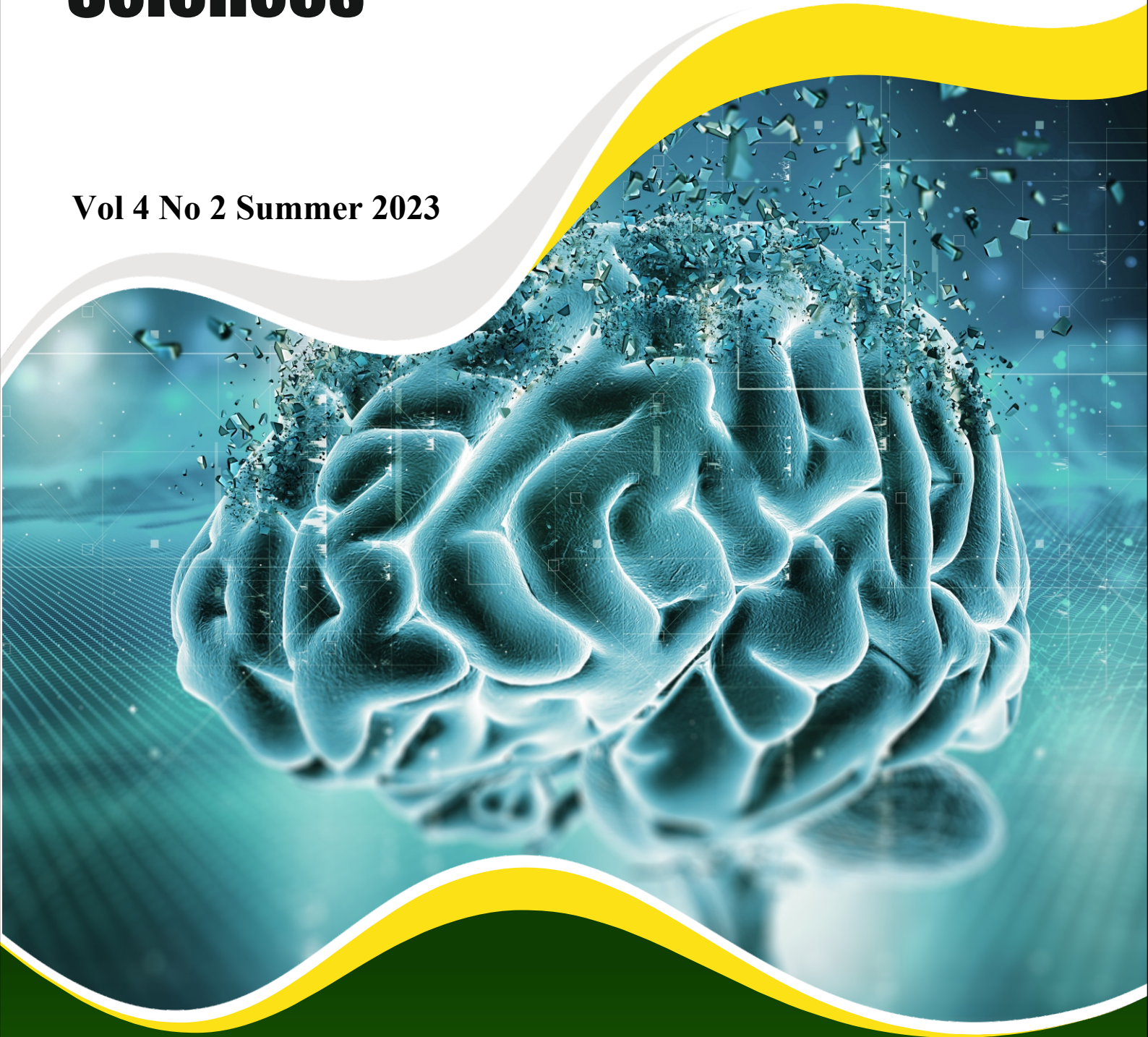


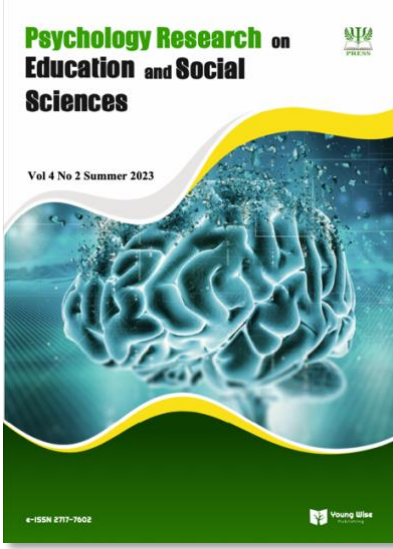
Psychology Research on Education and Social Sciences



Vol 4 No 2 Summer 2023



e-ISSN 2717-7602



Psychology Research on Education and Social Sciences (PRESS)
e-ISSN: 2717-7602

Vol:4 No:2 Summer 2023



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Abstracting & Indexing

Index Copernicus, ResarchBib, Asos, Google Scholar

Note: You can click on them to check the status of PRESS in indexes

Genç Bilge (Young Wise) Publishing

Adress : Bahcelievler District 3015 St. No:9/1 Isparta, Turkiye

Web site: <http://gencbilgeyayincilik.com/> E-mail: gencbilgeyayincilik@gmail.com

Note: PRESS supported by Association for Young Scientists and Talent Education (AYSTE) web site: <https://ayste.org/>



Research Article

Servant leadership and corruption intention in construction companies: role of ethical climate and Machiavellianism

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Article Info

Received: 12 February 2023

Accepted: 22 April 2023

Online: 30 June 2023

Keywords:

Construction

Corruption intention

Intention

Servant leadership

Abstract

Corruption is usually an activity that is deliberately hidden so that it is difficult to know until it becomes a scandal. Indonesia is progressing with many infrastructure projects that are prone to corruption cases. Cases of corruption in infrastructure projects usually involve government officials and company leaders. Previous studies have linked the leadership style of a company leader with corruption, and many studies have discussed corruption in the construction sector. This research will provide a new perspective on corruption intentions as a starting point for acts of corruption related to several factors that have yet to be widely discussed in previous studies. We analyze data from 100 respondents who work in the construction sector using a linear regression technique by analytic tools of PROCESS IBM SPSS Statistics Version 22. This research shows that servant leadership is related to corrupt intentions, which would be much more significant if mediated by a low corporate ethical climate and moderated by Machiavellianism in this moderated mediation model and nevertheless might play the role of a moderator in future studies. The improved ethical climate is a preventive way to reduce corruption intention. On the other side, company leaders should be more cautious in understanding followers' Machiavellianism related to corruption intention.

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To cite this article

Mart, F., & Sabrina (2023). Servant leadership and corruption intention in construction companies: role of ethical climate and Machiavellianism. *Psychology Research on Education and Social Sciences*, 4(2), 28-38.

Introduction

Proper infrastructure has become a fundamental concern, so the government of President Joko Widodo has emphasized infrastructure development programs. The infrastructure is the primary facilities or structures, equipment, and installations needed so that Society's social and economic systems can function (Grigg, 2000). In other words, the infrastructure is the leading proponent of the social and economic system in social life. According to President Joko Widodo, the impacts of infrastructure development are creating jobs, creating new economic growth points, improving inter-island logistics networks, and supporting public service activities (Jay, 2019).

The implementation of infrastructure projects in Indonesia is mainly carried out by state-owned contractor companies or Badan Usaha Milik Negara (BUMN) and a small part by private contractor companies. Woefully, according to the Indonesian Corruption Watch (ICW), in the last ten years (2011-2020), BUMN's contractors as contracting parties of the infrastructure projects have been companies involved in corruption cases (Ahdiat, 2022). Based on the coverage of Dewangga and Fiky (2020), an example of a case that occurred was the corruption case for four road development projects in Bengkalis Regency which involved two government officials and eight people from private contractor companies. The suspects are suspected of having committed acts against the law, such as arranging tenders,

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results of work that do not meet specifications, and quality of work that does not meet requirements. Research by Ariani et al. (2023) shows that there are at least ten indicators that cause corrupt practices in construction projects, including inappropriate tender evaluations, inadequate supervision, the document offers that do not match the actual conditions, propinquity between parties, and poor professional, and ethical standards.

Leadership is an essential part of an organization; he or she acts as a role model to shape ethical culture and build morale. Tabish and Jha (2012) believed that top executive leadership has a significant influence on the rate of corruption in construction projects. Research by Yee (2019) shows personal greed towards money, lack of ethical standards, and negative leadership roles are three of eighteen causes of corruption practices.

Indonesia has gone through various eras of leadership, from Soekarno's charismatic leadership era during the Old Order era to post-reform during President Joko Widodo's servant leadership era (Asnawi, 2001; Bagus, 2017), and cases of corruption still occur. At the smaller organizational level, research on organizations have primarily focused on the influence of the personal characteristics of top management in creating a corporate environment conducive to fraud (e.g., Cohen et al., 2010; Rijnsbult & Commandeur, 2013). Previous research has evidenced a positive relationship between leaders' Machiavellianism and abusive acts when leaders make sure that things are done correctly and according to the rules (Wisse & Sleebos, 2016) and another effect of Mach leaders (see Belschak et al., 2018; Dahling et al., 2009).

