



Problematic Cryptocurrency Trading, Five-Factor Personality Traits, and Impulsivity

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Abstract: Cryptocurrency trading has become increasingly prevalent in recent years. Some research has examined the associations between personality traits and problematic cryptocurrency trading (PCT). However, there is little research examining the role of impulsivity in these relationships. The aim of the present study was to examine the mediating role of impulsivity in the relationship between the five-factor personality traits and PCT. The sample comprised 392 cryptocurrency users ($M_{age} = 26.73$ years [$SD \pm 8.22$]). The survey included the Problematic Cryptocurrency Trading Scale, Barratt Impulsivity Scale-Short Form, and Five-Factor Personality Scale. Relationships between the variables were examined using Pearson correlations, and the mediation analyses was conducted using a structural equation modelling. The results indicated that openness to experience, neuroticism, agreeableness, conscientiousness, and impulsivity were significant predictors of PCT among cryptocurrency users. The findings showed that impulsivity mediated the relationships between openness to experience, neuroticism, agreeableness, and conscientiousness with PCT. The study suggests that understanding PCT is an important behavior to target in clinical interventions among a minority of cryptocurrency users.

Keywords: Five-factor Personality Traits, Problematic Cryptocurrency Trading, Impulsivity, Mediation Analysis.

Introduction

Cryptocurrencies have gained significant importance in recent years as decentralized digital assets that enable direct transactions between parties without the need for a centralized authority (Farrell, 2015; Johnson et al., 2023). Despite their popularity, blockchain-based trading remains highly volatile, and individuals with limited knowledge often pursue short-term profits, leading to financial losses and negative psychological outcomes (Balakrishnan, 2020; Melker, 2019). This highlights that cryptocurrency trading carries both financial and psychological risks.

Excessive engagement in cryptocurrency trading can result in loneliness and psychological distress, while a minority of individuals appear to develop problematic cryptocurrency trading (PCT) behaviors resembling gambling addiction. PCT shares features with gambling, such as impulsivity, risk-taking, pursuit of short-term gains (Arthur et al., 2016; Griffiths, 2018; Sonkurt & Altınöz, 2020; Yiğman et al., 2023). Pathological gambling behavior has been associated with a range of adverse outcomes for both the individual and their surrounding environment, such as suicide and divorce, with a significant negative impact on mental health (Kristensen et al., 2024; Lorains et al., 2011; Scholes-Balog & Hemphill, 2012). Research has established a relationship between PCT and problem gambling, with associations to depression, anxiety, stress, and loneliness (Delfabbro et al., 2021a; Johnson et al., 2023; Mills & Nower, 2019; Oksanen et al., 2022). Therefore, PCT represents a pressing mental health concern that extends beyond financial instability.

Recent research has explored relationship between PCT, personality traits, and impulsivity (Delfabbro et al., 2021a; Johnson et al., 2023; Mosbey et al., 2026; Yiğman et al., 2023). However, no previous study has ever concurrently examined PCT, five-factor personality traits (see next section), and impulsivity. Therefore, the focus of the present study was to address this gap in the literature. Impulsivity may act as a mediator in this relationship, offering insight into PCT's development (Menteş et al., 2021). Consequently, therapeutic interventions targeting impulsivity could be beneficial in preventing and addressing PCT.

Five-factor personality traits and problematic cryptocurrency trading

PCT can be defined as an internet-based problem that is potentially addictive where cryptocurrencies are traded and which results in clinical impairment of an individual's everyday activities (Griffiths, 2018; Mosbey et al., 2026). PCT is characterized by one group of scholars as having four core symptoms: withdrawal, tolerance, engaging in illegal activities to find money, and lying (Menteş et al., 2021). Withdrawal is characterized by the manifestation of psychological symptoms, including feelings of extreme anger and restlessness, as well as physiological symptoms such as sweating

and tension when an individual is unable to engage in cryptocurrency trading. Tolerance is defined the increased engagement in cryptocurrency trading due to the quantity being insufficient to achieve satisfaction. In addition to this, PCT users often resort to illicit methods to obtain money, and frequently engage in lying about their cryptocurrency trading behavior to others in their lives.

The Five-Factor Model (FFM) is a hierarchical model of personality traits which posits that the five broad factors are each defined by narrower and more specific traits or aspects (McCrae, 2009). The FFM proposes that personality comprises five relatively stable and independent dimensions: openness to experience, neuroticism, extraversion, conscientiousness, and agreeableness (Chamorro-Premuzic, 2007; McCrae & Costa, 2003).

