Empirical Article

Fear of Missing out on Financial Gains: Associations Between Fear of Missing Out, Problem Gambling, and Speculative Trading in College Students

Emerging Adulthood
2024, Vol. 12(3) 387–397

DOI: 10.1177/21676968241238028
journals.sagepub.com/home/eax
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Abstract

In recent years a fear of missing out (FOMO) on short-term monetary gains through speculative trading has been highlighted as a driving force of financial behaviors. Additionally, increasing evidence has likened speculative trading to gambling. The current study sought to determine whether financial FOMO is linked to stock market and cryptocurrency trading activities and problem gambling severity in both traditional gambling and financial trading domains, among a sample of 258 college students. Results of binomial regression and hurdle model analyses found that financial FOMO was linked to participation in stock market and cryptocurrency trading. Financial FOMO was also associated with problem gambling severity in traditional gambling and the presence of gambling problems in the stock market trading domain. Our results suggest that financial FOMO may be a salient risk factor of problem gambling in traditional gambling domains and, to a smaller degree, in the speculative trading domain among young adults.

Keywords

fear of missing out, cryptocurrency, speculative trading, problem gambling, bitcoin

Introduction

Young adulthood is a tumultuous developmental period characterized by transitioning into adult roles and establishing independence (Arnett, 2007). Among the key milestones young adults strive for is financial independence, but for college students, financial independence may be delayed, relative to peers who immediately join the workforce (Arnett, 2000), and prolonged financial dependence on one's parents can have adverse psychological effects on young adults' wellbeing (e.g., Mortimer et al., 2016; Robb, 2017). Thus, college students may face pressures to seek financial gains in non-traditional ways, given many do not have time for full-time employment while enrolled in coursework (Hovdhaugen, 2015). In recent years, there has been a major spike in the prevalence of young adults who engage in online speculative trading of financial assets (Faverio et al., 2023; Steinmetz et al., 2021), which may be seen as a low-risk way of getting ahead financially, especially for those who fear they are falling behind their peers in terms of financial independence. For instance, in 2023, 28 of U.S. adults ages 18 to 29 reported having traded cryptocurrencies, a popular financial asset for speculative trading, 14 of whom traded for the first time in the past year (Faverio et al., 2023). Although these novel forms of speculative trading (e.g., short term trading of stock and cryptocurrency trading) may be viewed as low-stakes, there is increasing consensus that speculative trading indeed falls under the definition of gambling, which can entail, or lead to, highly addictive and potentially destructive behavior. Engaging in gambling behaviors at a young age is concerning given that young adulthood is a vulnerable period for the onset of addictive behaviors (Sussman & Arnett, 2014). It is therefore important to begin examining speculative trading behaviors from a gambling perspective and to identify risk factors for engagement in these behaviors (Delfabbro et al., 2021). In doing so, the current study examines links between college students' fears of missing out on financial gains, engagement in online financial trading, and problematic gambling indicators.

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In financial markets, speculative trading is the act of putting money into a financial position that has a substantial risk of losing value but also holds the expectation of a significant gain over a short term (Nguyen, 2022). Some examples of speculative trading include (a) day-trading or high-frequency trading where stocks are bought and sold on the same day to make immediate profits, (b) investing in penny stocks (i.e., "lottery stocks") with almost no value but a minute chance of increasing their value to many multiples of the value at which it was bought, (c) shorting, which involves borrowing stock and immediately selling in hopes the market value will decrease and be repurchased at a lower rate before returning to the investor, and (d) investing in and selling cryptocurrencies such as Bitcoin, which are highly volatile with common swings of 40 in a single day. Speculative trading is appealing to young adults as they often believe this is a low-risk form of investment. However, while gambling and traditional investing are widely considered to be on the same spectrum, but at opposite ends, speculative trading activities increasingly function more as casino-like gaming than investing (Arthur et al., 2016; Delfabbro et al., 2021). Whereas traditional investing is characterized by lower risk of loss and focused on long-term profit from owning financial assets, speculative trading is more volatile, where those who engage believe they can offset the risk of loss through substantial gains from profitable trades over a repeated process.