Servant Leadership and Corruption Intention

Servant leadership is a leadership style that accentuates the idea of service in the relationship between leader and followers (Gandolfi et al., 2017). Previous studies have evidenced that servant leadership is apparent in followers' affirmative behaviors, like employee creativity, diligence, and other organizational citizenship behavior (Yang et al., 2019; Newman et al., 2017). Furthermore, a literature review reveals that existing servant leadership studies have primarily been linked with the encouraging consequence (Nathan et al., 2018), although the negative side is equally essential (Whetstone, 2002). Van Dierendonck's (2011) argument about the contradiction aspect of servant leadership is that opportunistic followers may manipulate servant leaders to achieve their self-interest. Based on Dierendonck and Nuijten (2011), servant leadership has eight critical constructs: empowerment, accountability, standing back, humility, authenticity, courage, forgiveness, and stewardship. Ferch (2005) described that servant leaders could display tolerance by initiating a circumstance of certainty where followers feel fulfilled, are free to take amiss, and understand they will not be repudiated. Corruption is defined as the practice of exchanging to provide something to a private individual (or group) where the official regulation or guidance broke by a public official (or officials) (Khan, 2004). In line with the research Li-Pin Tang et al. (2008) that unethical behaviors in organizations exemplify, such as some employees manipulating to get tangible and non-tangible benefits. The intention has a solid relation to behavior. However, a person could contradict an act with their desire (Sniehotta et al., 2005), and this study measures corruption as a specific type of unethical behavior. We propose Hypothesis 1 (H1): Servant leadership will positively affect the follower's corruption intention.

Mediating Role of Ethical Climate

The notion of servant leadership regards the idea that a servant leader is a person with a "servant heart" as a core leader (Greenleaf, 1977/2002). In addition, the essential feature of servant leadership is its rests on ethical behaviors (Ehrhart, 2004). Spears (1996) declared that the servant-leader "wants to do what is morally or ethically right" (p.26). A leader influences the ethical climate change in the organization. Thus, leaders who behave as servant-leaders have opportunities to positively create and cultivate ethical climates in their companies. Martin and Cullen (2006) pointed out that an ethical work climate is essential to an organization's culture and affects resolving ethical conflict and behavior.

Lack of ethical standards among construction workers leads to immoral and indisciplined behavior, exacerbating corruption in the construction industry (Olusegun et al., 2011). Construction industry corruption also often results from the overclose relationship among the project parties, triggering corruption practices like nepotism and bid rigging during the tendering stage (Ling & Tan, 2012; Sohail & Cavill, 2006; Le et al., 2014a). Servant leadership helps to decrease unethical actions by stimulating an ethical climate. Servant leadership fosters trust, enhancing perceptions of

an organization's ethical climate (Burton et al., 2017). Based on those arguments, our hypothesis is a mediating role of the ethical climate organization between servant leadership and followers' corruption intention. Hypothesis 2 (H2): Ethical climate will mediate the positive relationship between servant leadership and followers' corruption intention.

The Moderating Role of Machiavellianism

Researchers in Industrial/organizational psychology have lately emphasized Machiavellianism's role in an organizational context (e.g., Harms and Spain, 2015; Simth & Webster, 2017). According to recent research by Fatima et al. (2021), the relationship between servant leadership and manipulative-exploitative behavior becomes more assertive at the high level of Machiavellianism. It becomes lacks strength and is insignificant at a low Machiavellianism. Furthermore, appointing a direct positive association between servant leadership and follower corruption intention, we believe that not whole followers with Machiavellianism will react to servant leadership by raising their corrupt behavior to the same breadth. Judge et al. (2009) suggest that high-Mach become involved in shifty behavior and habitually utilize any approaches to accomplish their targets. Therefore, high-level Machiavellianism is increasingly plausible to step in unethical and unlawful ways, such as spontaneous cheating (Cooper & Peterson, 1980). Specifically, research by Zhao et al. (2014) shows that followers with high Machiavellianism are likelier to be involved in corruption than followers with low-level Machiavellianism. Followers with high-level Machiavellianism advance in dealing with situations to grab the maximum advantage of their cunning behaviors. So, empowerment, trust, and helping behavior (Lyons et al., 2010) allow high-Mach followers to manipulate everything for personal gain (corruption intention). Therefore, our study proposes a moderating role of Machiavellianism between servant leadership and corruption intention. Hypothesis 3 (H3): Followers' Machiavellianism will moderate the positive relationship between servant leadership and followers' corruption intention. The positive relationship will intensify when followers' Machiavellianism is high and vice versa. Hypothesis 4 (H4): Follower's Machiavellianism moderates the direct relationship between servant leadership and corruption intention through an ethical climate.

Based on previous research, we expect the moderated mediation model to be successful, as seen in Figure 1, which illustrates our conceptual model.

Problem Study

A study on leadership shows a negative effect from the positive side of leadership on corruption (see Manara et al., 2020). However, it is not easy to find research on the positive effect of the negative side of leadership (particularly servant leadership) on corruption. Our study aims to investigate the positive correlation effect of servant leadership and corruption intention in construction workers and determine the mediator role of ethical climate and the moderator role of Machiavellianism. The main question of this study is whether there is a relationship between the positive effect of servant leadership and corruption intention in construction workers. Another question is there a mediator role of the ethical climate is in that relationship. Furthermore, is there a moderator role of Machiavellianism in that relationship?

Method

Research Model

This study used a descriptive correlation analysis to examine the relationship between two variables. Furthermore, we used the PROCESS by Andrew F. Hayes to examine how the influence between two constructs may take an indirect path through a third variable called a mediator and investigate how an antecedent X influences a consequent Y that depends on a third variable called a moderator.

Participants

The population in this study were workers who worked in the construction sector in Jakarta. As reference data, the construction labor force in Jakarta is 197229 workers, and 74.94% level education is an elementary school up to high school (Ditjen Bina Konstruksi, 2021). We used 100 workers for the samples following Hair et al. (1998), in which the minimum number of samples is 15 to 20 times the number of variables used for regression analysis techniques.

Meanwhile, the sampling technique used in the current study is non-probability sampling techniques covering purposive sampling. The questionnaires were distributed based on the addresses in the sispro.co.id directory.

Table 1 describes the research subject, such as gender, age, education level, work tenure, and job field.

Table 1. Data description of the respondent

Categories	Types	Male	Female	Total
Ages	18 – 25 years	9 (12.33)	4 (14.81)	13 (13.00)
	26 – 33 years	13 (9.60)	7 (25.93)	20 (20.00)
	34 – 41 years	26 (43.83)	13 (48.15)	39 (39.00)
	42 – 49 years	20 (27.39)	3 (11.11)	23 (23.00)
	>50 years	5 (6.85)	0 (0.0)	5 (5.00)
Education level	Senior high school	56 (76.71)	3 (11.11)	59 (59.00)
	Diploma	7 (9.59)	10 (37.04)	17 (17.00)
	Bachelor's degree	9 (12.33)	12 (16.44)	21 (21.00)
	Master's degree	1 (1.37)	2 (7.41)	3 (3.00)
Work experiences	< 1 year	3 (4.11)	5 (18.52)	8 (0.00)
	1 – 5 years	8 (10.96)	9 (33.33)	17 (0.00)
	6 – 10 years	19 (26.03)	7 (25.93)	26 (0.00)
	11 – 15 years	15 (20.55)	5 (18.52)	20 (0.00)
	16 – 20 years	13 (17.81)	1 (3.70)	14 (0.00)
	21 – 25 years	6 (8.22)	0 (0.00)	6 (0.00)
	>25 years	9 (12.32)	0 (0.00)	9 (0.00)
Field of jobs	Engineering	62 (84.93)	6 (22.22)	68 (68.00)
	Business & Operation	8 (10.96)	4 (14.82)	12 (12.00)
	Finance & Accounting	3 (4.11)	17 (62.96)	20 (20.00)

Of the respondent of this research, 73 subjects are male, and 27 subjects are female, the majority 34-41 years old. Most male respondents are in senior high school, and female respondents are bachelor's degrees. According to the work experiences in the construction sector, most male respondents have 6-10 years of work experience, and female respondents have 1-5 years. The data also shows that male respondents also stated that they work in engineering while female respondents work in finance and accounting.

Data Collection Tools

The participants are asked to state the suitability or discrepancy with the contents of the statements. The parts of all instruments taken for the current study are given below. All the scales were translated to Bahasa Indonesia, and each item was tapped on a scale spreading from 1 (strongly disagree) to 7 (strongly agree).

Corruption Intention Scale

We used the Corruption Propensity scale (CPS) with an 18-item scale by Agbo and Iwundu (2016) to measure followers' corruption intention. Participants determine their agreement with each item based on the scale provided, and the existing scores of all items are then calculated so that the lowest to highest score is obtained. A high score indicates a higher tendency to engage in acts of corruption. Based on the reliability test results, we used 12 items with a Cronbach Alpha coefficient of 0.975. Some items on the scale are "If I get my cut, I will assist my boss do whatever he/she wants" and "I don't mind favoring a client for a bribe.". We use the abbreviations CI as code for Corruption Intentions.