Openness to experience is reflective of intellectual interests, aesthetic sensitivity, and the need for individuals to differentiate themselves from the norm. Openness to experience is indicative of an individual's level of aspiration to differentiate themselves from others, embrace change, and pursue a distinct identity. Individuals who exhibit this trait often adopt a non-traditional approach, which may be perceived as being in opposition to the principles of stagnation and the status quo.

Neuroticism, also known as emotional instability, is defined as the tendency to experience negative emotions such as depression, anxiety, and anger. Individuals with neuroticism are unable to show the capacity to remain calm in the face of challenging circumstances and lack self-confidence. Extraversion is defined by a tendency to exhibit extroverted, assertive, and active behavior. These individuals exhibit characteristics such as sociability, leadership, a proclivity for enjoyment, and a preference for social interaction. Extraverted individuals tend to experience positive emotions, engage in personal interaction, and take action more frequently (McCrae & John, 1992).

Conscientiousness is primarily characterized by leadership, goal orientation, self-discipline, organization, productivity, and determination (Chamorro-Premuzic, 2007). Individuals who exhibit conscientious traits are typically perceived as being driven by a desire for success, demonstrating determination, planning, and decisiveness. In contrast, individuals with a low level of conscientiousness are often perceived as lacking self-discipline, organization, and a sense of responsibility and determination to work (Costa & McCrea, 1992). Finally, agreeableness, also called mildness, encompasses such characteristics as reliability, straightforwardness, humility, and altruism. Those with low agreeableness levels are often described as competitive, unreliable, rude, stubborn, and skeptical (Graziano et al., 1996).

Although there is a paucity of studies examining the associations between five-factor personality traits and PCT, a considerable body of research exists on the relationship between these traits and various other forms of addiction such as alcohol use, cannabis use, gambling, gaming, internet use, and social media use (e.g., Andreassen et al., 2013; Dash et al.,

2019; Dudfield et al., 2023; Kayış et al., 2016). Delfabbro et al. (2021a) reported that cryptocurrency traders often display gambling-like tendencies, while Delfabbro et al. (2021b) identified psychological mechanisms such as the illusion of control, social learning and reinforcement, preoccupation, fear of loss, and anticipated regret as risk factors for excessive trading.

Within the FFM, gambling has been associated with high neuroticism, low agreeableness, and low conscientiousness (Bagby et al., 2007; Miller et al., 2013; Roberts & DeVecchio, 2000; Slutske et al., 2005), and similar relationships have been observed in work and internet addiction (Astarini & Yudiarso, 2020; Kun et al., 2021). Meta-analytic findings further support these associations, showing that problem gambling and neuroticism, as well as a negative association for problem gambling with conscientiousness, agreeableness, openness to experience, and extraversion (Strømme et al., 2021). Consistent with this, Yiğman et al. (2023) found PCT to be negatively associated with extraversion, agreeableness, and conscientiousness, but positively associated with neuroticism. Mosbey et al. (2026) also reported positive associations between PCT, problem gambling, and neuroticism, alongside negative associations with conscientiousness and agreeableness.

Impulsivity as a mediator between personality traits and problematic cryptocurrency trading

Impulsivity, defined as the tendency to act hastily and without sufficient forethought (Braquehais et al., 2010), comprises attentional, motor, and planning deficits (Patton et al., 1995). Impulsivity reflects impairments in cognitive and behavioral regulation, often manifesting in inattention, impatience, and risk-taking behaviors (Balakrishnan, 2020; Melker, 2019; Moeller et al., 2001). Prior studies have associated impulsivity with problematic behaviors such as alcohol use disorders (Stojek et al., 2014), eating disorders (Ioannidis et al., 2019), and suicidal behavior (Gvion & Apter, 2011).

Within the framework of the FFM, high neuroticism and low conscientiousness are consistently associated with impulsivity (Costa & McCrae, 1992; Sharma et al., 2014), while negative associations have been reported between impulsivity and conscientiousness, extraversion, agreeableness, and openness to experience (Lange et al., 2017; Mao et al., 2018; Russo et al., 2012). Conversely, neuroticism shows a positive association with impulsivity (Luo et al., 2014; Mao et al., 2018; Russo et al., 2012). These findings suggest that impulsivity weakens self-control and may act as a mechanism through which personality traits predispose individuals to PCT.

Impulsivity has been identified as a key factor in various addictions, including substance use, gambling, internet use (Ioannidis et al., 2019). The addiction components model (Griffiths, 2005) highlights salience and mood modification as processes that drive impulsive individuals toward immediate gratification, reinforcing risky financial behaviors such as PCT.

Many of these dimensions are closely associated with impulsivity. Similarly, Bechara and Van der Linden's (2005) executive functions model connects impulsivity with deficits in executive functions such as planning, self-control, and decision-making. In this context, specific personality traits-such as low responsibility and high neuroticism-may impair executive function capacity, fostering impulsive tendencies and resulting in risky financial behaviors.

