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Development of Trading Addiction Questionnaire for Traders in Indonesia

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Abstract---*Background: The intensity of trading in the stock, foreign exchange, and crypto markets worldwide has been increasing. The need to earn a higher income amid the pandemic situation has led people to shift towards trading. For beginners, trading can be addictive due to the desire to constantly be involved in the financial markets and continuously monitor price movements. This research originates from the lack of supporting examinations that can be used to assess trading addiction. The aim of this study is to develop a trading addiction questionnaire and assess its validity and reliability within the trader community in Indonesia. Methods: This study is an analytical observational research with a cross-sectional design, involving 403 samples engaged in trading activities. The samples were obtained through voluntary sampling from the trader community in Indonesia. The main objective of this research is to assess the validity and reliability of the Trading Addiction Scale Version Indonesia-Korea (SATVIK) questionnaire. Result: SATVIK questionnaire has a construct validity value of < 0.5 , indicating that it is valid. The Cronbach's Alpha value of 0.932 for the 9 questionnaire items signifies that the reliability of the SATVIK questionnaire falls into the high category. Out of the 403 research samples, 265 individuals (65.8%) were male, and 138 individuals (34.2%) were female. The majority of the research samples were under the age of 40, with 271 individuals (67.2%). Regarding marital status, 251 individuals (62.3%) were married, and 169 individuals (41.9%) did not have children. In terms of education, 213 individuals (52.9%) had a bachelor's degree (S1), and 137 individuals (34.0%) were self-employed. The statistical analysis revealed significant results between the degree of trading addiction and gender, education level, and employment status (p -value in the chi-square test < 0.05). Conclusion: The SATVIK questionnaire has high validity and reliability, making it suitable for assessing trading addiction within the trader community in Indonesia.*

Keywords---*questionnaire, reliability, trader community, trading addiction, validity.*

Introduction

The trading intensity of stock, foreign exchange and crypto markets around the world during the COVID-19 pandemic has increased. Firstly, intensive trading activity around the world has a strong effect on controlling country-specific macroeconomic indicators. Second, the surge in trading activity is stronger among markets with better corporate governance and legal rights systems. The need to earn more income amidst the pandemic situation

has made people turn to trading. For beginners, trading can be addictive because of the desire to be constantly in the financial markets, always checking price movements (Sonkurt & Altinöz, 2021; Heale & Twycross, 2015; Delfabbro et al., 2021).

The Internet has decentralized trading, empowering almost anyone with an Internet connection to trade online. Today, more than 95% of online traders live outside of major financial centers, with nearly half of all traders based in Asia or Africa. In 2018, there were 13.9 million online traders worldwide with the most on the Asian continent at 4.6 million traders. During the Pandemic in 2021, there was a 92.99% increase in investors recorded by the Indonesian Central Securities Depository, from 3.8 million in 2020 to 7.4 million at the end of 2021. From January 2021 to December 2021 there was an increase in the number of single investor identification (individual investors) by 77% from 4.2 million to 7.4 million traders. The majority of investors in the capital market are male, with a proportion of around 62.89%. Meanwhile, female investors account for around 37.11% of the total number. In terms of age, most investors are those aged 30 years and below, making up around 60.18% of the total. In terms of occupation, civil servants and private sector employees are the most invested in the capital market, accounting for around 32.136% of the total number of investors. Students also make up a large portion of investors, accounting for around 28.08%, while entrepreneurs are around 14.23% (Dixon et al., 2018; Grall-Bronnec et al., 2017; Arthur et al., 2016).