Servant Leadership Scale

We used to measure company leaders' servant leadership on the 14-item scale by Ehrhart (2004). Participants were asked to rate their company leader using this scale which consists of seven dimensions, one of which is behaving ethically. The statement sounds like, "My leader holds employees to high ethical standards". Based on the reliability test results, we used ten items with a Cronbach Alpha coefficient of 0.982. We use the abbreviation SL as code for Servant Leadership.

Ethical Climate Scale

Ethical Climate Index (ECI), which was psychometrically tested and verified by Arnaud and Schminke (2012). We use a short 18-item scale with four constructs, of which two have two sub-dimensions. The construct measures collective moral sensitivity (consisting of moral awareness and empathic concern), the construct measures collective moral judgment (focus on oneself and focus on others), the construct of collective moral motivation, and the construct of collective moral character. Statement items sound like, "People around here feel bad for someone being taken advantage of." Based on the reliability test results, we used nine items with a Cronbach Alpha coefficient of 0.964. We use the abbreviation EC as the code for Ethical Climate.

Machiavellianism Scale

We used Machiavellianism consisting of four items by Jonason & Webster (2010). Its sub-scale of the Dirty Dozen scale measures followers' Machiavellianism. The statement sounds like "I tend to manipulate others to get my way". Based on reliability test results, we used all items with a Cronbach Alpha coefficient of 0.948. We use the abbreviation M as code for Machiavellianism.

Data Analysis

In our study, we used IBM SPSS Statistics version.22 to make descriptive analyses, such as a normality test to determine the distribution of data is regular or not distributed and a linearity test to determine the relationship between the variables. Furthermore, we used PROCESS v4.0 by Andrew F. Hayes to determine the role of mediation and moderation variables.

Procedure

This research took place over three months. We distributed the questionnaires from 3 September 2022 to 3 December 2022. Participants completed an Indonesian language survey, in which we translated all statement items on the scale we used from English to Indonesian. At the beginning of the survey, we briefly explained our research. Next, we asked participants to answer several demographic questions and complete them on the scale of this study. They participate voluntarily and do not get anything in return.

Results

Descriptive Statistics

Descriptive statistics were conducted to determine the characteristics and categorizing variables of corruption intention, servant leadership, ethical climate, and Machiavellianism in construction workers. Calculation description of the data based on the mean and standard deviation distribution. The results of these calculations are what we categorize into five categories: very high, high, moderate, low, and very low. Here are the results.

Table 2. Subject categorized based on total value of scale.

Scale	Categories	Male	Female	Total
Corruption Intention	Very Low	12 (16.44)	6 (22.22)	18 (18.00)
	Low	11 (15.07)	9 (33.33)	20 (20.00)
	Moderate	13 (17.81)	10 (37.04)	23 (23.00)
	High	11 (15.07)	2 (7.41)	21 (21.00)
	Very High	18 (24.66)	0 (0.00)	18 (18.00)
Servant Leadership	Very Low	17 (23.29)	2 (7.40)	19 (7.00)
	Low	7 (9.58)	8 (29.63)	15(45.00)
	Moderate	30 (41.10)	6 (22.22)	36 (21.00)
	High	6(8.22)	7 (25.93)	13 (21.00)
	Very High	13 (17.81)	4 (14.82)	17 (6.00)
Ethical Climate	Very Low	16 (21.93)	1 (3.70)	17 (9.00)
	Low	21 (28.76)	2 (7.41)	23 (41.00)
	Moderate	9 (12.33)	14 (51.85)	23 (20.00)
	High	14 (19.17)	8 (29.63)	22 (26.00)
	Very High	13 (17.81)	2 (7.41)	15 (4.00)
Machiavellianism	Very Low	14 (19.17)	2 (7.41)	16 (7.00)
	Low	12 (16.44)	9 (33.33)	21 (38.00)
	Moderate	20 (27.40)	8 (29.63)	28 (32.00)
	High	12 (16.44)	7 (25.93)	19 (19.00)
	Very High	15 (20.55)	1 (3.70)	16 (4.00)

Tables 2 show a description of the total value of each variable. Most male respondents have very high corruption intentions, whereas female respondents have moderate corruption intentions. In this study, respondents stated that the company leader has moderate servant leadership, or in other words, the leader may use another leadership style. Furthermore, ethical climate as an external factor shows companies that the most male respondent working has a low ethical climate, and female respondents have a moderate ethical climate. Another side, Machiavellianism as the role of internal factor, shows most respondents have moderate Machiavellianism.

Table 3. Normality test

Variable	<i>p</i>	Sig.	Conclusion
CI	0.113	>0.05	Normal
SL	0.200	>0.05	Normal
EC	0.123	>0.05	Normal
M	0.200	>0.05	Normal

The result normality test in table 3 shows that the data is expected. The distribution is declared normal; all variables have $p > 0.05$. The technique used for the normality test is the Kolmogorov-Smirnov test.

Hypotesis

Decision-making in hypothesis testing is based on significance value (Sig.), less than the probability of 0.05 (alternative hypothesis (Ha) is accepted), or greater than the probability of 0.05 (Ha Rejected). We used Linear Regression and PROCESS macro for SPSS (a regression-based approach). Following are the results of hypothesis testing in this study.

Table 4. Servant leadership and corruption intention

R	Path	Unstd Coeficients	t	Sig.
0.427	Constant	27.719	5.762	0.000
	SL - CI	0.532	4.677	0.000

Adjusted R Squared 0.427 on table 4 shows that the closeness of the association between SL and CI is sufficient, namely at 0.25-0.5 (Sugiyono, 2006); also, the t count obtained is 4.677 > t table 1.984 and significance $p < 0.001$ so that Hypothesis H1 is accepted.

Table 5. Servant leadership, ethical climate, and corruption intention

R	Path	Unstd Coeficients	t	Sig.
0.637	Constant	46.440	9.005	0.000
	SL - CI	0.712	6.988	0.000
	EC - CI	-0.722	-6.041	0.000
0.293	Constant	25.919	7.443	0.000
	SL - EC	0.250	3.032	0.003

Table 6. Mediator effects of ethical climate

	\$Effect	\$SE	\$t	\$p	\$LLCI	\$ULCI
\$Total effect	0.532	0.114	4.677	0.000	0.306	0.757
\$Direct effect	0.712	0.102	6.988	0.000	0.510	0.914
\$Indirect effect	-0.180	0.087			-0.361	-0.017

In the subsequent SL and CI statistical calculations, we added EC. As shown in table 5, the R-value increased to 0.637, and the unstandardized coefficient value is 0.712 became higher in t-value than 4.677. Then we proceed with calculations using PROCESS version 4.0 Andrew F. Hayes, where the results show the role of EC as a mediator of the influence of SL on CI based on BootLLCI and BootULCI there is no zero between -0.361 and -0.017, and coefficient a, b, c is significant ($p < 0.001$) as shown in Table 6. Therefore, Hypothesis H2 is accepted.

Table 7. Servant leadership, Machiavellianism, and corruption intention

R	Path	Unstd Coeficients	t	Sig.
0.778	Constant	4.848	1.201	0.233
	SL - CI	0.202	2.358	0.020
	M - CI	2.259	10.203	0.000

Table 8. Moderation effects of Machiavellianism

	\$coeff	\$se	\$t	\$p	\$LLCI	\$ULCI
\$Constant	47.747	1.294	36.911	0.000	45.179	50.314
\$SL	0.256	0.088	2.920	0.004	0.082	0.431
\$M	2.101	0.229	9.162	0.000	1.646	2.556
\$Int_1	0.023	0.011	2.160	0.033	0.002	0.044
	R2-chng	F				
X*W	0.018	4.667				
\$Moderator: Mach						
-6.165	0.116	0.093	1.250	0.214	-0.068	0.301
0.000	0.256	0.088	2.920	0.004	0.082	0.431
6.165	0.397	0.123	3.218	0.002	0.152	0.641

Calculating the SL and CI statistics with M, as shown in table 7, the R-value is 0.788. The result shows the closeness of the SL, M, and CI relationship in the very strong category of > 0.75 (Sugiyono, 2006).

To assess the moderation effect, we continue with calculations using PROCESS version 4.0 Andrew F. Hayes, whose results show the role of M becomes a moderator of the influence of SL on CI, the t count obtained is 2.160 > t table 1.984 and significance $p = 0.033 < 0.05$ as shown in Table 8. Another the results direct effect of SL on CI was forceful in the case of high M ($\beta = 0.123$), CI [0.152, 0.641] and lacking strength and insignificant in low M ($\beta = 0.093$), CI [-0.068, 0.301]. We also describe the interaction using Jeremy Dowson's slope test; the interaction is plotted on the graph, as shown in Figure 2. So, hypothesis H3 is accepted.

