitudes: South Africans with living standards similar to those in industrialised Western countries. *South African Journal of Psychology*, 35(1), 106-126.
- Carver, C. S. (2005). Impulse and constraint: Perspectives from personality psychology, convergence with theory in other areas, and potential for integration. *Personality and Social Psychology Review*, 9(4), 312-333.
- d'Astous, A. (1990). An inquiry into the compulsive side of "normal" consumers. *Journal of Consumer Policy*, 13(1), 15-31.
- Dickman, S. J. (1990). Functional and dysfunctional impulsivity: personality and cognitive correlates. *Journal of Personality and Social Psychology*, 58(1), 95 - 101.
- Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., . . . Leitão, P. J. (2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography*, 36(1), 27-46.
- Farid, D. S., & Ali, M. (2018). Effects of Personality on Impulsive Buying Behavior: Evidence from a Developing Country. *Marketing and Branding Research*, 5, 31-43.
- Fenton-O'Creevy, M., & Furnham, A. (2017). *BBC Big Money Test*, [data collection].

- Fenton-O'Creevy, M., Dibb, S., & Furnham, A. (2018). Antecedents and consequences of chronic impulsive buying: Can impulsive buying be understood as dysfunctional self-regulation? *Psychology & Marketing, 35*(3), 175-188.
- Furnham, A. (1984). Many sides of the coin: The psychology of money usage. *Personality And Individual Differences, 5*(5), 501-509.
- Furnham, A. (1996). Attitudinal correlates and demographic predictors of monetary beliefs and behaviours. *Journal of Organizational Behavior, 17*(4), 375-388.
- Furnham, A. (2015). *The new psychology of money*. London: Routledge.
- Furnham, A., & Heaven, P. (1999). *Personality and Social Behaviour*. London: Arnold.
- Furnham, A., & Murphy, T. A. (2019 ). Money types, money beliefs, and financial worries: An Australian study. *Australian Journal of Psychology, 71*(2), 193-199.  
doi:<https://doi.org/10.1111/ajpy.12219>
- Furnham, A., Von Stumm, S., & Fenton-O'Creevy, M. (2014a). Sex Differences in Money Pathology in the General Population. *Social Indicators Research, 1-11*.
- Furnham, A., Von Stumm, S., & Milner, R. (2014b). Moneygrams: Recalled childhood memories about money and adult money pathology. *Journal of Financial Therapy, 5*(1), 40-54.
- Furnham, A., Wilson, E., & Telford, K. (2012). The meaning of money: The validation of a short money-types measure. *Personality And Individual Differences, 52*(6), 707-711.
- Goldberg, H., & Lewis, R. T. (1978). *Money Madness: The Psychology of Saving, Spending, Loving, and Hating Money*, . New York: New American Library.
- Gresham, A., & Fontenot, G. (1989). The differing attitudes of the sexes toward money: an application of the money attitude scale. *Advances in marketing, 8*, 380-384.

- Harnish, R. J., & Roster, C. A. (2018). The tripartite model of aberrant purchasing: A theory to explain the maladaptive pursuit of consumption. *Psychology & Marketing, online first*. doi:10.1002/mar.21159
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy. *Handbook of personality: Theory and research, 3*(2), 114-158.
- Jokela, M., Bleidorn, W., Lamb, M. E., Gosling, S. D., & Rentfrow, P. J. (2015). Geographically varying associations between personality and life satisfaction in the London metropolitan area. *Proceedings of the National Academy of Sciences, 112*(3), 725-730.
- 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.
- Klontz, B. T., Bivens, A., Klontz, P. T., Wada, J., & Kahler, R. (2008). The Treatment of disordered money behaviors: Results of an open clinical trial. *Psychological Services, 5*(3), 295-308.
- Long, J. S. (1997). *Regression models for categorical and limited dependent variables* (Vol. 7): Sage Publications, Inc.
- Lusardi, A. (2015). Financial literacy skills for the 21st century: Evidence from PISA. *Journal of Consumer Affairs, 49*(3), 639-659.
- Lynn, R. (1991). *The secret of the miracle economy: Different national attitudes to competitiveness and money*. London: Social Affairs Unit.
- Magee, L. (1990). R<sup>2</sup> Measures Based on Wald and Likelihood Ratio Joint Significance Tests. *The American Statistician, 44*(3), 250-253. doi:10.2307/2685352

- Medina, J. F., Saegert, J., & Gresham, A. (1996). Comparison of Mexican-American and Anglo-American attitudes toward money. *Journal of Consumer Affairs, 30*(1), 124-145.
- Muruganantham, G., & Bhakat, R. (2013). A review of impulse buying behavior. . *International Journal of Marketing Studies, 5* 149-160.
- Nieminen, P., Lehtiniemi, H., Vähäkangas, K., Huusko, A., & Rautio, A. (2013). Standardised regression coefficient as an effect size index in summarising findings in epidemiological studies. *Epidemiology, Biostatistics and Public Health, 10*(4). doi:<https://doi.org/10.2427/8854>
- Olsen, S. O., Tudoran, A. A., Honkanen, P., & Verplanken, B. (2016). Differences and Similarities between Impulse Buying and Variety Seeking: A Personality-based Perspective. *Psychology & Marketing, 33*(1), 36-47. doi:10.1002/mar.20853
- Rita, M., & Argentina, V. (2015). *Money attitude and impulse buying*. . Paper presented at the IBEA International Conference on Business, Economics and Accounting, Ho Chi Min, Vietnam.
- 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.
- Rook, D. W., & Fisher, R. J. (1995). Normative influences on impulsive buying behavior. *Journal of Consumer Research, 30*, 305-313.
- Santini, F. D. O., Ladeira, W. J., Vieira, V. A., Araujo, C. F., & Sampaio, C. H. (2018). Antecedents and consequences of impulse buying: a meta-analytic study. *RAUSP Management Journal, 54*(2), 178-204.
- Tang, T. L. P. (1992). The meaning of money revisited. *Journal of Organizational Behavior, 13*(2), 197-202.