Empirical studies support this mediating role. Impulsivity partially explains the relationship between neuroticism and anabolic steroid use (Garcia-Argibay, 2019), depression and problem gambling (Clarke, 2006; Haw, 2009), and life stress and pathological gambling (Tang & Wu, 2012). In a cryptocurrency context, impulsivity has been positively associated with trading intensity and gambling tendencies (Arthur et al., 2016; Jadow & Mowen, 2010; Ryo & Ko, 2019; Yiğman et al., 2022; Sonkurt & Altınöz, 2021). Zuckerman and Glicksohn (2016) further emphasized that impulsivity, alongside sensation seeking, is central to Eysenck's personality model, reinforcing its theoretical relevance as a mediator between personality traits and high-risk behaviors.

The present study

Although a significant relationship between five-factor personality traits and PCT has previously been reported in the literature (Tutal, 2024; Yiğman et al., 2023), little is known regarding the role of impulsivity in this association. In line with the results and suggestions in the literature, the purpose of the present study was to examine the mediating role of impulsivity in the relationship between the five-factor personality traits and PCT. The study results may provide insight into the personality traits associated with PCT, providing valuable guidance for the development of future clinical intervention studies.

Evidence to date suggests that PCT is related to gambling behavior, elevated neuroticism, and lower levels of conscientiousness and agreeableness, while Mosbey et al. (2026) emphasized the potential of PCT as a risk factor for problem gambling. Taken together, these findings indicate that PCT is associated with specific personality traits and may negatively affect individuals' quality of life and mental health. Therefore, it was hypothesized that neuroticism would positively predict PCT, whereas openness to experience, extraversion, conscientiousness, and agreeableness would negatively predict PCT (H₁). Furthermore, neuroticism was expected to positively predict impulsivity, while the remaining traits were expected to negatively predict impulsivity (H₂). In addition, impulsivity was hypothesized to positively predict PCT (H₃) and to act as a mediator, strengthening the association between neuroticism and PCT while weakening the associations between openness to experience, extraversion, conscientiousness, and agreeableness with PCT (H₄).

Method

Participants and procedure

The sample comprised individuals aged 18-63 years residing in different regions of Türkiye who were all cryptocurrency users. In the present study, cryptocurrency users were defined as individuals who had engaged in cryptocurrency trading for more than six months, and were monitoring cryptocurrency markets daily on mobile devices. Snowball sampling was used to recruit the participants. The snowball sampling method is often used when trying to reach individuals in a target population is challenging or where little information is available about that target population (Yıldırım & Şimşek, 2016). Consequently, the research team identified and contacted 20 cryptocurrency users engaged in cryptocurrency trading. Additional participants were recruited through these key informants (i.e., snowball sampling).

An *a priori* power analysis was conducted using *G*Power 3.1* to determine the required sample size for multiple regression with 11 predictors. Assuming a medium effect size ($f^2=.15$), $\alpha=.05$, and $1-\beta=.80$, it was calculated that a minimum of 123 participants was required. The final sample of 392 participants therefore exceeded this threshold, providing adequate statistical power to detect medium effects. The participants had a mean age of 26.73 years ($SD=8.22$). Of these, 66.1% of participants were male ($n=259$), while 33.9% were female ($n=133$). Moreover, 2.6% had a primary school degree ($n=10$), 4.8% had a middle school degree ($n=19$), 25.3% had a high school degree ($n=99$), 57.1% had a university degree ($n=224$), and 10.2% had a Masters' degree ($n=40$).

With regard to income level, 49.5% had low-level income ($n=194$), 26% had moderate level income ($n=102$), and 24.4% had high level income ($n=96$). The level income categories were determined by dividing the monthly income of the participants by the minimum wage in Türkiye at the time of the study. Therefore, the groups were categorized as follows: low-level for below and one times the minimum level, moderate level for two times the minimum level, and high level for three or more times the minimum level.

Approval for the study was provided by the first author's university Ethics Committee (Ref: 5821; November 9, 2023). In the second stage, announcements on social media and social networking channels to reach cryptocurrency users. In addition, the research team used their personal contacts to recruit cryptocurrency traders. As aforementioned, a total of 20 cryptocurrency users were initially recruited. Through these key participants, all other cryptocurrency users were recruited. After informing participants of the purpose of the study, informed consent was provided by

those willing to participate in the study. Participants completed the survey which took approximately 15 minutes to complete.

Measures

Demographic Information Form: A self-developed series of questions was used to collect key personal details including gender, age, education level, and perceived socio-economic status.