Table 9. Moderated Mediation effects of ethical climate

	\$coeff	\$se	\$t	\$p	\$LLCI	\$ULCI
\$Constant	66.834	3.188	20.963	0.000	60.505	73.163
\$SL	0.474	0.081	5.820	0.000	0.312	0.635
\$EC	-0.547	0.086	-6.370	0.000	-0.717	-0.376
\$M	1.662	0.205	8.113	0.000	1.256	2.069
\$Int_1	0.035	0.009	3.846	0.000	0.017	0.053
	R2-chng	F				
X*W	0.041	14.793				
\$Conditional direct effect of X on Y:						
-6.165	0.259	0.081	3.180	0.002	0.097	0.420
0.000	0.474	0.081	5.820	0.000	0.312	0.635
6.165	0.688	0.113	6.072	0.000	0.463	0.913

The hypothesis we propose is in the form of supported moderated mediation. We analyze the more deeply in hypothesis 4, where there is a mediation of the conditional direct effect of SL on CI moderated by M. At the same time, there is a robust EC mediation when M is at a high level but becomes lacking strength when M is at a low level. The results of moderate mediation interaction values were significant ($p < 0.001$), as shown in Table 9. So, the H4 hypothesis is accepted.

Discussion and Conclusion

Corruption in the construction industry results from negative leadership roles (Olusegun et al., 2011; Bowen et al., 2012). One of the leadership styles in an organization that has form positivity, Servant Leadership, has been studied by several academics (e.g., Dodd et al., 2018). Our study confirms that servant leadership positively affects building an ethical climate that reduces followers' corruption intentions. However, there is another side of servant leadership that is important to get attention. The results from our study also confirm that servant leadership is the potential to increase followers' intention of corruption. These results were done the same way as the previous study, confirming that servant leadership is positively related to exploitative manipulative behavior. Fortunately, the conditional effect was significant because of the interaction term of servant leadership and Machiavellianism as moderators (Fatima et al., 2021).

Workers with exploitative tendencies see servant leadership as the ideal state of organizing things to enable them to achieve personal goals. Mach followers are highly goal-driven and do not hesitate to use unethical means and to threaten (leader) behavior to achieve their goals (e.g., O'Boyle et al., 2012). When working in a low ethical climate and meeting a leader who shows modesty and forgiveness, they have more ways to get the most extraordinary material and non-material benefits from a leader. Fortunately, our results prove the same. Ethical Climate as a mediator and Machiavellianism as a moderator applicable to work together. The relationship between servant leadership and corruption intentions was not stronger. The domination of Machiavellianism with others concerning corruption intentions is a cause-of-effect ethical

Climate. In a moderated mediation model, Machiavellianism does not highly influence the relationship between servant leadership and corruption intentions.

For an initial study, this research provides new opportunities for research on organizational leadership and corruption behavior. At least research has provided a new perspective from research on the influence of leadership on corrupt behavior (Manara et al., 2020) as well as servant leadership and manipulative, exploitative behavior (Fatima et al., 2021).

The data analysis results explained a relationship between servant leadership and corruption intention among construction workers in Jakarta City. The results of the data description state that the level of followers' corruption intention and Machiavellianism, servant leadership of companies' leaders, and companies' ethical Climate tends to be low. Ethical Climate can be mediation between servant leadership and corruption intention. Also, Machiavellianism positively related to servant leadership and corruption intention as moderators. Furthermore, Ethical Climate and Machiavellianism are promising to construct in one model.

Recommendations

Future research should broaden our work by investigating corruption intentions in the companies that have been involved and have never been involved in a corruption case. Furthermore, learn more about their thinking style, like rational and intuitive thinking. Studying these two styles of thinking can help for better meaning and understanding of how leaders influence their followers' behavior who have been involved and have not been involved in corruption. Future research may also shed light on whether workers under servant leaders will intuitively become more involved in unethical behavior such as corruption or other specific behaviors beyond corruption and may examine a few other underlying mechanisms.

Acknowledgment

We want to thank the heads of the human resources division of contractor companies who have helped and given permission to collect data for this research.

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Research Article

Netlessphobia based on personality traits in university students

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Article Info

Received: 24 April 2023

Accepted: 15 June 2023

Online: 30 June 2023

Keywords:

Conscientiousness

Digital Addiction

Netlessphobia

Neuroticism

Personality Traits

Abstract

Netlessphobia, also known as the fear of being without the Internet, is one of the new and important behavioral disorders of the digital age. The relationship between netlessphobia and similar behavioral disorders and personality traits of individuals has been intensively studied in recent decades. The study aim to determine the relationship between personality traits and netlessphobia. The crosssectional study was completed by 770 university students. The study data were obtained by face-to-face data collection using the Firat Netlessphobia Scale, the Big Five Personality Inventory, an 11-question questionnaire prepared by the researchers, and examining the sociodemographic characteristics and internet usage habits of the participants. Descriptive (number, percentage, mean, standard deviation) analyses, Pearson correlation analysis and hierarchical regression analysis were performed. A statistically significant positive correlation between netlessphobia and neuroticism, and a negative correlation with conscientiousness was found. There was no significant relationship between other personality types and netlessphobia. A negative correlation was determined between neuroticism and other personality types. As a consequence of hierarchical regression analysis, it was observed that neuroticism increased the netlessphobia score while conscientiousness decreased. There was no significant relationship between other personality types and netlessphobia. Social and mental health support programs for students with a high level of neuroticism will also benefit from controlling their netlessphobia level. The positive effect of neuroticism and the negative effect of conscientiousness with the level of netlessphobia should be taken into account in social and mental health support programs.

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To cite this article

Onal, O., Coban, B., Dogan, E., Akyol, M.H., Yalcinkaya, F.E., Kisioglu, A.N., & Uskun, E. (2023). Netlessphobia based on personality traits in university students. *Psychology Research on Education and Social Sciences*, 4(2), 28-38.

Introduction

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The invention of the computer and the internet is an essential milestone of the information age. According to the Digital 2021 report, there are 5.22 billion mobile phones and 4.66 billion internet users worldwide (Social, 2021). Additionally, there are 4.20 billion active social media users. In favor of these technological developments advancing at an incredible pace in the 21st century, computers have become an irreplaceable part of our lives in many fields, including health, education, transportation, industry, culture, and art. The digital world has become portable in our pockets; as computers, tablets, and smartphones have become portable in size, their numbers and quality have increased, and the communication network has become widespread. People have started to efficiently carry out activities such as shopping, bank transactions, online classes, e-mails, and ticket reservation activities while sitting. As a result of all the conveniences mentioned above, the daily internet usage time (6H 54Minute) with all devices has now become more than twice the television time (3H 24 Minutes). In the Digital 2021 report, it was also stated that the increase in internet usage in 2020 was approximately four times higher than the increase in mobile phone usage (Social, 2021). With the internet entering every pocket and becoming an essential part of our lives, a new phenomenon "netlessphobia" has been introduced to users' lives.

Netlessphobia is one of the diseases caused by technology; generally, it can be expressed as the fear of not having access to the internet (Guney, 2017). Today, in parallel with excessive use of social networks that people perceive as socialization, individuals want to spend a long time on the internet for reasons such as; the desire to be constantly in the virtual environment, hiding their identity, and avoiding face-to-face communication (Guney, 2017). Thus, individuals look out for not having internet access and are careful not to be in an internetless environment. Netlessphobia, rather than excessive use of the internet, is defined as the inability of a person to stay in an environment where there is no internet and being worried about internet deprivation (Ozturk, 2015). In the assessment of netlessphobia; in addition to the fear of not having internet access, factors such as individuals using more than three smart devices with internet connection all at once, being online for at least 8 hours a day and making at least 20 social interactions a day are taken into account. Personality traits of individuals may affect susceptibility to netlessphobia.

Personality can be described as qualities that express individuals' thoughts, attitudes and behaviors in the face of events and distinguish them from others (Sallquist et al, 2009). Personality traits affect behaviors and attitudes; in this respect, these traits can be associated with many aspects. The "big five personality model" is frequently used to describe personality traits owing to its broad framework and measurement complexity. It has limited personality traits under the following five topics: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae & Costa, 1997). While extraversion is defined as being talkative, active, social and good (Barrick & Mount, 1991), conscientiousness; tendency to control impulses, exhibiting socially acceptable behaviors (McCrae & Costa, 2003), openness; willingness to explore new things and acquire different skills (McCrae & Costa, 1997), and agreeableness can be described as compassion, emotional support, and the ability to find common ground with others (Digman, 1990). Neuroticism, the last topic of the five-factor personality model, can be explained as not being emotionally balanced and more fragile (Costa et al, 1995).

