

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: <https://orca.cardiff.ac.uk/id/eprint/146948/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Pretty, Alexander, Davies, Christopher and Thomas, Christian 2021. Onset of absolutely unstable behaviour in the Stokes layer: a Floquet approach to the Briggs method. *Journal of Fluid Mechanics* 928 , A23. 10.1017/jfm.2021.824

Publishers page: <https://doi.org/10.1017/jfm.2021.824>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



Dark Personalities and Bitcoin® The Influence of the Dark Tetrad on
Cryptocurrency Attitude and Buying Intention

Brett A. S. Martin¹, Polymeros Chrysochou², Carolyn Strong³, Di Wang¹ and Jun Yao⁴

¹ Queensland University of Technology

² Department of Management, Aarhus University

³ Cardiff University

⁴ Macquarie University

Author Note

[Include any grant/funding information and a complete correspondence address.]

Abstract

Markets for cryptocurrencies such as Bitcoin have experienced tremendous growth. Yet, little research has examined why people want to buy cryptocurrencies that are risky investments. The present research examined the relationship between the Dark Tetrad traits (Machiavellianism, subclinical narcissism, subclinical psychopathy, and subclinical sadism) and a person's crypto attitude and buying intention. The following mediators were examined as reasons for people buying crypto: (1) conspiracy beliefs (e.g., distrust of government), (2) positivity and (3) fear of missing out (FoMO). Based on a pre-registered survey (N = 566), it was found that narcissism was positively associated with crypto attitude which was mediated by positivity.

Machiavellianism was associated with buying intention which was mediated by conspiracy beliefs. Machiavellians were more distrustful of government agencies which was associated with a greater desire to buy crypto. Psychopathy affected crypto judgments through FoMO and a negative effect on positivity. Sadism is associated with FoMO and a lack of positivity which affects crypto judgments.

Keywords: Dark Tetrad, Machiavellianism, narcissism, psychopathy, sadism, conspiracy beliefs, Bitcoin, cryptocurrency, crypto

Dark Personalities and Bitcoin® The Influence of the Dark Tetrad on
Cryptocurrency Attitude and Buying Intention

1. Introduction

The global cryptocurrency market has a total market value of over USD\$2 trillion, with cryptocurrencies such as Bitcoin increasing ~~in its~~ price by over 8,000% in five years (Coinmarketcap.com, 2021). Cryptocurrencies (“crypto”) are digital currencies based on cryptography and blockchain technology. Crypto are traded on the internet through a peer-to-peer network that records transactions on a public blockchain, unlike fiat currencies which are government-issued. Currently, drivers on why people buy crypto are not well known. At first glance, crypto are a digital asset that offer potential capital gain from speculative risk. However, two features are worthy of note. First, crypto have extreme price volatility, their high-risk nature making crypto trading akin to gambling (Delfabbro, King, & Williams, 2021) with crypto trading appealing to gamblers (Mills & Nower, 2019). Second, crypto are decentralized and global. They are not backed by governments. We posit that this price volatility (i.e., potential gain) and autonomy from government oversight make crypto attractive to personalities that are prone to gambling and that are suspicious of government. Thus, the present research examines the influence of the Dark Tetrad on crypto attitude and buying intention. Further, we study three mediators underlying these effects - conspiracy beliefs, Fear of Missing Out (FoMO), and positivity.

1.1 Dimensions of the Dark Tetrad

The Dark Tetrad involves the Dark Triad of antisocial personality traits (Machiavellianism, narcissism, psychopathy, Paulhus & Williams, 2002) ~~and with the addition of~~ sadism (Buckels, Jones, & Paulhus, 2013). Machiavellianism is characterized by a manipulative, exploitative approach towards others (Paulhus & Williams, 2002). Machiavellians take a calculated approach to achieve goals, ~~and~~ avoid impulsive decisions ~~and Machiavellians~~ tend not to engage in problem gambling (Onyedire, Chukwuorji, Orjiakor, Onu, Aneke, & Ifeagwazi, 2021). Thus, it may seem that they would not be interested in a risky cryptocurrency. Sekścińska and Rudzinska-Wojciechowska, (2020) found that although Machiavellianism was correlated with financial risk-taking ($r = 0.25$), subsequent studies in that article showed no relationship with financial risk-taking (e.g., stocks) and gambling risks. However, we posit that the high returns of the crypto market may encourage Machiavellians to buy as they tend to be money-obsessed (Engelberg, & Sjöberg, 2007) and make reward-oriented decisions in gambling (Birkás, Csathó, Gács, & Bereczkei, 2015). Thus, Machiavellianism should be positively associated with cryptocurrency attitude and buying intention~~willingness to buy cryptocurrency~~.