There is currently no data on the prevalence of trading addiction in Indonesia. The term trading has only begun to be recognized by Indonesians since the development of binomo binary option cases that harmed many people. The absence of diagnostic criteria for trading addiction makes it difficult to clinically assess the occurrence of trading addiction. In some countries, especially South Korea, questionnaires have begun to be developed for trading addiction adapted from the diagnostic criteria for internet addiction and gambling disorder listed in Diagnostic and Statistical Manual (DSM) 5. One of the questionnaires used is the Stock Addiction Inventory (SAI) developed by Sam Wook Choi, MD, PhD, a researcher from South Korea in 2016. This questionnaire only discusses stock trading, not including trading foreign exchange, crypto and other assets (Youn et al., 2016). In Indonesia, there is no questionnaire developed to assess the presence of trading addiction. This study will use a modification of the Stock Addiction Inventory (SAI) added to the criteria for addiction symptoms and gambling disorder in the questionnaire. This study aims to test the validity and reliability of the trading addiction scale questionnaire so as to facilitate the assessment of the occurrence of trading addiction in Indonesia (American Psychiatric Association, 2013; Akaka et al., 2013).

Methods

Research design

This research is observational with the design used is a cross sectional study. The research was conducted with a survey approach to the subject using a questionnaire. The selection of subjects was carried out randomly from the existing population and then measured the presence of trading addiction using 2 main components, namely the addiction component and the gambling disorder component. This study will assess whether the addiction component and gambling disorder component have validity and reliability to assess trading addiction problems in the trader community in Indonesia.

Location and time of research

This research was conducted on traders who live in the territory of Indonesia through an online questionnaire in the form of a Google form distributed through social media for sample approval for 6 months starting from January to June 2023.

Data source determination

Population

The target population of this research is the community or people who trade buying and selling stocks, foreign exchange, crypto assets and other trading activities within the scope of the Indonesian region.

Sample

In this study, the expected results are in the form of the prevalence of research subjects who experience trading addiction compared to the total population. Likewise, the level of trading addiction is also described in percentage form. The sample size of this study used simple random sampling. The minimum sample size for this study was 245 samples. Taking into account the possibility of exclusion, the minimum research sample is 270 (Dolan & Stalmeier, 2003; Puhan et al., 2007).

Research procedure

Method and Data Collection Technique

The study was conducted after obtaining permission and meeting ethical clearance from the Research Ethics Committee of the Faculty of Medicine, Udayana University. Sampling was carried out randomly by snowballing and voluntary sampling in the community of stock, foreign exchange and crypto asset trading players in Indonesia. If the randomly selected sample is willing to become a research sample, a research questionnaire will be given using the Google form until the desired sample size is reached. Then an explanation is given about the benefits and objectives of the research, as well as the risks that may be experienced. If the sample voluntarily states that they are willing to participate as a sample, they are asked to fill out an informed consent agreement (Oksanen et al., 2022; Cox et al., 2020).

Statistical Analysis

Descriptive statistical analysis aims to describe the demographic characteristics of subjects and each addiction dimension. Confirmatory factor analysis aims to assess the validity of the questions that make up the dimensions and the results of dimensional research to assess addiction. Validity is assessed based on the comularity factor or loading factor of at least 0.5. 3. Cornbach alpha reliability test to assess the reliability of each question item to compile addiction variables. In this reliability test using the minimum limit declared reliable if the coefficient > 0.7 . Data analysis using SPSS (Statistical Package for The Social Sciences) 24.0 analysis software (Zhou et al., 2020; Malik et al., 2022).

Results

Background characteristics of research subjects

Of the 403 people in the study sample, 265 were male (65.8%) and 138 were female (34.2%). The average age of the sample was 36 years with the youngest being 20 years old and the oldest being 62 years old. From the marital status, the number of samples who were married was 251 people (62.3%) compared to those who were not married 152 people (37.2%). There are more research samples who do not have children as many as 169 people (41.9%). In terms of educational status, there were more research samples with an undergraduate education level of 213 people (52.9%). In terms of occupation, it was found that more research samples were self-employed 137 people (34.0%). (Table 1)