Speculative trading fits within the standard definition of gambling, defined as placing something of value on an event that has a possibility of resulting in a larger more beneficial outcome, carries the risk of loss, and is predicated largely on chance (Potenza et al., 2002). Similarities between speculative trading and gambling have been identified in a recently published review, including high likelihood of losses (74–97 estimated for short term speculative trading among retail traders), shared links to personality traits including overconfidence, impulsiveness and sensation seeking, help seeking behavior among a minority of participants (referring themselves to gambling treatment clinic), and product design similarities between trading and gambling platforms (Newall et al., 2022). As with traditional gambling behaviors, there is emerging evidence from non-academic news sources that speculative trading can have detrimental interpersonal consequences including substantial financial losses and debt problems (Agnew, 2022; Hajric, 2022), mental and physical health issues such as depression and insomnia (Chang, 2022; Verma, 2022), and even a recent death by suicide in which the young man (i.e., 20 years old) directly cited severe losses from speculative trading in a suicide note (Khorram et al., 2020). More directly linking the two behaviors, gambling and problem gambling rates are higher among those who engage in stock market and cryptocurrency trading (Arthur et al., 2015; Delfabbro et al., 2021), and restricting traditional gambling has been shown to spill over into higher stock market trading activity (Kumar et al., 2021).

Gambling is a widespread activity, with 8 5 of the U.S. adult population participating in gambling over their lifetime (National Council on Problem Gambling, 2023), but *problem gambling* refers specifically to persistent gambling behavior despite negative consequences (Livazović et al., 2019). Key features of problem gambling include preoccupation with gambling, experiencing withdrawal symptoms when not gambling, and developing tolerance (needing to gamble with larger amounts of money), which have been observed in individuals who engage in frequent short term trading activities (Grall-Bronnec et al., 2015; Håkansson et al., 2021; Markiewicz et al., 2013). The prevalence of problem gambling is estimated at between 1 and 3 among adults and between 6 and 9 of adolescents and young adults in the United States, representing as many as 7 million individuals (Alegría et al., 2009). Several studies have found that young adults have the highest lifetime and current (past year) prevalence of problem gambling among all adult age groups (Hodgins et al., 2011; Volberg, 1993). While the prevalence of speculative trading in the United States is unclear, evidence suggests its popularity is rapidly growing (Delfabbro et al., 2021). Problem gambling has been found to be more prevalent among males (Merkouris et al., 2016; Vitaro et al., 1997) and low income individuals (Dellis et al., 2012; Winters et al., 1998). In addition, impulsivity has been identified as a personality trait associated with gambling activity participation and problem gambling (Blaszczynski et al., 2006; Chambers et al., 2003; Ioannidis et al., 2019).

Fear of Missing out

Fear of missing out (i.e., FOMO) is a psychological construct that was popularized in the early 2000s to describe the fear or anxiety one may experience when they think they are missing out on a rewarding experience (Przybylski et al., 2013; The Harbus, 2004). Studies have demonstrated that FOMO is relevant across age groups and genders (Barry et al., 2020; Milyavskaya et al., 2018) but its intensity is correlated with younger age (Coco et al., 2020; Rozgonjuk et al., 2021). FOMO has been reported/examined in numerous domains including purchasing consumer products (e.g., Good et al., 2020; Ilyas et al., 2022), playing video games (e.g., Freire et al., 2020; Li et al., 2020), and using social networking services (e.g., Elhai et al., 2020; Hertz et al., 2015), but most relevant to the current study, people may experience FOMO related to reaping financial gains (Bernard, 2022; Laurent, 2021).

FOMO on monetary gains through speculative trading activities has been speculated to be a driving force behind individuals' financial trading decisions, as stories of reaping quick, astronomical profits from financial trading have become commonplace on online news and social media websites, and greater exposure to these accounts of fast profits have been shown to fuel obsessive financial wagering activities among some individuals (Baur et al., 2018; Delfabbro

et al., 2021), raising concerns about problem gambling behaviors linked to fear of missing out on financial gains. Researchers have also found problem gamblers are more likely to experience anxiety over money or hold obsession with money as a sign of prestige (Blaszczynski et al., 2010; Lostutter et al., 2018), further suggesting fear of missing out on financial gains may be correlated with problem gambling behavior. To date, however, no peer-reviewed literature has examined the link between FOMO and problem gambling activities.