We ~~predict believe~~ the effect of Machiavellianism on crypto ~~judgments attitudes~~ will be mediated by conspiracy beliefs. March and Singer (2019) found Machiavellianism was positively associated with government conspiracy beliefs ~~about the government~~ ($r = 0.67$). Similarly, Kay (2021) showed how Machiavellians' distrust of others was associated with conspiracist ideation. Hughes and Machan (2021) also found Machiavellianism was positively associated with COVID conspiracy beliefs. Regarding FoMO, this is defined as "a pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski, Murayama, DeHaan, & Gladwell, 2013). For our research, this is FoMO on crypto investing rewards that

others are experiencing. Delfabbro et al. (2021) assert that FoMO is “one of the strongest psychological factors” for crypto trading because investors can see massive returns online in a 24-hour trading market. Machiavellianism is associated with affective responses from social comparison (Lange, Paulhus, & Crusius, 2018) and has been found to be positively correlated with FoMO ($r = 0.32$, Servidio, Griffiths, & Demetrovics, 2021). Thus, FoMO should mediate the effect of Machiavellianism on crypto ~~judgments-attitudes~~. Regarding positivity, Machiavellianism - with its cold, cynical world view - has been found to be unrelated or to a lesser extent, negatively associated with positive affect (Jonason & Jackson, 2016; Limone, Sinatra, & Monacis, 2020; Pilch, 2020). Therefore, positivity should not mediate the effect of Machiavellianism on crypto ~~attitudes~~judgments.

Narcissism is characterized by self-aggrandizement and grandiosity (Paulhus & Williams, 2002). We believe narcissism would be positively associated with crypto investing. Narcissism has been found to be related to risky stock market investing (Foster, Reidy, Misra, & Goff, 2011; Sekścińska, & Rudzinska-Wojciechowska, 2020). Thus, risky crypto should appeal to narcissists. For mediators, we expect narcissism to be associated with conspiracy beliefs. Kay (2021) found that narcissism is associated with conspiracist ideation. ~~Other~~ recent research shows that narcissism accounts for 4% (Bowes, Costello, Ma, & Lilienfeld, 2021) and 4.9% (Ahadzadeh, Ong, & Wu, 2021) in the variance in conspiracy beliefs. Thus, it is plausible that conspiracy beliefs mediate the effect of narcissism on crypto ~~judgments~~attitudes. Further, research indicates that FoMO mediates the effect of narcissism on smartphone addiction (Servidio et al., 2021). Błachnio and Przepiórka (2018) also found that narcissism and FoMO were positively associated with an excessive use of social media. However, these results may represent impression management (e.g., narcissists’ self-presentation on social media) rather than FoMO about

investment returns. Thus, we do not expect the effect of narcissism on crypto attitudes to be mediated by FoMO. For positivity, narcissists have ~~positive~~, agentic self-views, are overconfident and are more willing to take risks (Campbell, Goodie, & Foster, 2004; Joshanloo, 2021). Narcissists' overconfidence is associated with more gambling (Lakey, Rose, Campbell, & Goodie, 2008). Further, the positive effect on narcissism on risky stock market investing has been linked to an approach motivation (Foster et al., 2011). Thus, we predict that positivity will mediate the effect of narcissism on crypto attitudes.

Psychopathy is characterised by callous, impulsive antisocial behavior (Paulhus, 2014). The reckless, impulsive nature of psychopaths paired with a tendency to experience low levels of stress and anxiety and a desire to seek stimulation (Jauk & Dieterich, 2019) makes them natural online gamblers. Research indicates that psychopathy is associated with problematic online gambling ~~and gaming addiction~~-(Jauk & Dieterich, 2019; ~~and online gaming addiction~~-(Tang, Reer, & Quandt, 2020). ~~W~~Thus, we predict that ~~buying cryptocurrency would be attractive to~~ psychopaths ~~would be making them~~-willing to buy crypto. For mediation, psychopathy has been associated with COVID conspiracy beliefs (Hughes & Machan, 2021; Kay, 2021). ~~Like narcissists~~~~T~~-the impulsivity of psychopaths (Paulhus, 2014) may lead them to experience crypto FoMO. Yet ~~for positivity~~, psychopathy is negatively associated with positive affect (Joshanloo, 2021). Thus, we predict that the effect of psychopathy on crypto ~~judgments buying intention~~-is mediated by conspiracy beliefs and FoMO, but not positivity.

Everyday sadism relates to experiencing enjoyment from another's suffering (Buckels et al., 2013; Foulkes, 2019). Sadism has been found to be associated with behavior in a digital context. For instance, sadists troll others on the Internet for enjoyment (Buckels, Trapnell, & Paulhus, 2014; Buckels, Trapnell, Andjelovic, & Paulhus, 2019) ~~and enjoy violent online games~~

(Kircaburun, Jonason, & Griffiths, 2018). However, as sadism involves pleasure from another's pain and buying crypto is unlikely to directly result in another's ~~others'~~ distress, we do not expect an association between sadism and crypto judgments~~attitudes~~.