Verplanken, B., & Herabadi, A. (2001). Individual Differences in Impulse Buying Tendency:

Feeling and no Thinking. *European Journal of Personality, Vol. 15*, S71 - S83.

von Stumm, S., Fenton O’Creedy, M., & Furnham, A. (2013). Financial capability, money

attitudes and socioeconomic status: Risks for experiencing adverse financial events.

*Personality And Individual Differences, 54*(3), 344-349.

Wood, M. (1998). Socio-economic status, delay of gratification, and impulse buying. *Journal*

*of Economic Psychology, Vol. 19*, 295 - 320.

**Table 1: Pearson correlations and descriptive statistics**

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Impulsive buying	11.21(4.83)													
2. Gender	.13***	.68(.47)												
3. Age	-.10***	.00	35.62 (12.39)											
4. Education	-.06***	-.03	-.07***	4.63 (1.16)										
5. Household income	-.01	-.12***	.10***	.23***	4.06(1.87)									
6. Extraversion	.10***	.06***	-.02	.04*	.09***	3.07 (.84)								
7. Agreeableness	-.05**	.09***	.04*	-.01	-.03	.13***	3.67 (.61)							
8. Conscientiousness	-.25***	.09***	.16***	.04*	.06***	.08***	.17***	3.69(.68)						
9. Neuroticism	.11***	.21***	-.09***	-.07***	-.10***	-.32***	-.29***	-.18***	2.99(.84)					
10. Openness	-.04*	-.10***	.02	.17***	-.02	.20***	.06**	-.08***	-.08***	3.59(.66)				
11. Money as power	.19***	-.13***	-.11***	-.07***	-.01	.00	-.18***	-.07***	.07***	-.10***	2.03(.72)			
12. Money as freedom	.17***	-.07***	.04*	-.10***	-.02	-.07***	-.15***	-.08***	.08***	-.06**	.45***	3.32(.85)		
13. Money as security	-.32***	-.03	-.05**	.10***	.03	-.13***	-.03	.17***	.09***	-.02	.05**	-.01	3.21(.76)	
14. Money as love	.26***	.10***	-.06**	-.04*	-.03	.10***	.06***	-.07***	.09***	.07***	.19***	.12***	-.10***	3.21(.93)

Note: N=3577. \*\*\*, p < .001 (2-tailed). \*\*, p < .01 (2-tailed). \*, p < .05 (2-tailed). Means (standard deviations) on the leading diagonal



**Table 2: Tobit regression of Impulsive buying on personality and money attitudes**

Variable	Model 1			Model 2			Model 3		
	Parameter (B)	95% confidence interval	z	Parameter (B)	95% confidence interval	z	Parameter (B)	95% confidence interval	z
Intercept	12.39***	11.43, 13.36	25.17	16.89***	14.71, 19.06	15.23	14.11***	11.85, 16.37	12.22
Age	-.05***	-.06, -.03	-6.34	-.02***	-.04, -.01	-3.26	-.02***	-.04, -.01	-3.79
Education	-.32***	-.47, -.16	-4.00	-.21**	-.36, -.06	-2.74	.00	-.14, .14	-.04
Household Income	.12*	.03, .22	2.50	.12*	.02, .21	2.42	.13**	.04, .22	2.96
Gender (female)	1.64***	1.26, 2.02	8.49	1.62***	1.24, 2.01	8.31	1.57***	1.21, 1.92	8.62
Extraversion				.95***	.73, 1.17	8.55	.57***	.37, .77	5.51
Agreeableness				-.10	-.039, .20	-.64	.00	-.28, .27	-.03
Conscientiousness				-2.10***	-2.36, -1.84	-	-1.50***	-1.74, -1.26	-
Neuroticism						15.95			12.16
Openness				.38***	.15, .61	3.25	.35***	.14, .56	3.20
Money as power				-.48***	-.74, -.21	-3.49	-.41***	-.66, -.16	-3.25
Money as freedom							.89***	.64, 1.14	6.92
Money as security							.53***	.32, .73	5.04
Money as love							-1.95***	-2.16, -1.74	-
									18.07
							.94***	.77, 1.12	10.65
Log-likelihood	-10188.03			-10023.70			-9723.04		
Wald	122.11			472.30			1193.62		
Pseudo R <sup>2</sup> <sub>w</sub>	.03			.12			.25		

Note: N=3577. \*\*\*, p < .001 (2-tailed). \*\*, p < .01 (2-tailed). \*, p < .05 (2-tailed). Means (standard deviations) on the leading diagonal. R<sup>2</sup><sub>w</sub> = Wald/(Wald+N), is a pseudo R<sup>2</sup> statistic (Magee, 1990)

**Table 3: Model three standardized regression parameters in order of size**

Variable	Standardized regression parameter ( $\beta$ )
Money as security	-0.31
Conscientiousness	-0.21
Money as love	0.18
Gender (female)	0.15
Money as power	0.13
Extraversion	0.10
Money as freedom	0.09
Neuroticism	0.06
Openness	-0.06
Age	-0.05
Household Income	0.05