Problematic Cryptocurrency Trading Scale: The 15-item Problematic Cryptocurrency Trading Scale (Turkish version Menteş et al., 2021) was used to assess PCT. The scale consists of two subdimensions: (i) deprivation and tolerance, and (ii) money-seeking behavior and denial. Items (e.g., “How often have you borrowed (or would consider borrowing) money from family or friends to buy cryptocurrency?”) are rated from 1 (*never*) to 5 (*always*), with higher scores indicating higher levels of PCT. Cronbach’s alpha coefficient for the overall scale was 0.91, 0.86 for the deprivation and tolerance subscale, and .89 for the money-seeking behavior and denial subscale.

Barratt Impulsivity Scale-Short Form: The 15-item Barratt Impulsivity Scale-Short Form (Spinella, 2007; Turkish version: Tamam et al., 2017) was used to assess impulsivity. The scale consists of three subscales (i.e., failure to plan, motor impulsivity, and attentional impulsivity). Items (e.g., “I act without thinking”) are rated from 1 (*rarely/never*) to 4 (*almost always/always*), with higher scores indicating greater impulsivity. Cronbach’s alpha coefficient was 0.80 for the failure to plan, 0.70 for the motor impulsivity, 0.64 for the attentional impulsivity, and 0.82 for the overall scale.

Five-Factor Personality Scale: The 10-item Five-Factor Personality Scale (Rammstedt & John, 2007; Turkish version: Horzum et al., 2017) was used to assess the five basic personality traits. The scale consists of five subscales (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience). Items (e.g., “I see myself as a generally trustworthy person” and “I see myself as someone who gets angry easily”) are rated from 1 (*never*) to 5 (*always*), with higher scores indicating a higher level of the specific personality trait. Cronbach’s alpha coefficient was 0.88 for extraversion, 0.81 for agreeableness, 0.85 for self-control, 0.85 for neuroticism, and 0.84 for openness to experience.

Data analysis

First, the data for the one-way and multi-way normality assumptions were tested. For the one-way normality assumption to be accepted, the skewness and kurtosis values should fall between ± 1.5 . For the two-way normality assumption to be accepted, the multiple kurtosis values should be less than 5 (Kline, 2011). The analyses determined that the data met the one-way normality assumption, but did not meet the multiple normality assumption (multiple kurtosis=13.44). Participants were then classified into

two groups based on the cut-off score of 34.5 suggested by Menteş and Bulut (2023): those scoring below the threshold were coded as non-pathological traders (Group 1), while those scoring above were coded as pathological traders (Group 2).

Independent samples *t*-tests were conducted to examine between-group differences in the personality traits and impulsivity total scores. According to Brydges (2019), effect sizes of .20-.39 are considered small, .40-.59 medium, and .60 and above large in applied contexts. Next, Pearson correlation analyses were conducted to examine the relationships between personality traits, impulsivity, and PCT. Correlation coefficients ranging from .10 and .29 reflect a low of association, values between .30 and .69 indicate a moderate relationship, and coefficients of .70 and higher represent a very strong relationship (Kline, 2011).

Finally, the asymptotically distribution-free estimation (ADF) method was used in the structural equation modeling (SEM) analyses (Hair et al., 2021). The model was constructed using the subscale scores of the five-factor personality traits, the scores on the Problematic Cryptocurrency Trading Scale, and the scores on the Barratt Impulsivity Scale. Following this, χ^2/df (normed chi-square), root mean square error of approximation (RMSEA), goodness of fit index (GFI), comparative fit index (CFI), normed fit index (NFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR) values were examined to assess the goodness of fit of the model. In general, $\chi^2/df < 2$; RMSEA and SRMR $< .05$; and CFI, GFI, NFI, and TLI $> .95$, indicate an excellent fit. A ratio of $\chi^2/df < 5$; RMSEA and SRMR $< .08$; and CFI, GFI, NFI, and TLI $> .90$, suggest an acceptable fit (Tabannick & Fidel, 2019).

Then, the bootstrap method proposed by Hayes (2013) was conducted in the mediation analysis. The present study set the number of bootstrap resamples at 5,000, with a 95% confidence interval (CI) being used as the basis for evaluating the results. For an indirect effect to be considered significant, the confidence intervals should not include zero. *SPSS v.27* and *AMOS v.24* were used to analyze the data.