2. Method

2.1 Participants and procedure

Participants were drawn from Prolific Academic. The study was approved by the Ethical Committee of Cardiff University, UK (Number 2021080) and started in July 2021. We organized the data collection in two waves. In the first wave ($N = 907$; males = 28.7%, females = 69.8%; mean age = 32.4 years; $SD = 12.3$) we invited participants to report their awareness on cryptocurrency and their interest in investing in financial assets. Those participants that reported ~~ed~~ing that being aware of ~~about~~ cryptocurrency, interested in investing, agre~~e~~ing to participate in a follow up survey, and reporting a valid ~~id-ID~~ ($N = 601$), were invited after two days to participate in the main study ($N = 566$; males = 35.3%, females = 63.3%; mean age = 31.1 years; $SD = 11.3$; return rate = 94.2%). Table 1 displays b~~B~~Background characteristics of the final sample appears in Table 1 and the Supplementary Material provides descriptive statistics of the samples from both rounds.

Insert table 1 about here

The sample size was checked in terms of statistical power for model testing. A priori power analyses using the G*Power tool was used to determine the adequacy of the sample size (Faul, Erdfelder, Buchner, & Lang, 2009). Using suggested minimum values by Cohen (1988, a

minimum R^2 value of 0.10, a statistical power of 80%, and 4 predictors), the a priori G*Power calculation indicated that a sample size of 125 would be required. In addition, the post-hoc G*Power calculation for a minimum R^2 value of 0.10, and with the same predictors, indicated that the statistical power achieved using the study's final sample of 566 was 99%, which is well above Cohen's (1988) recommendations. Therefore, the final sample size was ~~found~~-adequate for testing the proposed model.

2.2. Measures

This section presents the measures used in the main questionnaire. Internal consistency and means are presented in Table 2, while a detail list of manifest items and descriptive measures appear in the Supplementary Material.

Insert table 2 about here

2.2.1. Dependent Measures.

Attitude towards cryptocurrency was assessed with three items (anchored by bad/good, unfavorable/favorable, and negative/positive) adapted from Martin, Zhan, Wang, and Jin (2019).

Buying intention was assessed with three items (anchored by unlikely/likely, unfavorable/favorable, and negative/positive) adapted from Martin and Strong (2016). All items were measured on a 7-point bipolar scale.

2.2.2. *Independent Measures.*

We assessed the Short Dark Triad (SD3) based on Jones and Paulhus (2014). The scale consists of three constructs: Machiavellianism (9 items), narcissism (9 items), and psychopathy (9 items). All items were measured on a 5-point agreement scale (1= strongly disagree; 5 = strongly agree). Sadism was measured based on the assessment of Sadistic Personality Scale (ASP, 9 items) developed by Plouffe, Saklofske, and Smith (2017). The items were measured on a 5-point agreement scale (1 = strongly disagree; 5 = strongly agree).

2.2.3. *Mediators.*

Fear of Missing Out (FoMO) was measured with a scale adapted from Hall, Steele, Christofferson, and Mihailova (2021) and Przybylski et al. (2013). The scale measured four items on a 5-point scale (1 = never; 5 = always). Positivity was assessed with a scale adapted from Caprara et al. (2012). The scale measured eight items on a 5-point agreement scale (1 = strongly disagree; 5 = strongly agree). Conspiracy beliefs were assessed with the conspiracy mentality questionnaire (Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013). The scale consisted of five items measured on an 11-point scale (1 = 0% certainly not; 11 = 100% certain).

2.2.4. *Other Measures.*

The questionnaire included a question addressing participants' experience with investing in cryptocurrency adapted from Puustinen, Maas, & Karjaluoto (2013), current ownership of cryptocurrency, and their interest in investing in cryptocurrency in case they did not own any.

2.2.5. *Statistical Analysis.*

Our analysis followed the study's pre-registered protocol (<https://aspredicted.org/pj9q7.pdf>). Descriptive analysis and correlations were performed in SPSS version 27. The assessment of the path model was performed in SmartPLS 3 (Ringle, Wende, & Becker, 2015).

3. Results

3.1. *Correlations*

Table 2 presents intercorrelations between the variables. With an exception between buying intentions and attitudes, the correlation coefficients are low to moderate. Correlations were positive, except for significant negative correlations that were observed between positivity and machiavellianism, positivity and psychopathy, positivity and sadism, and positivity and conspiracy beliefs.

3.2. *Path model*

3.2.1. *Validation of measurement model and model fit.*

Item loadings for some constructs were low (e.g., psychopathy, positivity, ~~sadism~~). From a visual inspection the majority was for reversed items (i.e., scores after reversal still resulted in low correlations). The average variance extracted for narcissism, psychopathy, and sadism are below the recommended threshold (>0.50). Nevertheless, given that the composite reliability is well above the recommended level (>0.70) and the scales have a strong theoretical base, we consider the internal reliability of the measurement items is acceptable (Fornell and Larcker, 1981). The table provides the scores of the heterotrait-monotrait ratio of correlations (HTMT) that is used to assess discriminant validity. Discriminant validity has been established since all scores are below

the threshold (<0.90). Such approach is superior to the Fornell-Larcker criterion that is traditionally used (Henseler, Ringle, & Sarstedt, 2015).