Personality traits have an impact on technology dependent behavioral disorders and addiction. In the literature, It is stated that neuroticism increases facebook and social media addiction (Nikbin et al, 2021; Tang et al, 2016), fear of missing out (Alt & Boniel-Nissim, 2018; Rozgonjuk et al, 2021), cyberloafing behaviors (Sheikh et al, 2019), nomophobia (Uguz & Bacaksiz, 2022), smart phone addiction (Cho et al, 2017), phubbing (Erzen et al, 2021; Chi et al, 2022; Cikrikci et al, 2019), internet addiction (Kuss et al, 2013). However, in a meta-analysis it was stated that neuroticism is not ubiquitously associated with online gaming addiction (Akbari et al, 2021). The information obtained from the literature on the other 4 personality traits has been reported with different results. There are studies showing that these personality traits increase (Sheikh et al, 2019; Tang et al, 2016; Azucar et al, 2018), decrease (Uguz & Bacaksiz, 2022; Morsunbul, 2014) and do not affect technology-dependent behavioral disorders (Sahin et al, 2022; Erzen et al, 2021; Cikrikci et al, 2019).

Problem of Study

At the time of this study, we could not find any published research in the literature examining personality traits with netlessphobia. In this respect, considering that the study will contribute to the literature, the following hypotheses were formed, and the relationship between netlessphobia and personality traits was examined in parallel with these hypotheses:

Hypothesis 1: Neuroticism traits positively predict netlessphobia.

Hypothesis 2: Other Personality traits negatively predict netlessphobia.

Hypothesis 3: Personality traits are associated with each other.

Method

Research Model

This is an analytical cross-sectional study conducted on Suleyman Demirel University students in Turkiye. The dependent variable netlessphobia was taken as the independent variable personality traits subgroups. After the correlation analysis, hierarchical regression analysis was applied to the variables found to be significant. Hierarchical linear modeling is a type of multilevel modeling that is used when data is hierarchically structured, meaning that observations are nested within higher-level units, such as personality traits within groups (Hox et al, 2017) .

Participant

The research population consists of 33315 undergraduate students. While the participants were included in the study, faculty-based weighting were made. The minimum sample size for the study, 50% frequency, 5% margin of error and a 95% confidence interval were calculated as 768 by taking the pattern effect as 2. The study was completed by 770 students who voluntarily participated in the study. The study was carried out with the participation of 770 students. 54.3% of the participants were women, 82.7% had a nuclear family, 26.9% were in their second year of college, 38.4% of mothers were primary school graduates, 33.2% of fathers were high school graduates, 61.4% had a moderate level of family income and spent an average of 5.7 hours on the internet. While 79.6% were high-level social media users, 64% had low-level online gaming time (Table 1).

Table 1. Descriptive characteristics of the research population

Variable	Category	N	%
Age (year)	<20	148	19.2
	20	150	19.5
	21	166	21.6
	22	118	15.3
	23	81	10.5
	≥24	107	13.9
Gender	Female	418	54.3
	Male	352	45.7
Family	Nuclear family	637	82.7
	Extended family	103	13.4
	Broken family	30	3.9
Educational stage	Prep Class	9	1.2
	1. Year	153	19.9
	2. Year	207	26.9
	3. Year	149	19.4
	≥4. Year	252	32.7

Maternal education level	Primary school	296	38.4
	Middle school	144	18.7
	High school	221	28.7
	University	109	14.2
Paternal education level	Primary school	183	23.8
	Middle school	120	15.6
	High school	256	33.2
	University	211	27.4
Family income level	Low	64	8.3
	Moderate	473	61.4
	High	233	30.2
Time spent on the internet (mean SD)	<4 hour	182	23.6
	4-5 hour	277	36.0
	6-7 hour	131	17.0
	≥8 hour	180	23.4
Frequency of social media use	Low	43	5.6
	Moderate	114	14.8
	High	613	79.6
Frequency of online gaming	Low	493	64.0
	Moderate	132	17.1
	High	145	18.9
Electronic device	Telephone	768	99.7
	Laptop	631	81.9
	Tablet	152	19.7
	e-book	14	1.8

Research Instruments

Firat Netlessphobia Scale

It was developed by Kanbay et al. in 2021 and is a 12-item scale. It has a one-dimensional and 5-point-Likert rating. There is no reverse-scored item on the scale. Evaluation of the scale is based on the total score, and an increase in the score indicates an increase in the level of netlessphobia. In the scale development study, Cronbach's alpha value was found to be 0.93 (Kanbay et al, 2021). In this study, Cronbach's alpha value was 0.90.

Big Five Personality Inventory

Benet-Martinez and John developed it as the "Five Factor Inventory" (Benet-Martinez & John, 1998). The scale consists of 44 items. It evaluates the personality of individuals through the dimensions of "neuroticism", "extraversion", "openness", "agreeableness" and "conscientiousness". In the scale, each dimension consists of items as follows: "neuroticism" 8 items; "extraversion" 8 items; "agreeableness" 9 items; "conscientiousness" 9 items and "openness" 10 items. High scores from the subscales indicate that the individual has a high level of personality traits measured by that subscale. The Turkish adaptation of the scale was made in Turkey as part of an international study (Schmitt et al, 2007). The reliability coefficients for the sub-dimensions of the Five Factor Personality Traits Scale range from 0.64 to 0.77 (Sumer et al, 2005). In the current study, values varying between 0.63 and 0.74 were obtained.

Data Analysis

Data were analyzed with SPSS.22. Descriptive (number, percentage, mean, standard deviation) analyses, Pearson correlation analysis and hierarchical regression analysis were performed. Before analysis, skewness-kurtosis values were checked and found to be normally distributed. A p-value of <0.05 was considered statistically significant.

Procedure

The study data were obtained by face-to-face data collection method using the Firat Netlessphobia Scale, the Big Five Personality Inventory, an 11-question questionnaire prepared by the researchers and examining the sociodemographic characteristics and internet usage habits of the participants. Ethics committee approval was obtained from the Suleyman Demirel University Faculty of Medicine Clinical Research Ethics Committee for the study (Date: 23/12/2021, Decision Number: 345). The questionnaire was applied to the students between March and April in the 2021-2022 university spring term.

Results

Pearson correlation analysis was performed to analyze the participants' personality traits with netlessphobia. A statistically significant positive correlation between netlessphobia and neuroticism, and a negative correlation with conscientiousness was found. There was no significant relationship between other personality types and netlessphobia. A negative correlation was determined between neuroticism and other personality types. And a positive correlation has been found between personality types except for neuroticism (Table 2).

Table 2. Correlations between personality traits and netlessphobia

	M	SD	1	2	3	4	5	6
1. Netlessphobia	34.22	10.64	-					
2. Extraversion	26.90	5.57	-.043	-				
3. Agreeableness	32.00	5.23	-.050	.178**	-			
4. Conscientiousness	30.90	5.64	-.162**	.305**	.256**	-		
5. Neuroticism	24.66	5.26	.205**	-.291**	-.164**	-.306**	-	
6. Openness	35.54	6.07	-.039	.348**	.187**	.273**	-.111**	-

Note. N: 770. *p < .05. **p < .01.

Neuroticism and conscientiousness, which were detected to be significantly associated with netlessphobia in the correlation analysis, were also included in the hierarchical regression analysis. The VIF value used to identify multicollinearity was 1.10 among the items in the scale, and it was determined that there was no multicollinearity problem. In the hierarchical regression analysis, neuroticism was included in the model first and was statistically significant. Conscientiousness was put in the second step. As a consequence of regression analysis, it was observed that neuroticism increased the netlessphobia score while conscientiousness decreased (Table 3).

Table 3. Predictive role of big personality traits on netlessphobia

Variable	Model 1				Model 2			
	b	SE	β	t	b	SE	β	t
Neuroticism	.41	.07	.21	5.80**	.35	.08	.17	4.64**
Conscientiousness	-	-	-	-	-.21	.07	-.11	-2.98
<i>Constant</i>	24.01	1.80	-	13.33	32.08	3.25	-	9.87
<i>R</i> ²	.04				.05			
<i>Adj. R</i> ²	.04				.05			
<i>Durbin Watson</i>	-				.90			
<i>F</i> (<i>dfn</i> , <i>dfd</i>)	33.58 (1,768)				21.39 (1,767)			
<i>AIC</i>	5798.59				5791.70			
<i>BIC</i>	5812.53				5810.34			

Note. AIC: Akaike's Information Criterion, BIC: Bayesian Information Criterion, **p < .01.

Discussion and Conclusion

This study investigated the relationship between the five-factor personality traits and their effects on netlessphobia. After performing correlation analysis, it was observed that all factors except neuroticism showed a positive correlation

and a negative correlation with neuroticism. Another important finding is that, as determined by the results of hierarchical regression analysis, conscientiousness has a negative impact on netlesphobia, and neuroticism has a positive one.