Results

Group differences

Independent samples *t*-tests showed significant differences in personality traits between non-pathological and pathological traders. Non-pathological traders scored higher in extraversion ($t_{(390)} = 2.53$, $p < .05$, 95% CI [.12, .94], Cohen's $d = .28$), agreeableness ($t_{(390)} = 5.68$, $p < .001$, 95% CI [.74, 1.53], Cohen's $d = .62$), self-control ($t_{(390)} = 4.51$, $p < .001$, 95% CI [1.51, 1.29], Cohen's $d = .49$), and openness to experience ($t_{(390)} = 3.61$, $p < .001$; 95% CI [1.32, 1.08], Cohen's $d = .39$). In contrast, pathological traders scored significantly higher in neuroticism ($t_{(390)} = -3.49$, $p < .01$, 95% CI [-1.09, -.30], Cohen's $d = -.38$) and impulsivity ($t_{(390)} = -8.03$, $p < .001$, 95% CI [-7.53, -4.57], Cohen's $d = -.88$). Taken together, these findings suggest that non-

pathological traders are characterized by higher levels of social adaptability, agreeableness, self-regulation, and openness, whereas pathological traders exhibit greater emotional instability and impulsivity.

Correlation analyses

Table 1 presents the correlation analyses and descriptive statistics results for the research variables. As seen in Table 1, impulsivity was positively associated with neuroticism and PCT, but negatively associated with openness to experience, extraversion, conscientiousness, and agreeableness. Moreover, PCT showed a positive correlation with neuroticism and negative correlations with openness to experience, extraversion, conscientiousness, and agreeableness. In sum, higher levels of impulsivity were associated with higher levels of openness to experience, conscientiousness and agreeableness increase, but lower levels of neuroticism.

Table 1. Relationships between variables and descriptive statistics results

	1	2	3	4	5	6	7	8	9	10	11	12
1. Neuroticism	1	-.20**	-.22**	-.29**	-.20**	.36**	.18**	.23**	.21**	.32**	.17**	.15**
2. Openness to experience		1	.19**	.30**	.27**	-.31**	-.19**	-.26**	-.15**	-.23**	-.17**	-.20**
3. Extraversion			1	.36**	.31**	-.25**	-.10*	-.27**	-.05	-.20**	-.08	-.17**
4. Conscientiousness				1	.44**	-.44**	-.21**	-.45**	-.11*	-.35**	-.17**	-.26**
5. Agreeableness					1	-.53**	-.29**	-.43**	-.28**	-.39**	-.26**	-.34**
6. Impulsivity						1	.40**	.61**	.70**	.81**	.37**	.41**
7. Problematic cryptocurrency trading							1	.12*	.39**	.35**	.98**	.83**
8. Failure to plan								1	-.01	.21**	.09	.19**
9. Motor impulsivity									1	.55**	.38**	.32**
10. Attentional impulsivity										1	.32**	.36**
11. Deprivation and tolerance											1	.71**
12. Money-seeking behavior and denial												1
Mean	5.76	6.82	7.14	7.52	7.65	30.22	27.89	9.09	11.17	9.76	21.42	6.46
Standard deviation	1.86	1.80	1.92	1.87	1.90	7.42	12.86	3.36	3.34	3.37	10.29	3.31
Range	8.00	8.00	8.00	8.00	8.00	36.00	51.00	15.00	15.00	15.00	40.00	14.00
Skewness	.11	-.01	-.07	-.25	-.44	.22	0.70	0.46	.26	.41	.73	1.19
Kurtosis	-.02	-.10	-.57	-.58	-.35	-.40	-.56	-.057	-.14	-.43	-.37	-.56

*= $p < .05$, **= $p < .01$

The measurement model

The measurement model was constructed using two latent variables (i.e., impulsivity and PCT) and 10 observed variables. The analysis showed this model did not yield acceptable goodness-of-fit values ($\chi^2/df=3.04$, GFI=.97, CFI=.93, NFI=.90, RMSEA=.07, SRMR=.08). Therefore, a covariance was created between the error terms of the dimensions of motor impulsivity and attentional impulsivity regarding the latent variable of impulsivity, in accordance with the proposed amendments. The measurement model exhibited acceptable goodness-of-fit values ($\chi^2/df=2.44$, GFI=.98, CFI=0.95, NFI=.92, RMSEA=.06, SRMR=.07).

Moreover, the factor loadings for all the observed variables were determined to be statistically significant ($p < 0.05$).

Mediation analysis

A mediation model was designed in accordance with the research questions. The model included the five-factor personality traits as independent variables, impulsivity as the mediating variable, and PCT as the dependent variable. The mediation model was analyzed using the bootstrap method and is shown in Figure 1. Figure 1 presents the factor loadings of the observed variables, which were found to be significant for each latent variable ($p < 0.05$). The tested mediation model demonstrated an acceptable fit to the data. Table 2 presents the results regarding the mediating role of impulsivity in the relationship between the five-factor personality traits and PCT.