Current Study

Identifying correlates of problem gambling behaviors among college students bears public health significance related to early intervention and prevention. Understanding the links between financial FOMO and problem gambling as well as potentially related speculative trading behaviors can contribute to the development of effective problem gambling prevention and treatment approaches. Despite the potential for FOMO related to financial rewards to be linked to problem gambling and speculative trading, prior research has not assessed FOMO in the context of these financially-oriented activities. The current study was designed to begin exploring this research gap by assessing financial FOMO's relationship to trading activity participation and to problem gambling across traditional gambling and trading domains in young adults, a population known to have high rates of problem gambling (Alegría et al., 2014; Barnes et al., 2010; Calado et al., 2016; Kessler et al., 2008; Williams et al., 2012). We hypothesized that financial FOMO would be positively associated with speculative trading behavior (i.e., stocks, cryptocurrency), and with problem gambling scores (i.e., both regarding traditional gambling and specific to speculative trading).

Method

Participants and Procedures

Study participants were 328 undergraduate students enrolled in introductory psychology courses at a large public university in the Pacific Northwest (United States). Participants' mean age was 19.3 years (SD = 1.3) and 67.4 identified their sex assigned at birth as female. With respect to race, 62.1 of participants identified as non-Hispanic Asian, 24.6 as non-Hispanic White, 4.6 as non-Hispanic other or mixed race, 1.4 as non-Hispanic Black, and 0.7 as non-Hispanic Native American or Pacific Islander. With respect to ethnicity, 6.7 of the participants identified as Hispanic. Participants completed a one-time survey between September 2021 and March 2022 and entered the study on a voluntary basis, with credit for their course provided for study completion. The study was approved by the Institutional Review Board at the author's university, all participants completed informed consent, and no adverse events were reported.

Measures

Financial FOMO Scale (F-FOMO). A measure of financial FOMO was adapted from the 10-item Fear of Missing Out Scale (i.e., FoMOS; Przybylski et al., 2013) that was initially developed as a measure of fear of missing out on rewarding social experiences. We adapted the FoMOS by modifying four of the measure's items into financial contexts. The focus on investing was chosen because the behaviors of interest in our study (gambling/speculative trading) pertain to using money on hand to generate profits. The resulting Financial FOMO Scale (F-FOMO) includes the following items: "I fear that other people are making more profitable investments than I am", "I fear that my friends are making more profitable investments than I am", "I get worried when I find out my friends are making more profitable investments than I am", and "It bothers me when I miss a good investing opportunity." Response options ranged from 1 (*Not at all true of me*) to 5 (*Extremely true of me*). The five items were used to compute a composite/mean score, which had acceptable internal reliability within the present sample ($\alpha = 0.85$).

Engagement in Gambling and Trading Behaviors. Participants were asked about their engagement in different gambling activities with the question: "What types of gambling have you ever tried?" Possible choices were lottery tickets, casino table games, slot machines, card games with money bets, sport betting, Internet gambling, and other gambling. Participants who endorsed one or more response items were counted as having participated in gambling in their lifetime. Participants were also asked about their engagement in stock market and cryptocurrency trading activities with the following questions: "Have you ever bought cryptocurrencies (bitcoin, ethereum, etc.)?" and "Have you ever done stock market trading?" with a yes or a no as response options.

Problem Gambling Severity Index (PGSI). The PGSI (Holtgraves et al., 2009) is a validated 9-item measure of problem gambling severity that symptoms like chasing losses, tolerance, and gambling consequences including social, financial, and health effects. The PGSI was developed for use with a general population to capture the severity of problem gambling across traditional gambling domains (e.g., casino games, slot machines, lottery, sports betting). Sum scores of 3 or higher indicate at-risk gambling behavior, and scores of 8 or higher are categorized as problem gambling behavior (Holtgraves et al., 2009). Internal reliability was acceptable in this sample ($\alpha = 0.84$).

To measure problem-gambling-like behaviors and consequences in trading contexts, PGSI items were adapted by replacing the gambling terminology with trading, since financial trading is not conventionally considered as a form of gambling. The adapted measure includes items such as "Have you needed to trade with larger amounts of money to get the same feeling of excitement?" and "Has trading caused you any health problems, including stress or anxiety?" The adapted measure (shown in full within the online supplemental

materials) was adapted to refer to stock trading (PGSI-ST) and cryptocurrency trading (PGSI-CT), separately, but each subscale was only shown to participants who endorsed engaging in the given trading context during lifetime. Internal reliability was acceptable for both versions of the adapted PGSI (α for the PGSI-ST = 0.81; α for the PGSI-CT = 0.91).