The lack of studies on netlesphobia and personality traits has been noticed in the literature. However, the results of this study are supported by other studies on digital addictions and personality scales. The hypothesis that neurotic personality trait positively affects netlesphobia was confirmed by this study. Neurotic individuals have feelings such as being nervous, anxious, insecure, withdrawn, depressed, and worthless (Buckley & Doyle, 2017; Erdheim et al, 2006). Internal traits that make up the neurotic personality are impulsivity, depressiveness, anxiety, aggression, self-consciousness and vulnerability (Diener & Lucas, 2022). Since neurotic individuals are introverted, prone to depression and have feelings of social exclusion, they may have an excessive desire to use smart devices due to efforts to show their presence on the internet with social media tools. They want to separate themselves from online or offline games from the real world, which is an uncomfortable place for neurotic people (Lee et al, 2019; Gao et al, 2017). The difficulty of controlling desires that neurotic individuals face can facilitate this situation (McCrae & Costa, 2003). It has also been observed that there is a positive relationship between phone addiction (Gutiérrez et al, 2016), problematic internet use (Tsai et al, 2009) and game addiction (Weng et al, 2013) in people who cannot control their impulses. In environments without the internet, neurotic people may fear exclusion since they will not be able to express themselves comfortably, and they will miss the latest developments in social media or online games. When we examined the literature, it was observed that netlesphobia and personality scales had not been studied. Our findings are corroborated by other published research on digital addictions and personality scales. Neurotic individuals are more prone to digital addiction (Parmaksiz, 2022) and internet addiction (Kayis et al, 2016). Additionally, neurotic individuals may need digital tools to cope with feelings of depression. There is a positive relationship between, another similar digital disorder, phubbing and depression (Davey et al, 2017; Wang et al, 2017).

Neurotic individuals also consider themselves worthless, and individuals with phubbing behavior have a positive relationship with the feeling of worthlessness (Błachnio & Przepiorka, 2019). Since these individuals do not wish for face-to-face interaction with other people, they can easily share their posts via the internet and cope with these feelings thanks to all kinds of positive reactions and likes they receive. Again, in environments without the internet, these individuals may fear exclusion because they will not be able to express themselves comfortably and may miss out on the latest developments in social media or online games.

The hypothesis that conscientiousness, openness, extraversion, and agreeableness personality traits negatively affect netlesphobia was partially confirmed in this study. The hierarchical regression analysis was performed, and there was a negative relationship between conscientiousness and netlesphobia, no significant relationship was identified between openness, extraversion, agreeableness and netlesphobia. Conscientious people are talented, organized, success-oriented, responsible, disciplined, and planned individuals (Diener & Lucas, 2022). They can control their internet usage purposes and durations because they deal with their responsibilities in a planned and disciplined manner and are success-oriented (Servidio, 2019; Kayis et al, 2016). Conscientious individuals are also able to manage their impulses, unlike neurotic individuals. It has been observed that a positive relationship exists between people who cannot control their impulses and phone addiction (Gutiérrez et al, 2016). In a study on this subject, individuals with high conscientiousness and self-esteem are less likely to have an internet addiction. In contrast, individuals with low self-esteem and conscientiousness are more likely to have internet addiction (Servidio, 2019). In a meta-analysis study, extraversion, agreeableness, conscientiousness, and openness were found to have a protective effect on internet addiction (Kayis et al, 2016). The research results indicate a positive relationship between phubbing and depression, individuals with conscientiousness, openness, extraversion, and agreeableness personality traits negatively correlated with depression are also likely to be protected from netlesphobia (Davey et al, 2017; Wang et al, 2017).

Another conclusion drawn from this study was that agreeableness, openness, and extraversion did not affect the susceptibility to netlessphobia. In the literature, there are some results from studies such as; one on smartphone addiction in adults, it has been shown that conscientiousness, openness to experience, and agreeableness did not have an effect on phone addiction (Cho et al, 2017), and in another study investigating personality traits and internet addiction in university students, characteristics other than neuroticism did not have a predictive effect (Kuss. et al, 2013), seem to support this finding. However, some studies do not support this finding. In a study investigating internet addiction among university students, extraversion and agreeableness had a negative effect on internet addiction, and openness had a positive effect (Servidio, 2019). And in another study in the same population, it was concluded that extraversion negatively predicted internet addiction (Morsunbul, 2014). The fact that there are different results in the literature on this subject may be due to the level of consciousness, cultural differences, social and economic opportunities of the participants, stress dimensions in their lives, differences in their opportunities to cope with this stress and age group and gender characteristics of the individuals of those countries where the studies were conducted. Specific to this study, it is thought that neuroticism is predominant in increasing susceptibility to netlessphobia, and conscientiousness in its decrease is more dominant than other personality traits.

In addition, this study shows that personality traits affect each other; in particular, it was concluded that neuroticism was negatively correlated with other personality traits, and this data supports almost all of the studies in the literature. The literature shows that there are studies describing that neuroticism has a negative correlation with conscientiousness, agreeableness, extroversion (Erzen et al, 2021); and a negative correlation with all other personality traits (Par maksiz, 2022). Cognitive behavioral therapies for individuals with predominant neurotic personality traits or problems in coping with anxiety and stress management contribute to the reduction in neuroticism level of neuroticism. In addition, personality traits such as conscientiousness and agreeableness are positively affected. This way, the tendency to problematic behaviors and habits such as netlessphobia, internet addiction, and phubbing can be pared down. The study has some limitations. Since the study was designed in a cross-sectional type, it may not be sufficient to draw a direct cause-effect relationship between netlessphobia and personality traits. Further longitudinal studies on this will be useful for a better and more precise evaluation of the cause-effect relationship.

The survey respondents might have exaggerated or underestimated their distress associated with not having an internet connection, possibly because they had access to the internet at the time the survey was administered. This should be taken into account in the assessment of the results. These results can be strengthened with further data obtained by studies that will be designed in the case-control type among individuals with and without internet access.

Recommendations

This study examines the relationship between netlessphobia, which is one of the inevitable problems of today, and personality traits, some causes that have a predictive effect on this have been revealed. There is a need to develop projects to prevent the concept of netlessphobia, which is likely to continue to be a problem in the future. In particular, raising people's awareness on this issue and making society mindful of the aspects and seriousness of netlessphobia and other technological addictions can help to progress in this regard. Interventions to reduce neuroticism, one of the undeniable factors in the susceptibility to netlessphobia, will also be effective.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Funding

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

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Research Article

Investigating the effects of a mental health symposium on knowledge, attitudes, and practices of college student leaders in a rural institution in the Philippines

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Article Info

Received: 5 May 2023

Accepted: 25 June 2023

Online: 30 June 2023

Keywords:

Conscientiousness

College students

Mental health

Mental health stigma

Well-being

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Abstract

This study aimed to investigate if there was a significant difference in the knowledge, attitudes, and practices of 122 college student leaders in a rural institution in the Philippines pre-and post-mental health symposium. The study utilized a mixed methodology, mainly a pretest-posttest design. The participants completed an adapted and validated online instrument before and after the symposium, and the data were analyzed using IBM SPSS Statistics 27 and MAXQDA version 2020. While there were no significant differences between the pre-and posttest results, participants showed an increased understanding and tolerance of mental health challenges. In the focus group discussions, the participants were generally willing to help friends with mental health problems and integrate people with mental illnesses into the community. The study also highlighted a need for increased awareness and understanding of mental health and well-being in society and the importance of reducing stigma and supporting individuals with mental health challenges. In conclusion, despite improvements in knowledge and attitudes, stigma-related mental health knowledge remains critical in promoting awareness and support for individuals with mental health challenges. Moreover, our study emphasizes the importance of increased government spending on mental health services and promoting inclusivity and support for individuals with mental health challenges in the community.

To cite this article

Villarino, R.T.H.& Villarino, M.L.F. (2023). Investigating the effects of a mental health symposium on knowledge, attitudes, and practices of college student leaders in a rural institution in the Philippines. *Psychology Research on Education and Social Sciences*, 4(2), 49-57.

Introduction

The issue of mental health and well-being among university students is a global concern (Sawadogo et al., 2020). Several studies have suggested that a significant number of students experience poor mental health while in college (Aggarwal et al., 2013; Barrable et al., 2018; Basu et al., 2017; Dalky & Gharaibeh, 2019; R. T. Villarino, 2023; Villarino et al., 2022a). The World Health Organization's International College Student Initiative, which surveyed 19 colleges/universities in eight countries, found high rates of mental disorders among university students (World Health Organization, 2020). This has led universities to focus on understanding the extent and nature of mental health issues to develop appropriate prevention, promotion, and support programs (Villarino et al., 2022b).

In the Philippines, studies on university students have shown varying prevalence rates of mental health problems or disorders compared to the general adult population (Lally et al., 2019; Paler et al., 2022; Pedrelli et al., 2015). The Mental Health Act of the Philippines (Lally et al., 2019) has identified specific concerns and needs of college students, such as

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potentially elevated levels of distress and mental health problems, a higher risk of suicidal behaviors, and barriers to access mental health services. The report recommends expanding online mental health services, improving health insurance coverage for college students' mental health services, and requiring all tertiary institutions to have a student mental health and well-being strategy.

Mental health literacy is a crucial factor in prevention and promotion efforts. It refers to knowledge and beliefs about mental disorders that aid their recognition, management, or prevention (Birkie & Anbesaw, 2021; LaMontagne et al., 2023; Sawadogo et al., 2020). High mental health literacy is associated with greater intentions to seek help among university students (Barrable et al., 2018; Morgan & Simmons, 2021; Villarino et al., 2022a). On the other hand, poor mental health literacy reduces the likelihood of seeking appropriate professional treatments and therapies for mental health problems. Stigmatizing attitudes can also hinder service use and may lead to unsupportive, discriminatory behaviors towards people with mental health problems (Aggarwal et al., 2013; Britt et al., 2020). Interventions that target mental health literacy, stigma reduction, and helping behaviors can inform evolving policies and practices in the university sector (Hernández-Torrano et al., 2020; Villarino et al., 2022b; Zahid Iqbal et al., 2021).