Table 2. *Impulsivity's mediating role in the relationship between the five-factor personality traits and problematic cryptocurrency trading*

	B	SE	Standardized 95% CI	
			LLCI	ULCI
Direct effects				
Openness to experience → PCT	-.03	.05	-.139	.073
Neuroticism → PCT	-.03	.07	-.165	.099
Conscientiousness → PCT	-.07	.08	-.222	.098
Agreeableness → PCT	-.12	.08	-.267	.086
Extraversion → PCT	-.01	.06	-.127	.116
Openness to experience → Impulsivity	-.12*	.05	-.222	-.012
Neuroticism → Impulsivity	.24**	.06	.112	.355
Agreeableness → Impulsivity	-.44***	.06	-.564	-.309
Conscientiousness → Impulsivity	-.28***	.06	-.410	-.159
Extraversion → Impulsivity	.00	.05	-.100	.109
Impulsivity → PCT	.62**	.13	.157	.705
Indirect effects				
Openness to experience → Impulsivity → PCT	-.05*	.03	-.126	-.009
Neuroticism → Impulsivity → PCT	.10*	.04	.033	.217
Conscientiousness → Impulsivity → PCT	-.11**	.05	-.242	-.042
Agreeableness → Impulsivity → PCT	-.17**	.07	-.350	-.070
Extraversion → Impulsivity → PCT	.00	.02	-.041	.050

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; PCT=problematic cryptocurrency trading

Table 2 and Figure 1 demonstrate that the direct paths between personality traits (openness to experience, neuroticism, extraversion, conscientiousness, and agreeableness) and PCT were not significant. However, the paths from (i) openness to experience, (ii) neuroticism, (iii) conscientiousness, and (iv) agreeableness to impulsivity were significant. Moreover, the path from impulsivity to PCT was significant. Therefore, H_1 , H_2 , and H_3 were supported. Regarding indirect effects, impulsivity mediated the relationships between (i) openness to experience and PCT, (ii)

neuroticism and PCT, (iii) conscientiousness and PCT, and (iv) agreeableness and PCT were significant. Therefore, H4 was supported. Overall, impulsivity mediated the relationship between (i) openness to experience, (ii) neuroticism, (iii) conscientiousness, and (iv) agreeableness and PCT.

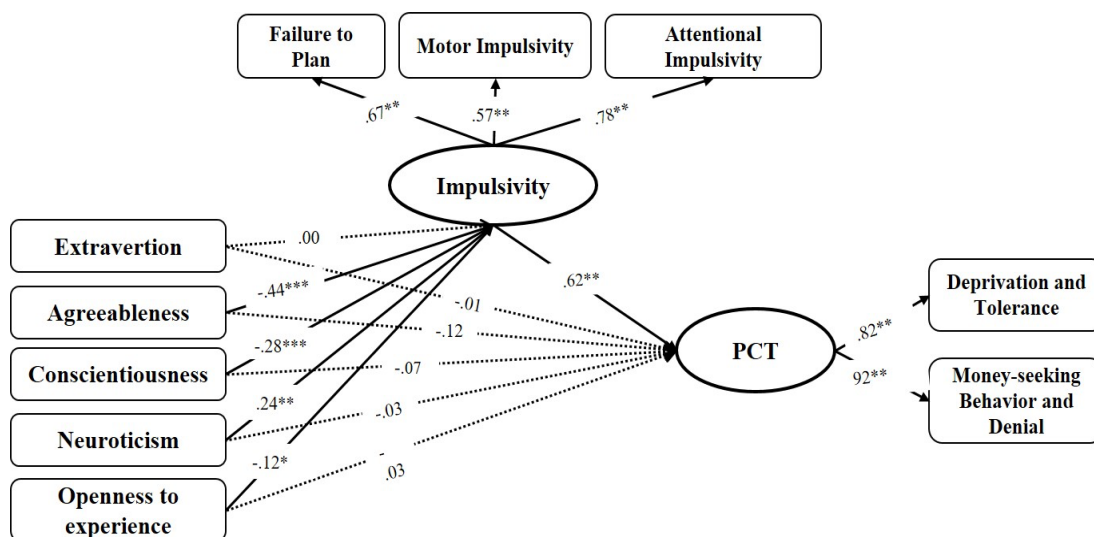


Figure 1. The model examining impulsivity as a mediator between the five-factor personality traits and PCT. *Note:* PCT=Problematic cryptocurrency trading; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Discussion

The present study examined the mediating role of impulsivity in the relationship between the five-factor personality traits and PCT. In addition to correlation and mediation analyses, group difference tests provided further evidence for the robustness of the findings. Pathological traders scored substantially higher on personality traits and impulsivity compared to non-pathological traders. The study tested four hypotheses, and the proposed model, which posited an indirect relationship between the five-factor personality traits and PCT through impulsivity, was largely supported.