The Stone-Geisser Q^2 values obtained through the blindfolding procedures for attitude ($Q^2 = 0.031$), buying intention ($Q^2 = 0.033$), conspiracy beliefs ($Q^2 = 0.016$), FoMO ($Q^2 = 0.063$), and positivity ($Q^2 = 0.119$) were larger than zero, supporting the predictive relevance of the model (Hair et al., 2017). Finally, the standardized root mean square residual value for the saturated structural model was 0.065, which was below the threshold of 0.08 that indicates a good model fit (Hair et al., 2017).

3.2.2. Structural model results.

Table 3 presents the path estimates of the model. Of the Dark Tetrad traits, Machiavellianism has a significant positive effect on conspiracy beliefs ($b = 0.18$) and FoMO ($b = 0.13$), narcissism has a significant positive effect on positivity ($b = 0.45$). Psychopathy has a significant positive effect on FoMO ($b = 0.14$) and a negative effect on positivity ($b = -0.26$). Sadism has significant positive effect on FoMO ($b = 0.13$) and a negative effect on positivity ($b = -0.13$). Considering the mediators, positivity had a positive significant effect on attitude ($b = 0.10$), conspiracy beliefs a positive significant effect on attitude ($b = 0.10$) and buying intention ($b = 0.13$), and FoMO a positive significant effect on attitude ($b = 0.15$) and buying intention ($b = 0.14$). Table 4 further provides the path estimates for the indirect effects of the model.

Insert tables 3 and 4 about here

4. Discussion

Why do people buy cryptocurrency? Despite the tremendous growth of the crypto market, this is unknown. The purpose of our preregistered research was to study the effects of the Dark Tetrad on a person's crypto attitude and buying intention. We studied three potential mediators: (1) conspiracy beliefs, (2) positivity, and (3) fear of missing out (FoMO). Our results showed that effect of narcissism on crypto attitude was mediated by positivity. Machiavellianism was associated with buying intention mediated by conspiracy beliefs. The effects of psychopathy and sadism on crypto judgments were influenced by FoMO and a negative effect on positivity.

Narcissism was related to a favorable attitude towards crypto which was mediated by positivity which supports the positive approach narcissists take to risky ~~stock~~-investments (Foster et al., 2011). As expected, FoMO did not predict attitudes for narcissism but surprisingly, conspiracy beliefs ~~were did~~-not ~~act as~~-a mediator. Although narcissism is associated with conspiracy ideation (Kay, 2021), it may be that conspiracy beliefs are not salient or diagnostic when narcissists consider crypto investments. Narcissism was not related to buying intention. Crypto buying intention was explained by Machiavellianism. Building on recent research (Hughes & Machan, 2021; Kay, 2021), Machiavellianism was associated with conspiracy beliefs ~~for crypto investing~~. Thus, conspiracy beliefs appear to be a key construct to consider for Machiavellianism and ~~crypto~~ investment. Cunning Machiavellians take a distrustful view of government which in turn, drives their desire for crypto. Researchers should realize how the distrust of politicians can actively drive buying intention for non-government backed investments for Machiavellian investors. FoMO also mediated the effects for Machiavellians. ~~Impulsive~~ psychopaths felt FoMO which was related to more favorable crypto judgments. Psychopathy was also negatively associated with positivity which supports Joshanloo (2021).

Similarly, sadism was negatively associated with positivity. Prior research shows that sadists experience positive affect where they harm ~~or deceive~~ others (Buckels et al., 2019; ~~Forsyth, Anglim, March, & Bilobrk, 2021~~). However, for crypto investing which is outside of an interpersonal context, the relationship between sadism and positivity is negative. Sadism was also related to FoMO which extends prior research showing that ~~the~~ Dark Triad traits are positively related to FoMO (Servidio et al., 2021).

5. Limitations and future research

The present research had several limitations and research avenues. Our correlational study could provide causal insights with an experimental design. For example, would upward comparison to successful investors drive Machiavellians to invest more? Would sadists - who take pleasure in another's suffering - respond favorably when investors exhibit distress from their crypto losses? Future research may explore additional mediators (e.g., envy). Would Dark Tetrad personalities trade crypto because of benign or malicious envy of another person's trading success? Finally, future research could study what triggers FoMO for Machiavellians in crypto trading (e.g., social comparison of large returns).

6. Conclusion

There has been a massive growth in cryptocurrency markets. Studying cryptocurrency through the lens of the Dark Tetrad offers insight into why people want to buy crypto. Our results show that narcissists like crypto which is driven by feelings of positivity. Psychopaths and sadists fear missing out on investing rewards but lack positivity about their prospects. Machiavellians want to buy crypto because of their conspiracy beliefs about politicians and government agencies.