This study aimed to address a critical gap by exploring whether there is a significant difference in knowledge, attitude, and practices among college student leaders in a rural institution in the Philippines after attending a symposium on mental health and well-being.

Method

Study Design

This investigation employed the mixed-method pretest-posttest design. Data on the participants' knowledge, attitude, and practices on mental health and well-being were taken before and after the symposium. Additionally, the participants provided insights on the knowledge, attitude, and practices of mental health and well-being statements through a focus group discussion after the symposium.

Setting, Participants, Inclusion, and Exclusion Criteria

The setting of the study was a state university in Cebu, Philippines. The participants were college student leaders in the ten organizations in the aforementioned institution. We chose the student leaders as our participants because they were the suitable population to study regarding mental health, as they have a higher level of involvement in campus activities and may influence the broader student population's knowledge, attitudes, and practices regarding mental health. Moreover, the mental health symposium conducted was part of the information and awareness drive initiated by the Supreme Student Government in collaboration with the Guidance and Counselling Office in promoting mental health and well-being among the college students in the university. College students who were not student leaders in the different organizations were excluded from the study.

Sample Size and Sampling Method

The sample size included in the study was 122 student leaders in the different organizations at the university. These were the Fisheries Student Council (FiSCo), Supreme Student Government (SSG), Musical Ensemble, Ang Taga (Student Publication), College of Arts and Sciences (CASEL) SOCIETY, Bachelor of Industrial Technology Council (BITCO), Hospitality Management Student Council (HOMSCO), Future Science and Technology Leaders of the Philippines (FSTLP), Industrial Engineering Students Council (IESC), and the College of Education (COEd). The sampling used was a purposive sampling method.

Ethics

The University Research Ethics Committee [UREC] of Cebu Technological University granted ethical approval to the data collecting procedures, informed consent forms, and data collection instruments. The participants received a certificate of participation after the duration of the study.

Instrument

The tool utilized in this research was adapted and revised from the investigation conducted by Basu et al. (2017) and contained eight statements relating to mental health challenges and stigma. Nine statements were used to assess attitude, including fear about mental health challenges, understanding and acceptance of mental health challenges, integration of individuals with mental health issues into the community, and the causes of mental health challenges. For practices related to mental health and well-being, the instrument included statements such as "I am capable of maintaining a relationship with a friend who experiences mental health issues," "I am capable of collaborating with someone who experiences mental health issues," and "I am capable of living with someone who experiences mental health issues." On a five-point Likert scale, participants rated their level of agreement with each statement. Following the collection of completed instruments, the principal investigator verified the accuracy and completeness of the participants' responses.

The Mental Health and Well-being Symposium Program

The mental health and well-being symposium's content was based on a study conducted by Villarino et al. (2022c), held on April 27, 2023, from 9:00 AM to 5:00 PM. The symposium covered several topics in the morning, including Introduction to the Online Health and Well-being Program, Health, Fitness, and Wellness, The Mental Health Continuum, and Understanding Mental Health and Mental Illness. Meanwhile, the afternoon session covered Mental Health Promotion, Seligman's PERMA model of subjective well-being, and Cognitive Behavioral Therapy (CBT) for Health and Wellness. The lead researcher conducted the sessions, and each topic lasted 45 to 60 minutes, with participants allowed to ask questions after each session. Focus group discussions and dialogue sessions took place after the symposium, and participants were provided with PDF pamphlets and Powerpoint® Slides.

Scoring Procedure

The five-point Likert Scale was provided to assess the level of agreeableness of the participants on the different statements on their knowledge, attitude, and practices on mental health and well-being.

Table 1. Scoring range for the level of agreeableness of the participants on their knowledge, attitude, and practices on mental health and well-being

<i>Scale</i>	<i>Range</i>	<i>Verbal Description</i>	<i>Explanation</i>
5	4.20-5.00	Strongly Agree	The level of agreeableness towards the statement is very high
4	3.40-4.19	Agree	The level of agreeableness towards the statement is high
3	2.60-3.39	Uncertain	The level of agreeableness towards the statement is neither high nor low
2	1.80-2.59	Disagree	The level of agreeableness towards the statement is low
1	1.00-1.79	Strongly Disagree	The level of agreeableness towards the statement is very low

Statistical Analysis

The participants' profile were expressed in frequencies and percentages. Their knowledge, attitudes, and practices on mental health and well-being were expressed as means with standard deviations. To determine if significant differences exist between the pre-post results, a paired independent t-test was used. The content analysis method was utilized to evaluate the results of the focus group discussions among the participants after the symposium. All quantitative data were analyzed using IBM SPSS Statistics 27, and qualitative data were analyzed using MAXQDA version 2020.

Results

Profile of the Participants

As presented in Table 1, most participants are aged 24 and below. This age group makes up 72.95% of the total participants, while the 25-34 age group and the 35 and above age group make up 14.75% and 12.30%, respectively. Regarding sex, females are the majority, comprising 55.73% of the total participants. Conversely, males comprise only 36.88% of the total participants, while those who prefer not to say constitute 7.38%.

Table 2. Participants demographics structures

	Frequencies (N=122)	Percentage
Age		
24 years old and below	89	72.95
25-34 years old	18	14.75
35 and above	15	12.30
Sex		
Male	45	36.88
Female	68	55.73
Prefer not to say	9	7.38

Test of Significant Difference between the Pre-and Post-Knowledge on Mental Health and Well-being

Table 2 presents the participants' pretest knowledge of mental health and well-being. The mean for statements describing someone with mental health challenges is (3.32±0.82), with a verbal description of uncertain. On the other hand, the mean for stigma-related mental health knowledge is 3.61, with a standard deviation of ±0.67 and a verbal description of agree. This indicates that in the pretest, the participants were uncertain about certain aspects of mental health, such as when someone with mental health challenges cannot be held responsible for their actions, the severity of depression, stress, and anxiety, whether someone should be hospitalized, and the curability of mental health conditions. However, they agreed that counseling and medication are effective treatments; they know how to advise a friend with mental health challenges to seek professional help.

In the posttest results, the mean for statements describing someone with mental health challenges is (3.41±1.04), with a verbal description of agree. The mean for stigma-related mental health knowledge is 3.89, with a standard deviation of ±1.03 and a verbal description of agree. This indicates that after the symposium, the participants agreed that certain factors affect an individual's responsibility for their actions in dealing with mental health challenges. They also recognized that mental health conditions like depression, stress, and anxiety can affect an individual's ability to function, and they acknowledged the curability of mental health conditions. Additionally, the participants knew about the stigma associated with mental health.

The test of significant difference between the pre-and post knowledge on mental health and well-being had a computed t and p-value of (t=-1.30,p=0.19). The result indicates no statistically significant difference between the pre-and post-knowledge of the participants on their mental health and well-being.

Table 2. Significant difference between the pre-and post-knowledge on mental health and well-being

	Knowledge						
	Pretest Mean	SD	VD	Posttest Mean	SD	VD	p-value
Statements that describe that someone is having mental health challenges	3.32	±0.82	Uncertain	3.41	±1.04	Agree	0.19
Stigma-related mental health knowledge	3.61	±0.67	Agree	3.89	±1.03	Agree	

N=122; SD: Standard Deviation; VD: Verbal Description: Strongly Agree 4.20-5.00; Agree 3.40-4.19; Uncertain 2.60-3.39; Disagree 1.80-2.59; Strongly Disagree 1.00-1.79; Paired independent t-test; *Significance level at 0.05.

Test of Significant Difference between the Pre-and Post-Attitude on Mental Health and Well-being

As can be gleaned in Table 3, the pretest means on attitude concerning fear about mental health challenges (3.81, ±0.44), integrating people with mental illness into the community (4.03, ±0.73), and the causes of mental health challenges (3.88, ±0.40) got an overall rating of agree. On the other hand, understanding and tolerance of mental health challenges (4.23,±0.23) got an overall rating of strongly agree. The findings indicate that in the pretest, the participants agree that they are willing to help friends with mental health challenges and that anyone can have them. Furthermore, the participants also strongly agree that the best therapy for people with mental health challenges is to be part of a normal community and that one of the causes of mental health challenges is a lack of willpower to seek help.

In the posttest means on attitude concerning fear about mental health challenges (4.14, ±0.32) and the causes of mental health challenges (4.18, ±0.64) got a rating of agree while understanding and tolerance of mental health challenges (4.54,±0.16), integrating people with mental illness into the community (4.54, ±0.69) got an overall rating of strongly agree. The results indicate that the participants were willing to help friends with mental health challenges. Since understanding and tolerating mental health challenges and integrating people with mental illness into the community got an overall rating of strongly agree, it indicates that the participants strongly agree that being part of a normal community is the best therapy for people with mental health challenges.