Abbreviated Impulsivity Scale (ABIS). The ABIS is a 13-item measure of impulsivity as a personality trait. The ABIS was constructed through a confirmatory factor analysis of the Barrett Impulsivity Scale version 11 (BIS-11) (Coutlee et al., 2014). ABIS was assessed to capture impulsivity as a covariate of trading participation (Grall-Bronnec et al., 2017; Strahilevitz et al., 2015) and problem gambling (Blaszczynski et al., 2006; Chambers et al., 2003; Ioannidis et al., 2019) based on support from past literature. Internal reliability for ABIS was relatively low but nevertheless acceptable in our sample (α = 0.64).

Analyses

To estimate associations between financial FOMO and engagement in any stock market and cryptocurrency trading, we used logistic regression analyses. Separate models were fit for stock market trading and cryptocurrency trading, using the "glm" function in R (version 3.6.3; R Core Team, 2020). Trading activity participation (binary variable) was the dependent variable, and the composite Financial FOMO Scale score was used as the independent variable. ABIS score as a measure of impulsivity (Coutlee et al., 2014), sex assigned at birth, and self-reported relative household wealth were included as covariates in the analyses given strong evidence of the three factors' associations with gambling participation and problem gambling rates (Blaszczynski et al., 2006; Merkouris et al., 2016).

The second series of models entailed examining associations between financial FOMO and indices of problem gambling pertaining to traditional gambling, stock trading, and cryptocurrency trading. Given scores on these three problem gambling scales were all positively skewed with overdispersion due to zero-inflation, we employed a zero-truncated hurdle modeling approach that simultaneously models the outcome in two parts: (a) a logistic model estimating the odds/likelihood of *any* (vs. zero) problem gambling symptoms and (b) a truncated count model estimating the amount of problem gambling symptoms among the subset of participant scoring >0. This was done using the "hurdle" function in the pscl package in R (Zeileis et al., 2008). Impulsivity, sex assigned at birth, and self-reported relative household wealth were again used as covariates in these models.

Results

Descriptive Statistics

Of the 328 participants who enrolled in the study, 285 finished the complete set of measures that pertain to the present study. Data from the 43 participants who did not complete the measures relevant to the present study were excluded from data analysis.

Prevalence of lifetime, at-risk and problem gambling/trading activities by sex are presented in Table 1. Prevalence of lifetime gambling was similar between the two sexes, with more pronounced differences found in at-risk and problem gambling rates and in trading activity participation rates. At-risk and problem gambling/trading thresholds were defined by sum scores of at least 3 and at least 8 on the PGSI or PGSI-ST/CT, which can range from 0 to 27. The novel scales assessing problems related to speculative trading and cryptocurrency trading were positively correlated with the measure of traditional problem gambling behaviors: PGSI and PGSI-ST ($r = .29$, $p < .001$), PGSI and PGSI-CT ($r = .17$, $p = .003$). However, problems related to speculative trading and problems related to cryptocurrency trading were not significantly correlated ($r = .03$, $p = .576$), suggesting these scales capture two unique constructs. The mean Financial FOMO, on a scale from 4 to 20, was 11.01, which was slightly higher for male participants ($m = 11.22$) relative to female participants ($m = 10.92$) but not significantly different as shown from an unpaired two-samples t test ($t = 0.51$, $p = .609$).

An exploratory factor analysis of the PGSI, PGSI-ST, and PGSI-CT items and a table describing the bivariate correlation between main variables are provided in the supplementary material section.

Financial FOMO and Trading Activity Participation

Results of the logistic regression models estimating associations between financial FOMO and any engagement in stock trading and/or cryptocurrency trading are shown in Table 2. Regarding stock trading, each one-unit increase in financial FOMO scores was associated with an 8.5 increased odds of engaging in lifetime stock trading behaviors.

Financial FOMO scores were also associated with greater odds/likelihood of cryptocurrency trading activity participation, again by 8.5 for each incremental point in Financial FOMO score Taken together, college students with higher levels of financial FOMO had significantly increased odds of having ever engaged in stock and/or cryptocurrency trading.