References

- Ahadzadeh, A. S., Ong, F. S., & Wu, S. L. (2021). Social media skepticism and belief in conspiracy theories about COVID-19: the moderating role of the dark triad. *Current Psychology*, 1-13. <https://doi.org/10.1007/s12144-021-02198-1>
- Bowes, S. M., Costello, T. H., Ma, W., & Lilienfeld, S. O. (2021). Looking under the tinfoil hat: Clarifying the personological and psychopathological correlates of conspiracy beliefs. *Journal of Personality*, 89(3), 422-436. <https://doi.org/10.1111/jopy.12588>
- Birkás, B., Csathó, Á., Gács, B., & Bereczkei, T. (2015). Nothing ventured nothing gained: Strong associations between reward sensitivity and two measures of Machiavellianism. *Personality and Individual Differences*, 74, 112-115. <https://doi.org/10.1016/j.paid.2014.09.046>.
- Błachnio, A., & Przepiórka, A. (2018). Facebook intrusion, fear of missing out, narcissism, and life satisfaction: A cross-sectional study. *Psychiatry Research*, 259, 514-519. <https://doi.org/10.1016/j.psychres.2017.11.012>
- Bruder, M., Haffke, P., Neave, N., Nouripanah, N., & Imhoff, R. (2013). Measuring individual differences in generic beliefs in conspiracy theories across cultures: Conspiracy Mentality Questionnaire. *Frontiers in Psychology*, 4(225). <https://doi.org/10.3389/fpsyg.2013.00225>
- Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological science*, 24(11), 2201-2209. <https://doi.org/10.1177/0956797613490749>
- Buckels, E. E., Trapnell, P. D., & Paulhus, D. L. (2014). Trolls just want to have fun.

Personality and Individual Differences, 67, 97–102.

<https://doi.org/10.1016/j.paid.2014.01.016>

Buckels, E. E., Trapnell, P. D., Andjelovic, T., & Paulhus, D. L. (2019). Internet trolling and everyday sadism: parallel effects on pain perception and moral judgment. *Journal of Personality*, 87(2), 328–340,

<https://doi.org/10.1111/jopy.12393>

Campbell, W. K. , Goodie, A. S. , & Foster, J. D. (2004). Narcissism, Confidence, and Risk Attitude. *Journal of Behavioral Decision Making*, 17, 297–311.

10.1002/bdm.475

Caprara, G. V., Alessandri, G., Eisenberg, N., Kupfer, A., Steca, P., Caprara, M. G., Yamaguchi, S., Fukuzawa, A., & Abela, J. (2012). The Positivity Scale. *Psychological Assessment*, 24(3), 701-712.

<https://doi.org/10.1037/a0026681>

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). New York: Routledge.

Coinmarketcap.com (2021). Accessed September 1, 2021.

Delfabbro, P., King, D. L., & Williams, J. (2021). The psychology of cryptocurrency trading: Risk and protective factors. *Journal of Behavioral Addictions*, 10, 201-207.

<https://doi.org/10.1556/2006.2021.00037>

Engelberg, E., & Sjöberg, L. (2007). Money obsession, social adjustment, and economic risk perception. *The Journal of Socio-Economics*, 36(5), 686-697.

<https://doi.org/10.1016/j.socec.2007.01.005>

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149-1160. doi:<https://doi.org/10.3758/BRM.41.4.1149>

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50. doi:<https://doi.org/10.1177/002224378101800104>

~~Forsyth, L., Anglim, J., March, E., & Bilobrk, B. (2021). Dark Tetrad personality traits and the propensity to lie across multiple contexts. *Personality and Individual Differences*, *177*, 110792.~~

Foster, J. D., Reidy, D. E., Misra, T. A., & Goff, J. S. (2011). Narcissism and stock market investing: Correlates and consequences of cocksure investing. *Personality and Individual Differences*, *50*(6), 816-821. <https://doi.org/10.1016/j.paid.2011.01.002>

Foulkes, L. (2019). Sadism: Review of an elusive construct. *Personality and Individual Differences*, *151*, <https://doi.org/10.1016/j.paid.2019.07.010>

Hall, J. A., Steele, R. G., Christofferson, J. L., & Mihailova, T. (2021). Development and initial evaluation of a multidimensional digital stress scale. *Psychological Assessment*, *33*(3), 230-242. doi:<https://doi.org/10.1037/pas0000979>

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*, 115-135. doi: <https://doi.org/10.1007/s11747-014-0403-8>