Table 1
Characteristics of Research Subjects

Variables	Results (n=403)
Age (yr) Mean + SB	35,8 (9,3)
≤ 40 yo	271 (67,2 %)
≥ 40 yo	132 (32,8 %)
Gender	
Male	265 (65,8 %)
Female	138 (34,2%)
Marriage Status	
Married	251 (62,3%)
Unmarried	152 (37,2%)
Number of Children	
0	169 (41,9 %)
1	80 (19,9%)
2	94 (23,3%)
3	43 (10,7 %)
≥ 4	17 (4,1 %)
Last Education	
High School	76 (18,9%)
Diploma	58 (14,4%)
S1	213 (52,9%)
S2 / S3	56 (13,9%)
Occupation	
Private Employee	115 (28,5%)
ASN	96 (23,8%)
Student	37 (9,2%)
Self-employed	137 (34,0 %)
Not Working	17 (4,2%)
Comorbidities	
Available	19 (4,7%)
None	384 (95,3%)

Validity is measured based on the communality factor or loading factor with a minimum value of 0.5. The results showed that the communality value of the 9 indicators of the SATVIK questionnaire was greater than 0.5, indicating that the results were valid. The Cornbach alpha reliability test was conducted to assess the reliability of each question item to compile the addiction variable. In this reliability test, the minimum limit is declared reliable if the coefficient is > 0.7. From the results of the reliability test of the 9 question items of the SATVIK questionnaire, the Cronbach's Alpha value was 0.932. The results of this test state that the reliability of the SATVIK questionnaire is in the high category (López-Baucells et al., 2019; Das et al., 2021).

From table 2, it was found that the highest degree of moderate addiction was 162 people (40.2%) followed by mild addiction 162 people (40.2%) and severe addiction 80 people (19.9%). Of the 403 research samples, there were 17 people (4.2%) who did not experience addiction. Table 3 shows that there is a significant correlation between the degree of trading addiction and gender, education level and employment status with the p value in the chi square test <0.05 (Menkhoff, 1998; Löwe et al., 2004).

Table 2
Frequency of Trading Addiction Based on SATVIK

Variables	N=403
SATVIK Score, Mean + Standard	12,0 ± 7,0
Degree of Trading Addiction	
None	17 (4,2 %)
Mild Addiction	144 (35,7%)
Moderate Addiction	162 (40,2 %)
Severe Addiction	80 (19,9%)

Table 3
Distribution of Trading Addiction by Characteristics

Variables	Degree of Trading Addiction				Chi Square
	None	Mild	Moderate	Severe	
Age					
≤ 40 yo	10 (3,7%)	93 (34,3%)	117(43,2%)	51(18,8%)	0,351
≥ 40 yo	7 (5,3%)	51 (38,6%)	45 (34,1%)	29(22,0%)	
Gender					
Male	13(4,9%)	78 (29,4%)	116(43,8%)	58 21.9%)	0,004
Female	4 (2,9%)	66 (47,8%)	46 (33,3%)	22(15,9%)	
Marriage Status					
Married	13 (5,2%)	97 (38,6%)	92 (36,7%)	49 (19,5%)	0,161
Unmarried	4 (2,6%)	47 (30,9%)	70 (46,1%)	31 (20,4%)	
Last Education					
High School	1 (1,3%)	29 (38,2%)	39 (51,3%)	7 (9,2%)	0,000
Diploma	0 (0,0%)	18(31,0%)	18 (31,0%)	22(37,9%)	
S1	9 (4,2%)	70 (32,9%)	92 (43,2%)	42 (19,7%)	
S2/S3	7 (12,5%)	27(48,2%)	13 (23,2%)	9 (16,1%)	
Occupation					
Private Employee	8 (7,0%)	31 (27,0%)	50 (43,5%)	26 (22,6%)	0,000
ASN	5 (5,2%)	31 (32,3%)	45 (46,9%)	15 (15,6%)	
Student	0 (0,0%)	25 (67,6%)	10 (27,0%)	2 (5,4%)	
Self-employed	3 (2,2%)	43 (31,4%)	55 (40,1%)	36 (26,3%)	
Not Worked	0 (0,0%)	14 (82,4%)	2 (11,8%)	1 (5,9%)	

Discussion

Characteristics of Research Subjects

Of the 403 people who became the research sample, the data showed that 265 people were male (65.8%) and 138 people were female (34.2%). The results of this study are in accordance with the Indonesian Individual Investor Demographic data in 2022 where male investors dominate the number of capital market investors, which amounted to 62.89%. While female investors reached 37.11%.^{4,10} The average age of the sample is 36 years old with the youngest being 20 years old and the oldest being 62 years old. There are more research samples in the age criteria under 40 years as many as 271 people (67.2%). This is in accordance with data from the Indonesian Central

Securities Depository where in terms of age, investors aged 30 years and under dominate the number of capital market investors, reaching 60.18% (AIRyalat, 2016; Dixon et al., 2018; Arthur et al., 2016).