More specifically, neuroticism positively predicted PCT, while openness to experience, conscientiousness, and agreeableness negatively predicted PCT. In addition, impulsivity emerged both as a direct predictor of PCT and as a mediator of the personality traits-PCT relationship. These results highlight the dual role of impulsivity, functioning not only as an independent risk factor but also as a mechanism through which personality traits shape vulnerability PCT.

The results showed that pathological traders scored substantially higher on personality traits and impulsivity compared to non-pathological traders. These pronounced differences highlight the severity of pathological

trading behaviors and complements the mediation results, suggesting that impulsivity not only mediates personality-PCT associations but also distinguishes pathological traders from their non-pathological counterparts. Together, these findings emphasize both the direct and mediating role of impulsivity, consistent with previous research (e.g., Menteş & Bulut, 2023), and contribute to the growing literature on behavioral addictions by underscoring the interplay between personality dispositions and impulsive tendencies in shaping vulnerability to problematic trading.

The findings indicated that neuroticism was a positive predictor of PCT, whereas openness to experience, extraversion, conscientiousness, and agreeableness were negative predictors (supporting H₁). Although few studies have directly examined the relationship between five-factor personality traits and PCT, prior research has consistently associated these traits with other addictive behaviors such as gambling, internet use, and work addiction (Astarini & Yudiarso, 2020; Kun et al., 2021; Mosbey et al., 2026; Yiğman et al., 2023).

For instance, Astarini and Yudiarso (2020) found that low conscientiousness and agreeableness were associated with internet addiction. Kun et al. (2021) reported that extraversion and conscientiousness were associated with work addiction. Moreover, Yiğman et al. (2023) found a negative relationship between PCT and extraversion, agreeableness, and conscientiousness, and a positive relationship between PCT and neuroticism. Mosbey et al. (2026) also found a negative relationship between PCT and conscientiousness and agreeableness. These results suggest that personality traits may play a significant role in shaping vulnerability to PCT.

Moreover, the present study demonstrated that five-factor personality traits were associated with impulsivity (supporting H₂). More specifically, openness to experience, extraversion, conscientiousness, and agreeableness were all negatively associated with impulsivity. However, neuroticism was positively associated with impulsivity. These findings are consistent with those from previous research (Lange et al., 2017; Luo et al., 2014; Mao et al., 2018; Russo et al., 2012; Yiğman et al., 2023). Personality traits are enduring psychological constructs that form during early childhood and allow for the comprehension and prediction of differentiating the manner in which individuals might interact with social environments (Roberts & DelVecchio, 2000). Accordingly, this evidence shows that impulsivity functions as a significant predictor of PCT.

The present study also found a significant positive association between impulsivity and PCT, supporting H₃. This result is consistent with the previous research (Ioannidis et al., 2019; Reilly & Smith, 2013; Sonkurt & Bozkurt, 2021; Yiğman et al., 2023). The extant literature on problem gambling emphasizes the central role of impulsivity in this behavior (Blaszczynski & Nower, 2002; Nower & Blaszczynski, 2006; Sharpe, 2002). Impulsivity appears to function as a risk factor in the development of problem gambling, because it creates biological susceptibility and

involves impatience, carelessness, and risk-taking tendencies (Moeller et al., 2001; Vitaro et al., 1997, 1999). Therefore, the present study's findings are consistent with existing conceptual models and past research findings. Therefore, this result highlights that impulsivity appears to play an important role in the development of PCT.

Finally, the present study showed that impulsivity exerted an indirect effect on the relationship between personality traits and PCT. More specifically, impulsivity as a predicted potential mediator (and supporting H4), emerged as a significant factor relating five-factor personality traits and PCT. Moreover, impulsivity appeared to play an indirect role in the relationship openness to experience, neuroticism, conscientiousness, and agreeableness and PCT. These findings are consistent with those from previous research (Clarke, 2006; Garcia-Argibay, 2019; Tang & Wu, 2012). For example, Garcia-Argibay (2019) observed impulsivity to have a partial mediating effect in the relationship between neuroticism and anabolic steroid use. Moreover, Tang and Wu (2012) found impulsivity to play a partial mediating role in the relationship between life stress and pathological gambling.

When viewed through the lens of the addiction components model (Griffiths, 2005), executive functions model (Bechara & Van der Linden, 2005), and Eysenck's personality model – which emphasizes impulsivity and sensation seeking as central dimensions of high-risk behaviors (Zuckerman & Glicksohn, 2016) – impulsivity emerges as a psychologically and behaviorally significant mechanism. These models highlight how traits such as low conscientiousness and high neuroticism may heighten impulsive tendencies through weakened executive functioning and increased sensitivity to emotional triggers, thereby contributing to the development of uncontrolled and problematic financial behaviors such as PCT. Therefore, impulsivity appears to serve as a mediating factor between the five-factor personality traits and PCT, playing an instrumental role in elucidating the nature of this relationship. By clarifying these pathways, the study contributes to theoretical models of addiction and offers practical implications for interventions targeting impulsivity in individuals at risk of PCT.