FOMO and Problem Gambling Severity

In the zero-truncated hurdle model testing the hypothesis that financial FOMO is associated with problem gambling severity in traditional gambling domain (Table 3), the logistic portion of the model estimated associations with *any* PGSI score greater than 0 (i.e., scores of 0 vs. any score >0), and the zero-truncated portion of the model estimated associations with PGSI scores, as a count outcome, among the participants who scored >0. The logistic model shows that financial FOMO was associated with elevated odds of scoring >0 on the PGSI (i.e., 7.8 increased odds for each one-unit increase in Financial

Table 1. Prevalence of Gambling, Stock Market Trading, and Cryptocurrency Trading.

	Female (n = 194)			Male (n = 91)		
	Lifetime ()	At-risk ()	Problem ()	Lifetime ()	At-risk ()	Problem ()
Traditional gambling	81.3	6.6	3.1	80.4	9.3	1.1
Stock market trading	30.4	5.7	1.5	25.3	4.4	0.0
Cryptocurrency trading	12.1	2.6	0.5	14.9	2.2	0.0
Any gambling or trading	83.5	14.4	4.1	84.0	13.2	1.1

Table 2. Logistic Regression Models Estimating Associations Between Financial FOMO and Stock Market/Cryptocurrency Trading Activity (Lifetime).

	DV = Lifetime Stock Market Trading					DV = Lifetime Cryptocurrency Trading				
	Estimate	*SE*	Odds ratio	95 CI	*p*	Estimate	*SE*	Odds ratio	95 CI	*p*
Male	−0.27	0.30	0.763	[0.421, 1.353]	.362	−0.17	0.39	0.848	[0.382, 1.780]	.673
Household wealth	0.04	0.07	1.036	[0.901, 1.195]	.627	0.08	0.09	1.084	[0.907, 1.311]	.387
Age	0.25	0.10	1.285	[1.058, 1.561]	**.011***	0.28	0.12	1.316	[1.032, 1.669]	**.024***
Impulsivity	−0.04	0.02	0.957	[0.915, 0.999]	.052	0.01	0.03	1.013	[0.959, 1.070]	.642
F-FOMO	0.08	0.03	1.085	[1.023, 1.151]	**.007****	0.08	0.04	1.085	[1.007, 1.171]	**.032***

Note. *p*-values below .05 are shown in bold.
* represents *p*-values under .05, .01, and .001.

Table 3. Zero-Truncated Hurdle Model Estimating Associations Between Financial FOMO and Problem Gambling Severity Scores (PGSI).

	Logistic Regression Portion (Predicting *any* PGSI score >0)					**Zero-truncated count regression portion** (Predicting PGSI score among those >0)				
	Estimate	*SE*	Odds ratio	95 CI	*p*	Estimate	*SE*	Count ratio	95 CI	*p*
Male	0.116	0.29	1.123	[0.633, 1.994]	.692	−0.01	0.18	0.990	[0.692, 1.416]	.955
Household wealth	−0.032	0.07	0.968	[0.842, 1.114]	.654	−0.15	0.04	0.862	[0.795, 0.935]	**<.001*****
Age	−0.018	0.10	0.982	[0.801, 1.205]	.864	0.22	0.06	1.240	[1.099, 1.399]	**<.001*****
Impulsivity	0.031	0.02	1.032	[0.988, 1.078]	.158	0.05	0.01	1.055	[1.030, 1.081]	**<.001*****
F-FOMO	0.075	0.03	1.078	[1.016, 1.144]	**.013***	0.05	0.02	1.048	[1.012, 1.085]	**.007****

Note. *p*-values below .05 are shown in bold.
* represents *p*-values under .05, .01, and .001.

FOMO scores). Among those who scored >0, the count portion shows that financial FOMO was associated with higher PGSI scores (i.e., a 4.8 increase in PGSI scores for each one-unit increase in Financial FOMO scores).