- Hughes, S., & Machan, L. (2021). It's a conspiracy: Covid-19 conspiracies link to psychopathy, Machiavellianism and collective narcissism. *Personality and individual differences, 171*, 110559.
- Jauk, E., & Dieterich, R. (2019). Addiction and the dark triad of personality. *Frontiers in Psychiatry, 10*, 662. <https://doi.org/10.3389/fpsy.2019.00662>
- Jonason, P. K., & Jackson, C. J. (2016). The dark triad traits through the lens of reinforcement sensitivity theory. *Personality and Individual Differences, 90*, 273-277. <http://dx.doi.org/10.1016/j.paid.2015.11.023>
- Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment, 21*(1), 28-41.
[doi:https://doi.org/10.1177/1073191113514105](https://doi.org/10.1177/1073191113514105)
- Joshanloo, M. (2021). Conceptions of happiness mediate the relationship between the dark triad and well-being. *Frontiers in Psychology, 12*, 1711.
<https://doi.org/10.3389/fpsyg.2021.643351>
- Kay, C. S. (2021). Actors of the most fiendish character: Explaining the associations between the Dark Tetrad and conspiracist ideation. *Personality and individual differences, 171*, <https://doi.org/10.1016/j.paid.2020.110543>
- ~~Kireaburun, K., Jonason, P. K., & Griffiths, M. D. (2018). The Dark Tetrad traits and problematic online gaming: The mediating role of online gaming motives and moderating role of game types. *Personality and Individual Differences, 135*, 298-303.
<https://doi.org/10.1016/j.paid.2018.07.038>~~
- Lakey, C. E. , Rose, P. , Campbell, W. K. , & Goodie, A. S. (2008). Probing the link between narcissism and gambling: The mediating role of judgment and

decision-making biases. *Journal of Behavioral Decision Making*, 21, 113–137.

Lange, J., Paulhus, D. L., & Crusius, J. (2018). Elucidating the dark side of envy:

Distinctive links of benign and malicious envy with dark personalities. *Personality and Social Psychology Bulletin*, 44(4), 601-614

<https://doi.org/10.1177/0146167217746340>

Limone, P., Sinatra, M., & Monacis, L. (2020). Orientations to happiness between the

Dark Triad traits and subjective well-being. *Behavioral Sciences*, 10(5), 90.

doi:10.3390/bs10050090

March, E., & Springer, J. (2019). Belief in conspiracy theories: The predictive role of

schizotypy, Machiavellianism, and primary psychopathy. *PloS one*, 14(12),

e0225964.

Martin, B. A., & Strong, C. A. (2016). The trustworthy brand: effects of conclusion explicitness

and persuasion awareness on consumer judgments. *Marketing Letters*, 27(3), 473-485.

doi:<https://doi.org/10.1007/s11002-014-9343-9>

Martin, B. A., Zhan, K., Wang, Y. X., & Jin, H. S. (2019). The influence of entitlement and envy

on tourist judgments of missed benefits. *Journal of Hospitality and Tourism Management*,

38, 58-65. doi:<https://doi.org/10.1016/j.jhtm.2018.11.004>

Mills, D. J., & Nower, L. (2019). Preliminary findings on cryptocurrency trading among

regular gamblers: A new risk for problem gambling?. *Addictive behaviors*, 92, 136-

140. <https://doi.org/10.1016/j.addbeh.2019.01.005>

Onyedire, N. G., Chukwuorji, J. C., Orjiakor, T. C., Onu, D. U., Aneke, C. I., &

Ifeagwazi, C. M. (2021). Associations of Dark Triad traits and problem gambling:

Moderating role of age among university students. *Current Psychology*, 40(5),

2083-2094. <https://doi.org/10.1007/s12144-018-0093-3>.

Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Directions in Psychological Science*, 23(6), 421-426.

Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36(6), 556-563. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6)

Pilch, I. (2020). As cold as a fish? Relationships between the Dark Triad personality traits and affective experience during the day: A day reconstruction study. *PloS one*, 15(2), e0229625. <https://doi.org/10.1371/journal.pone.0229625>

Plouffe, R. A., Saklofske, D. H., & Smith, M. M. (2017). The assessment of sadistic personality: Preliminary psychometric evidence for a new measure. *Personality and Individual Differences*, 104, 166-171. doi:<https://doi.org/10.1016/j.paid.2016.07.043>

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, 29(4), 1841-1848. doi:<https://doi.org/10.1016/j.chb.2013.02.014>

Puustinen, P., Maas, P., & Karjaluoto, H. (2013). Development and validation of the Perceived Investment Value (PIV) scale. *Journal of Economic Psychology*, 36, 41-54. doi:<https://doi.org/10.1016/j.joep.2013.02.009>

Ringle, C. M., Wende, S., & Becker, J.M. (2015). SmartPLS 3. Bönningstedt: SmartPLS GmbH. Retrieved from <http://www.smartpls.com>

Sekścińska, K., & Rudzińska-Wojciechowska, J. (2020). Individual differences in Dark Triad Traits and risky financial choices. *Personality and Individual Differences*, 152, 109598.

Servidio, R., Griffiths, M.D. & Demetrovics, Z. (2021). Dark triad of personality and problematic smartphone use: A preliminary study on the mediating role of fear of missing out. *International Journal of Environmental Research and Public Health*, *18*, 8463. <https://doi.org/10.3390/ijerph18168463>

Tang, W. Y., Reer, F., & Quandt, T. (2020). The interplay of gaming disorder, gaming motivations, and the dark triad. *Journal of Behavioral Addictions*, *9*(2), 491-496. <http://dx.doi.org/10.1556/2006.2020.00013>

Tables

Table 1
Sample background (N = 566).