Limitations, strengths, and future directions

The present study has some limitations. First, the study was based on a predictive correlational model. Therefore, causality between variables could not be determined. In the future, experimental or longitudinal studies may be conducted to ascertain the existence of any causal relationships among the variables. Second, the sample size of 392 cryptocurrency users was modest (although this is a niche group), and the majority of participants were male. Therefore, to guarantee the results are more generalizable, it may be necessary to recruit a larger and more gender-balanced samples, including young adults. Third, the study employed convenience sampling and snowball sampling. Therefore, the sample might not be generalizable

to all cryptocurrency traders and more representative samples are needed in future research. Fourth, all the data were self-report which are subject to various methods biases (e.g., memory recall, social desirability). The present study addressed the variables of the five-factor personality traits and impulsivity, which have been associated with PCT. Subsequent studies could examine the cognitive and social processes underlying PCT behaviors, including decision-making, risk assessment, and peer influence.

Fifth, the personality measure included only two items per construct, which may restrict the reliability and depth of the assessment. Sixth, detailed data on participants' cryptocurrency trading habits (e.g., daily trading time, trading frequency, transaction amounts, and proportion of pathological traders) were not collected. This omission limits the scope of the findings, and future studies should include these behavioral variables to provide a more comprehensive understanding of the relationship between personality traits, impulsivity, and PCT. Finally, the personality traits measure included only two items per construct, which may limit both the reliability and the construct validity of the assessment. Future research should therefore employ more comprehensive instruments with a greater number of items per dimension to strengthen measurement validity and provide a deeper understanding of the role of personality traits in PCT.

Despite these limitations, the study has strengths. It examined a relatively novel and niche population-cryptocurrency users-providing insights into the psychological correlates of problematic cryptocurrency trading. Furthermore, the study integrated personality traits and impulsivity into a predictive model, contributing to the growing literature on behavioral addictions. Future research could expand on these findings by exploring cognitive and social processes underlying PCT behaviors, such as decision-making, risk assessment, and peer influence.

Conclusion

The study's findings mostly corroborated the proposed model of the indirect relationship between the five-factor personality traits and PCT through the mediating role of impulsivity. The present study contributes to the advancement of the comprehension of the interrelationship between the five-factor personality traits and PCT. The findings appear to indicate that openness to experience, emotional instability, responsibility, compatibility, and impulsivity are significant predictors of PCT behaviors among cryptocurrency users. These findings underscore the significance of the influence of specific personality traits and impulsive behaviors among cryptocurrency users regarding PCT. This indicates that individuals with lower levels of openness to experience, emotional instability, conscientiousness, and impulsivity may be at an increased risk of developing PCT. Addressing the five-factor personality traits, and impulsivity levels of cryptocurrency users in clinical intervention studies may contribute to a more comprehensive understanding of PCT.

Consequently, the present research may assist mental health practitioners in developing effective strategies for overcoming PCT.

STATEMENT OF COMPETING INTERESTS

YA and MS do not report any conflict of interest. MDG has received research funding from *Norsk Tipping* (the gambling operator owned by the Norwegian government). MDG has received funding for a number of research projects in the area of gambling education for young people, social responsibility in gambling and gambling treatment from *Gamble Aware* (formerly the *Responsibility in Gambling Trust*), a charitable body which funds its research program based on donations from the gambling industry. MDG undertakes consultancy for various gambling companies in the area of player protection and social responsibility in gambling.

ETHICS APPROVAL

Ethical approval was obtained from the Ethics Committee of Siirt University (board decision date and no: 09.11.2023-5821).

RELATIVE CONTRIBUTIONS

YA contributed to formulation of the problem, data collection and analysis, and structure and sequencing of the theoretical arguments, the theoretical unification of the study and reviewed and edited the final manuscript. MS contributed to the literature review, formulation of hypotheses, data collection and analysis, and the structure and sequencing of the theoretical arguments. MDG contributed to writing, review and editing, supervision, conceptualization, and project management.

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RESEARCH PROMOTION

This study examines the psychological mechanisms underlying problematic cryptocurrency trading and focuses on the role of the Five-Factor Model of personality traits and impulsivity. The findings identify impulsivity as a central mediating mechanism between personality traits and problematic trading behaviors. These results highlight the importance of targeting impulsivity in clinical interventions for individuals at risk of problematic cryptocurrency trading.

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