The model shown in Table 4 estimated associations between financial FOMO and problematic speculative trading behaviors (i.e., PGSI-ST scores). In the logistic portion, there was a positive effect of Financial FOMO scores on *any* stock trading problems (i.e., PGSI-ST scores >0), such that each one-unit increase in Financial FOMO scores was associated with 20.1 increased odds of scoring >0 on the PGSI-ST. However, the zero-truncated count portion of the model, estimating associations with severity scores among those >0 on the PGSI-ST, did not show a significant association. Thus, this hypothesis was only partially supported as financial FOMO was significantly associated with *any* problematic stock trading (relative to *zero* stock trading problems), but higher Financial FOMO scores were not associated with higher PGSI-ST scores, on average.

The final model estimated associations between financial FOMO and problematic cryptocurrency trading (Table 5). Counter to hypotheses, financial FOMO was not significantly associated with problematic cryptocurrency trading in either the logistic or zero-truncated portions of the model.

Discussion

In this study, we sought to measure financial FOMO and investigate its association with speculative trading activities and problem gambling severity in a sample of 285 college

Table 4. Zero-Truncated Hurdle Model Estimating Associations Between Financial FOMO and Stock Trading Problem Gambling Severity Scores (PGSI-ST).

	Logistic Regression Portion (Predicting *any* PGSI-ST score >0)					**Zero-truncated count regression portion** (Predicting PGSI-ST score among those >0)				
	Estimate	*SE*	Odds ratio	95 CI	*p*	Estimate	*SE*	Count ratio	95 CI	*p*
Male	0.396	0.572	1.486	[0.485, 4.557]	.488	−0.297	0.255	0.743	[0.451, 1.226]	.245
Household wealth	0.201	0.154	1.222	[0.904, 1.652]	.192	−0.039	0.066	0.962	[0.845, 1.095]	.556
Age	−0.431	0.192	0.650	[0.446, 0.948]	**.025***	0.078	0.089	1.081	[0.908, 1.286]	.382
Impulsivity	0.025	0.038	1.025	[0.952–1.103]	.513	0.044	0.015	1.045	[1.014, 1.077]	**.004****
F-FOMO	0.183	0.064	1.201	[1.061–1.360]	**.004****	0.046	0.030	1.047	[0.987, 1.110]	.129

Note. *p*-values below .05 are shown in bold.
* represents *p*-values under .05, .01, and .001.

Table 5. Zero-Truncated Hurdle Model Estimating Associations Between Financial FOMO and Cryptocurrency Trading Problem Gambling Severity Scores (PGSI-CT).

	Logistic regression portion (Predicting *any* PGSI-CT score >0)					**Zero-truncated count regression portion** (Predicting PGSI-CT score among those >0)				
	Estimate	*SE*	Odds ratio	95 CI	*p*	Estimate	*SE*	Count ratio	95 CI	*p*
Male	0.699	0.821	2.012	[0.403, 10.054]	.394	−0.156	0.876	0.856	[0.154, 4.760]	.859
Household wealth	0.222	0.208	1.249	[0.831, 1.877]	.284	−0.385	0.216	0.681	[0.446, 1.039]	.075
Age	−0.176	0.283	0.839	[0.482, 1.459]	.533	0.438	0.154	1.550	[1.146, 2.097]	**.004****
Impulsivity	0.007	0.061	1.007	[0.894, 1.136]	.904	0.067	0.036	1.069	[0.997, 1.146]	.059
F-FOMO	−0.034	0.106	0.966	[0.784, 1.190]	.746	0.042	0.108	1.043	[0.845, 1.288]	.696

Note. *p*-values below .05 are shown in bold.
* represents *p*-values under .05, .01, and .001.

students. We adapted the FoMOS (Przybylski et al., 2013), a validated measure of social FOMO, to construct the Financial FOMO, a novel, brief measure of financial FOMO. The development of Financial FOMO builds on research efforts to better understand FOMO as a driver of financial behaviors (Baur et al., 2018; Delfabbro et al., 2021; Newall et al., 2022; Oksanen et al., 2022; Stettner, 2020) and provides direction for researchers seeking to measure FOMO across financially oriented contexts.