	N (%)		N (%)
Gender (%)		Are you aware of cryptocurrency? (%)	
Male	200 (35.3)	Yes	566 (100.0)
Female	358 (63.3)	No	0 (0.0)
Non-binary / third gender	5 (0.9)	Are you interested in investing in stocks, bonds, or cryptocurrency? (%)	
I do not want to answer	3 (0.5)	Yes	283 (50.0)
Mean age (SD)	31.13 (11.31)	Maybe	283 (50.0)
Education (%)		No	0 (0.0)
Primary school	0 (0.0)	What is your experience in investing in stocks, bonds, or cryptocurrency? (%)	
Post primary school	27 (4.8)	Never	254 (44.9)
Further education	153 (27.0)	Less than a year	157 (27.7)
Undergraduate higher education	291 (51.4)	1-5 years	114 (20.1)
Professional education	80 (14.1)	6-10 years	24 (4.2)
Doctorate	15 (2.7)	11-15 years	6 (1.1)
Marital status (%)		16-20 years	6 (1.1)
Single	287 (50.7)	More than 20 years	5 (0.9)
Married	147 (26.0)	Do you own any cryptocurrency? (%)	
Cohabiting	119 (21.0)	Yes	147 (26.0)
Divorced	10 (1.8)	No	419 (74.0)
Widowed	3 (0.5)	[If no] Would you be interested in investing in cryptocurrency? (%)	
Annual Income (%)		Yes	267 (63.7)
Less than £10,000	162 (28.6)	No	152 (36.3)
£10,000 - £19,999	128 (22.6)		
£20,000 - £29,999	125 (22.1)		
£30,000 - £39,999	68 (12.0)		
£40,000 - £49,999	42 (7.4)		
More than £50,000	41 (7.2)		

Table 2
Descriptive statistics and Pearson correlations between variables.

	α	Mean (SD)	1	2	3	4	5	6	7	8
1. Attitude	0.95	4.53 (1.47)								
2. Buying Intention	0.97	4.17 (1.79)	0.79**							
3. Machiavellianism	0.77	3.07 (0.64)	0.17**	0.11*						
4. Narcissism	0.74	2.51 (0.61)	0.12**	0.11*	0.30**					
5. Psychopathy	0.74	2.05 (0.61)	0.14**	0.14**	0.47**	0.34**				
6. Sadism	0.83	1.59 (0.63)	0.10*	0.11**	0.38**	0.22**	0.61**			
7. Fear of Missing Out	0.87	1.86 (0.90)	0.14**	0.14**	0.22**	0.05	0.24**	0.23**		
8. Positivity	0.86	3.43 (0.73)	0.06	0.01	-0.09*	0.30**	-0.21**	-0.22**	-0.19**	
9. Conspiracy Beliefs	0.84	7.11 (1.78)	0.10*	0.14**	0.16**	0.09*	0.06	0.02	0.09*	-0.09*

Notes: All variables are measured on a 5-point scale, except for attitude and buying intention (7-point) and conspiracy beliefs (11-point).

** $p < 0.01$, * $p < 0.05$

Table 3
Path estimates for main effects of the model.

Path	Path Coefficient	t-test	p-value	CI 97.5%
Machiavellianism -> Conspiracy Beliefs	0.18	3.14	0.002	0.06 - 0.29
Machiavellianism -> Fear of Missing Out	0.13	2.41	0.016	0.03 - 0.24
Machiavellianism -> Positivity	-0.05	0.97	0.332	-0.14 - 0.05
Narcissism -> Conspiracy Beliefs	0.05	0.74	0.462	-0.08 - 0.17
Narcissism -> Fear of Missing Out	-0.06	1.12	0.263	-0.17 - 0.04
Narcissism -> Positivity	0.45	11.36	0.000	0.38 - 0.53
Psychopathy -> Conspiracy Beliefs	-0.02	0.29	0.771	-0.14 - 0.10
Psychopathy -> Fear of Missing Out	0.14	2.28	0.022	0.02 - 0.26
Psychopathy -> Positivity	-0.26	4.92	0.000	-0.37 - -0.16
Sadism -> Conspiracy Beliefs	-0.05	0.69	0.491	-0.18 - 0.08
Sadism -> Fear of Missing Out	0.13	2.07	0.038	0.01 - 0.25
Sadism -> Positivity	-0.13	2.64	0.008	-0.23 - -0.03
Positivity -> Attitude	0.10	2.36	0.018	0.02 - 0.18
Positivity -> Buying Intention	0.05	1.14	0.255	-0.04 - 0.14
Conspiracy Beliefs -> Attitude	0.10	2.30	0.021	0.02 - 0.19
Conspiracy Beliefs -> Buying Intention	0.13	3.04	0.002	0.05 - 0.22
Fear of Missing Out -> Attitude	0.15	3.68	0.000	0.07 - 0.22
Fear of Missing Out -> Buying Intention	0.14	3.44	0.001	0.06 - 0.22

Table 4
Path estimates for indirect effects of the model.