From the marital status, the data shows that the number of samples who are married is 251 people (62.3%) compared to those who are not married, 152 people (37.2%). There are more research samples who do not have children as many as 169 people (41.9%). In terms of educational status, there were more research samples with an undergraduate education level of 213 people (52.9%). In terms of employment, it was found that more research samples were self-employed 137 people (34.0%). The characteristics of the research subjects are almost the same as data on individual investors in Indonesia where in terms of employment, civil servants and private sector dominate the number of capital market investors, amounting to 32.136% (Dixon et al., 2018; Arthur et al., 2016).

Validity and Reability Test Results

This study aims to test the validity and reliability of the trading addiction scale questionnaire, with the aim of facilitating the assessment of trading addiction in Indonesia. The validity test is used to assess whether the questionnaire is valid or valid. A questionnaire is said to be valid if the questions in it are able to reveal the aspects that will be measured by the questionnaire. Validity is measured based on the communality factor or loading factor with a minimum value of 0.5. The results showed that the communality value of the 9 indicators of the SATVIK questionnaire was greater than 0.5, indicating that the results were valid (Huggett et al., 2021). The Cornbach alpha reliability test was conducted to assess the reliability of each question item to compile the addiction variable. In this reliability test, the minimum limit is declared reliable if the coefficient is > 0.7. From the results of the reliability test of the 9 question items of the SATVIK questionnaire, the Cronbach's Alpha value was 0.932. The results of this test state that the reliability of the SATVIK questionnaire is in the high category (Huggett et al., 2021).

Distribution of Trading Addiction by Characteristics

The significant result between the degree of trading addiction and gender suggests that there is a significant difference in the degree of trading addiction between men and women in the trader population. There may be differences in the way men and women approach trading, as well as psychological and social factors that influence the level of trading addiction between the two. This is also in line with data on Indonesia's Individual Investor Demographics in 2022 where male investors dominate the number of capital market investors, at 62.89%. While female investors reached 37.11% (May, 2018; Delfabbro et al., 2021; Sadock et al., 2017). Significant results with education level indicate that a person's level of education can affect the degree of their trading addiction. Higher levels of education tend to provide more access to information and knowledge about financial markets and trading. Traders with higher education may have a better understanding of the concepts and mechanics of trading, so they may be better able to make smarter and more informed decisions about trading activities. Higher education often helps improve one's analytical and critical skills. Traders with higher levels of education may be better able to analyze market data, identify trends, and make more rational investment decisions (Sonkurt & Altinöz, 2021; Delfabbro et al., 2021).

Employment status can have an impact on one's financial situation. People who have jobs with stable and sufficient salaries may be more likely to have extra funds that can be used for trading. Self-employed and civil servants usually have a more stable and predictable income than freelancers or day laborers. This higher and more stable income may give them more funds to invest in trading, and also give them a greater sense of security in taking risks, which may contribute to trading addiction. In addition, higher employment status will have better access to market information and trading resources compared to students or those who are not working. This information may influence their decisions in making trading transactions and increase the potential for trading addiction (Chiah & Zhong, 2020; Delfabbro et al., 2021; Sadock et al., 2017).

Conclusion

The SATVIK questionnaire has high validity and reliability, making it suitable for assessing trading addiction within the trader community in Indonesia. In this study, it was found that male gender experienced more trading addiction. There are more subjects who experience trading addiction in sample criteria who are married, have no children, S1 educational status and self-employed work. In this study, there were significant results between the degree of trading addiction and gender, education level and employment status.

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