In the first aim, we identified that financial FOMO was related to participation in trading activities that are increasingly considered as modern forms of gambling. Specifically, financial FOMO scores were positively associated with lifetime engagement in stock market trading and cryptocurrency trading, supporting our first hypothesis. These results build upon recent findings showing behavioral similarities between trading and gambling (Delfabbro et al., 2021; Newall et al., 2022; Oksanen et al., 2022), by identifying a potential common risk-factor in financial FOMO. That is, although prevalence of lifetime stock market and cryptocurrency trading were relatively low in this sample (29 and 14, respectively), those who report more anxiety about missing out on financial gains are more likely to be, or have been previously, engaged in speculative trading behaviors. The present findings also provide an important initial examination of financial FOMO in a relatively high-risk age group (mean age of 19.3), most of whom were in their first or second year of college enrollment, whereas past research on the topic focused on older adults from a broader age group.

The second major aim of this study tested whether financial FOMO is linked to problem gambling, in both traditional gambling and speculative trading domains. Our results showed that higher financial FOMO scores were indeed related to reporting non-zero PGSI scores. Moreover, higher financial FOMO scores were associated with higher PGSI scores when we isolated participants with non-zero PGSI scores. Our findings imply that financial FOMO could be a risk factor for problem gambling in the traditional domain and, moreover, it may be a meaningful correlate of the severity of problem gambling among individuals who exhibit signs of problem gambling. These findings provide support for further investigating financial FOMO's role in problem gambling severity and suggest potential utility of financial FOMO in advancing problem gambling prevention and intervention efforts focused on financial literacy and management (Pham et al., 2012).

Financial FOMO was also linked to reporting non-zero PGSI-ST scores, similarly indicating a potential risk factor for problem gambling issues pertaining specifically to stock trading. However, there was no significant association between financial FOMO and variance in severity among those with positive PGSI-ST scores. This mixed evidence may require additional examination of the novel PGSI-ST scale to determine whether the non-zero scores were primarily driven by a small number of specific items. Participants could meet the non-zero 'hurdle' in these models even if they only endorsed one problematic stock trading behavior. Thus, while financial FOMO was not associated with more severe scores, it may be closely related to some of the specific PGSI-ST items.

Our findings add to the emerging evidence from stock market participant surveys (Argan et al., 2022; Gupta et al., 2022), Google search data, stock market trading, and margin use data (Bonaparte & Fabozzi, 2021) documenting the relationship between FOMO and stock market participation. In particular, FOMO has been found to strongly motivate stock market participation among young adults (Bonaparte & Fabozzi, 2021), causing concern given their known vulnerability to problem gambling (Barnes et al., 2010; Williams et al., 2012). Adding to the concern, margin use (borrowing money to trade) has been identified as an associated behavior of FOMO-driven stock trading (Bonaparte & Fabozzi, 2021), highlighting its detrimental risks of financial problems. Our results, combined with the aforementioned research findings on FOMO in stock markets, can serve as valuable data for motivating prevention and intervention efforts toward reducing the harm of financial FOMO-driven stock trading activities.

In the final model, we found no evidence of an association between financial FOMO and problematic cryptocurrency trading assessed with PGSI-CT scores. Despite financial FOMO being frequently discussed in connection to cryptocurrency trading (Bernard, 2022; Laurent, 2021) the present results imply that financial FOMO may not have a salient link to problem gambling in cryptocurrency trading contexts. This conclusion is nevertheless drawn with caution, as the present study reflects early-stage research on relatively nascent speculative trading behaviors that are anticipated to continue to gain popularity among young adults. Given lifetime prevalence of cryptocurrency trading behaviors of 14 in our sample, further investigation in other samples of young adults with higher prevalence of cryptocurrency trading may be warranted.

We believe several factors may have contributed to smaller effects of financial FOMO on trading domains, relative to traditional gambling. Primarily, the sample sizes of participants who reported positive (non-zero) PGSI-ST ($n = 37$) and PGSI-CT ($n = 11$) scores were substantially smaller than the number of participants who reported positive PGSI ($n = 77$) scores. Thus, with low base rates of the outcome variables, and few participants informing variability among non-zero scores, detecting significant effects is somewhat challenging. Future studies on this topic should target recruitment to higher-risk groups and consider adding eligibility criteria to increase the base rate and improve analytic power to detect significant effects. It is also possible that in the context of financial trading, which is perceived to be more skill-based and disciplined than traditional forms of gambling (Arthur et al., 2016; Delfabbro et al., 2021), financial FOMO is less likely to be tied to problem gambling behaviors and consequences than it is in traditional gambling contexts such as casino games and slot machines which are perceived to be more based upon luck. As non-traditional forms of gambling continue to increase in popularity it will be prudent for researchers to continue to refine our understanding and operationalization of these behaviors within the larger context of gambling-related literature.