Path	Path Coefficient	t-test	p-value	CI 97.5%
Machiavellianism -> Conspiracy Beliefs -> Attitude	0.02	1.66	0.10	0.00 - 0.04
Machiavellianism -> Conspiracy Beliefs -> Buying Intention	0.02	2.07	0.04	0.01 - 0.05
Machiavellianism -> Fear of Missing Out -> Attitude	0.02	1.80	0.07	0.00 - 0.04
Machiavellianism -> Fear of Missing Out -> Buying Intention	0.02	1.83	0.07	0.00 - 0.04
Machiavellianism -> Positivity -> Attitude	-0.01	0.83	0.41	-0.02 - 0.01
Machiavellianism -> Positivity -> Buying Intention	0.00	0.59	0.56	-0.01 - 0.00
Narcissism -> Conspiracy Beliefs -> Attitude	0.01	0.64	0.52	-0.01 - 0.02
Narcissism -> Conspiracy Beliefs -> Buying Intention	0.01	0.67	0.50	-0.01 - 0.03
Narcissism -> Fear of Missing Out -> Attitude	-0.01	1.01	0.31	-0.03 - 0.01
Narcissism -> Fear of Missing Out -> Buying Intention	-0.01	0.99	0.32	-0.03 - 0.01
Narcissism -> Positivity -> Attitude	0.05	2.27	0.02	0.01 - 0.09
Narcissism -> Positivity -> Buying Intention	0.02	1.11	0.27	-0.02 - 0.07
Psychopathy -> Conspiracy Beliefs -> Attitude	0.00	0.26	0.79	-0.02 - 0.01
Psychopathy -> Conspiracy Beliefs -> Buying Intention	0.00	0.28	0.78	-0.02 - 0.02
Psychopathy -> Fear of Missing Out -> Attitude	0.02	1.87	0.06	0.00 - 0.04
Psychopathy -> Fear of Missing Out -> Buying Intention	0.02	1.89	0.06	0.00 - 0.04
Psychopathy -> Positivity -> Attitude	-0.03	2.15	0.03	-0.05 - 0.00
Psychopathy -> Positivity -> Buying Intention	-0.01	1.09	0.27	-0.04 - 0.01
Sadism -> Conspiracy Beliefs -> Attitude	-0.01	0.61	0.55	-0.02 - 0.01
Sadism -> Conspiracy Beliefs -> Buying Intention	-0.01	0.65	0.52	-0.03 - 0.01
Sadism -> Fear of Missing Out -> Attitude	0.02	1.76	0.08	0.00 - 0.04
Sadism -> Fear of Missing Out -> Buying Intention	0.02	1.62	0.11	0.00 - 0.04
Sadism -> Positivity -> Attitude	-0.01	1.65	0.10	-0.03 - 0.00
Sadism -> Positivity -> Buying Intention	-0.01	0.97	0.33	-0.02 - 0.01

Figure

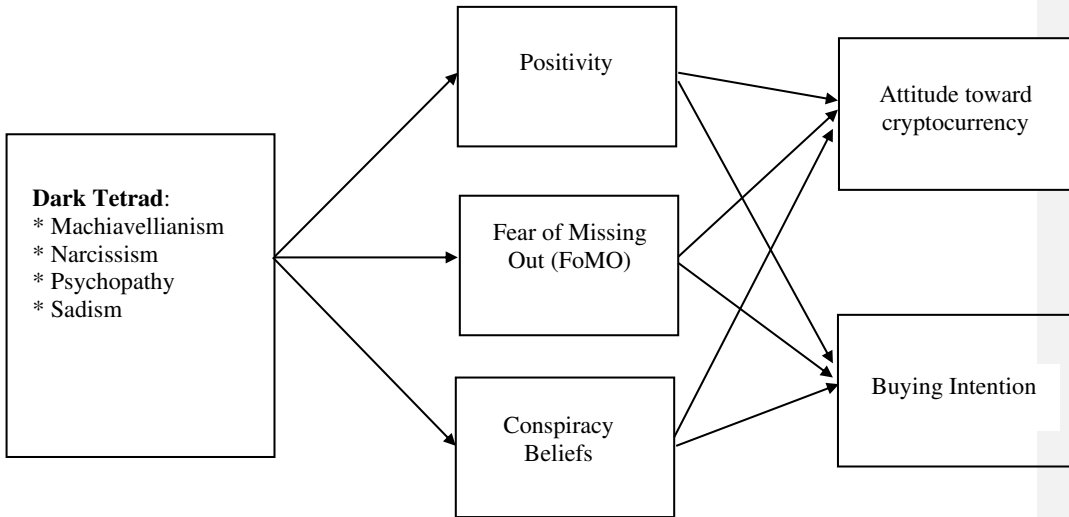


Fig. 1. Conceptual model.