Limitations

This study is not without limitations. Participants in the study were recruited using convenience sampling in introductory psychology classes at a single university, limiting the generalizability of the findings. Sampling young adults with higher engagement in speculative trading activities could yield more compelling effect sizes, relative to a general sample of young adult college students in which speculative trading prevalence is low. Nevertheless, our study with this generally low-risk sample still yielding noteworthy associations only further highlights the potential salience of these effects in higher-risk speculative trading samples. As discussed earlier, the study's small sample size ($n = 285$), especially with respect to subsamples who had positive PGSI-CT scores ($n = 11$), was another limitation of the study. The sample was also unbalanced with respect to gender (i.e., 67.4 female) and, although we adjusted each model by controlling for sex assigned at birth, a more balanced sample would improve precision and may increase generalizability. In addition, the Financial FOMO measure was based on four items adapted from a single source. A more extensive measure development and testing process could have yielded a more comprehensive measure of financial FOMO with a stronger rationale. Lifetime measures of trading and gambling involvement may have captured one-time activities that are not indicative of routine participation in either activity, but these early-stage findings nevertheless support the need for further longitudinal studies. While our analytic models adjusted for household wealth of participants, incorporating participants' personal income (e.g., part-time employment wage) could have facilitated more precise estimation, given that personal income may relate to one's propensity to engage in financial behaviors. The study also did not explicitly distinguish between different trading durations (e.g., between day trading and trading over multiple weeks) which may potentially be a correlate of problem gambling in trading contexts. Lastly, it must be noted that given the cross-sectional nature of the study, causal relationships cannot be inferred from our results.

Conclusions

Our findings showed that financial FOMO was associated with the presence and severity of gambling problems in the traditional gambling domain, and that the magnitude of these effects was relatively large considering the non-clinical sample of young adults. Indeed, each one-unit increase in the Financial FOMO scale, which ranged from 4 to 20, was associated with a 4.8 increase in PGSI scores. Financial FOMO was also predictive of participation in stock and cryptocurrency trading – a novel and fast-growing phenomenon among young adults – and the presence of gambling problems in the stock market trading context, but not the severity of the problems. Taken together, our results contribute to our understanding of financial FOMO as a potential risk factor of problem gambling in traditional gambling domains and, to a smaller degree, in the speculative trading domain among young adults, and suggest its role in advancing our understanding of the motivations that drive problem gambling behaviors. Furthermore, our results imply financial FOMO could serve as a meaningful construct in the assessment and intervention of problem gambling in young adults, the public health and economic cost consequences of which are significant. Continued development and validation of financial FOMO measures and exploration of the role of financial FOMO in problem gambling behaviors across wider population groups will be necessary to continue advancing our understanding of the financial FOMO-problem gambling connection.

Appendix

Appendix 1

Financial Fear of Missing Out Scale (F-FOMO)

1. I fear that other people are making more profitable investments than I am.
2. I fear that my friends are making more profitable investments than I am.
3. I get worried when I find out my friends are making more profitable investments than I am.
4. It bothers me when I miss a good investing opportunity.

Response options: Not at all true of me (1), Slightly true of me (2), Moderately true of me (3), Very true of me (4), or Extremely true of me (5).

Appendix 2

Problem Gambling Severity Index in Trading Domains

1. Have you bet more on a trade than you could really afford to lose?
2. Have you needed to trade with larger amounts of money to get the same feeling of excitement?
3. When you lost money from trading, did you go back another day to try to win back the money you lost?
4. Have you borrowed money or sold anything to get money to trade?
5. Have you felt that you might have a problem with trading?
6. Has trading caused you any health problems, including stress or anxiety?
7. Have people criticized your trading or told you that you had a problem, regardless of whether or not you thought it was true?
8. Has your trading caused any financial problems for you or your household?
9. Have you felt guilty about the way you trade or what happens when you trade?

Response options: Never (0), Sometimes (1), Most of the time (2), Almost always (3)

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Open Science Statement

The raw data, analysis code, and materials used in this study are not openly available but are available upon request to the corresponding author. No aspects of the study were pre-registered.

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Supplemental Material

Supplemental material for this article is available online.

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