The test of significant difference between the pre-and post attitude on mental health and well-being on fear about mental health challenges, integrating people with mental illness into the community, and the causes of mental health challenges got a computed t and p values that were more than the significance level of 0.05. Thus, the results indicate no significant differences between the pre and posttest results on these variables. However, understanding and tolerance of mental health challenges got a computed p-value of (0.02), indicating a statistically significant difference between the pre-and posttest results.

Table 3. Significant difference between the pre-and post-attitude on mental health and well-being

	Attitude			Posttest Mean	SD	VD	p-value
	Pretest Mean	SD	VD				
Fear about mental health challenges	3.81	±0.44	Agree	4.14	±0.32	Agree	0.13
Understanding and tolerance of mental health challenges	4.23	±0.23	Strongly Agree	4.54	±0.16	Strongly Agree	0.02*
Integrating people with mental illness into the community	4.03	±0.73	Agree	4.54	±0.69	Strongly Agree	0.06
Causes of mental health challenges	3.88	±0.40	Agree	4.18	±0.64	Agree	0.12

N=122; SD: Standard Deviation; VD: Verbal Description: Strongly Agree 4.20-5.00; Agree 3.40-4.19; Uncertain 2.60-3.39; Disagree 1.80-2.59; Strongly Disagree 1.00-1.79; Paired independent t-test; *Significance level at 0.05.

Test of Significant Difference between the Pre-and Post-Practices on Mental Health and Well-being

The pretest practices on mental health and well-being among the participants are presented in Table 4. In terms of practices, statements: I can continue a relationship with a friend who developed a mental health problem got a mean with standard deviation of (3.97, ±0.66), I can work with someone with a mental health problem (3.70, ±0.73), and I can live with someone with a mental health problem got an overall mean of (3.50, ±1.01) with an overall rating of agree.

Similarly, in the posttest, statements: I can continue a relationship with a friend who developed a mental health problem got a mean with standard deviation of (3.73, ±1.01), I can work with someone with a mental health problem (4.00, ±0.77), and I can live with someone with a mental health problem got an overall mean of (3.91, ±0.03) with an overall rating of agree. The findings indicate that the participants generally are proactive in their practices towards continuing a relationship, working, and living with someone with a mental health problem in both the pretest and posttest.

The test of significant difference between the pre-and post-practices on mental health and well-being had a computed t and p-value greater than the significance level of 0.05; thus, the results indicate no statistically significant difference between the pre-and post-practices of the participants on their mental health and well-being.

Table 4. Significant difference between the pre-and post-practices on mental health and well-being

	Practices						p-value
	Pretest Mean	SD	VD	Posttest Mean	SD	VD	
I can continue a relationship with a friend who developed a mental health problem.	3.97	±0.66	Agree	3.73	±1.01	Agree	0.79
I can work with someone with a mental health problem.	3.70	±0.73	Agree	4.00	±0.77	Agree	0.66
I can live with someone with a mental health problem.	3.50	±1.01	Agree	3.91	±0.83	Agree	0.12

N=122; SD: Standard Deviation; VD: Verbal Description: Strongly Agree 4.20-5.00; Agree 3.40-4.19; Uncertain 2.60-3.39; Disagree 1.80-2.59; Strongly Disagree 1.00-1.79; Paired independent t-test; *Significance level at 0.05.

Content Analysis of the Focus Group Discussions on the Knowledge, Attitude, and Practices on Mental Health and Well-being Post-Symposium

Knowledge of Mental Health and Well-being

Mental health challenges:

"Mental health challenges can affect a person's behavior and cognition. It does not necessarily mean that they cannot be held responsible for their actions." (FiSCo)

"It is important to understand that mental health challenges are like any other health condition and can be treated and managed with the right interventions, including therapy, medication, and lifestyle changes." (SSG)

"While a complete cure may not always be possible, many people with mental health challenges can recover and lead fulfilling lives with appropriate support and care." (CASEL) SOCIETY

Stigma-related mental health knowledge:

"Stigma-related mental health knowledge is critical in promoting understanding and support for individuals with mental health challenges. Unfortunately, many people still hold negative attitudes and beliefs about mental health, which can lead to stigmatization and discrimination." (BITCO)

"It is important to understand that mental health is not related to 'craziness' or any other negative stereotypes." (HOMSCO).

Attitude on Mental Health and Well-being

"Fear and stigma around mental health challenges are still prevalent in many societies, which can lead to discrimination and marginalization of individuals with mental health conditions. However, it is important to understand that mental health challenges are no different from any other health condition and can affect anyone regardless of age, gender, or background." (FSTLP)

"Understanding and tolerance of mental health challenges is an important issue that needs government and society's attention. The government should increase spending on mental health services to ensure that people with mental health challenges can access the necessary treatment and support." (IESC)

"Integrating people with mental illness into the community is crucial to promoting mental health and reducing stigma. Neighborhoods need to practice inclusivity and support people facing mental health challenges." (COEd)

"The statement 'There is something about people with mental health challenges that makes it easy to tell them apart from normal people' is a misconception and inaccurate. Mental health challenges do not have any physical or visible characteristics that distinguish them from 'normal' people. Mental health challenges can affect anyone, regardless of age, gender, race, or background." (Musical Ensemble)

Practices on Mental Health and Well-being

"It's possible to continue a relationship, work with, or live with someone with a mental health problem. Providing support and understanding to those with mental health challenges is crucial to their recovery and overall well-being." Ang Taga (Student Publication)

"When continuing a relationship with a friend with a mental health problem, it's important to approach the situation with empathy and understanding. Be patient, supportive, and non-judgmental, and encourage them to seek professional help if needed." (SSG)

"When working with or living with someone with a mental health problem, it's important to approach the situation with compassion and understanding. Please educate yourself about their condition, communicate openly and honestly, and provide support and accommodations. It's also important to respect their privacy and autonomy and to avoid stigmatizing language or behavior." (FSTLP)

Discussion and Conclusion

This study examined if there was a significant difference between the pre-and posttest knowledge, attitudes, and practices regarding mental health and well-being among college student leaders after a mental health symposium. In the pretest, the participants were uncertain about certain aspects of mental health, such as the severity of depression and anxiety, while agreeing that counseling and medication are effective treatments. In the posttest, participants agreed more on certain factors affecting an individual's responsibility for their actions and recognized the curability of mental health conditions. The participants' attitudes showed a general willingness to help friends with mental health challenges and integrate people with mental illness into the community. However, there were no significant differences between pre-and posttest results, except for the understanding and tolerance of mental health challenges. In terms of practices, participants were generally proactive towards continuing a relationship, working, and living with someone with a mental health problem in both the pre-and posttest.

Mental health challenges are becoming increasingly prevalent worldwide, and promoting awareness and reducing the stigma associated with mental health disorders is essential (Villarino et al., 2023). Our findings highlight mental health education's importance in promoting understanding and tolerance towards mental health challenges among college student leaders. The posttest results showed an increased awareness and recognition of the curability of mental health conditions and a willingness to help friends and integrate people with mental illnesses into the community. Recent studies (Barrable et al., 2018; Morgan & Simmons, 2021; Villarino et al., 2022) emphasize the need for mental health education among college students. These studies, as mentioned earlier, found that although most of the college student respondents recognized the importance of mental health awareness, they still lacked knowledge regarding specific mental health conditions and treatments. Furthermore, the stigma associated with mental health disorders persisted, hindering individuals from seeking help (Dalky & Gharaibeh, 2019; Pedrelli et al., 2015; Villarino, 2023). To promote mental health education among college students, incorporating mental health education into the college curriculum and creating a campus environment that promotes mental health awareness and support (Barrable et al., 2018; Eisenberg et al., 2009; Huckins et al., 2020).

Furthermore, the findings from the focus group discussions suggest a need for more knowledge and understanding of mental health and well-being in society. Mental health challenges can affect anyone, and it's essential to understand that these challenges are like any other health condition and can be treated and managed with the right interventions (Hernández-Torrano et al., 2020; Hyun, 2017). However, stigma-related mental health knowledge is still critical in promoting understanding and support for individuals with mental health challenges, as many still hold negative

attitudes and beliefs about mental health (Britt et al., 2020; Eisenberg et al., 2009). The attitudes towards mental health and well-being were influenced by fear and stigma, which can lead to discrimination and marginalization of individuals with mental health conditions (Britt et al., 2020; Pescosolido, 2013). It is crucial that the government increases spending on mental health services to ensure that people with mental health challenges can access the necessary treatment and support (Villarino et al., 2022a). Additionally, promoting inclusivity and supporting people facing mental health challenges in the community is necessary for promoting mental health and reducing stigma (Villarino et al., 2022b).

In terms of mental health and well-being practices, it was found that it is possible to continue a relationship, work with, or live with someone with a mental health problem. Providing support and understanding to those with mental health challenges is crucial to their recovery and overall well-being (Huckins et al., 2020; Zahid Iqbal et al., 2021). It is essential to approach the situation with empathy and compassion, be patient, supportive, and non-judgmental, and encourage them to seek professional help if needed (Basu et al., 2017; Sawadogo et al., 2020). When working with or living with someone with a mental health problem, it is also crucial to approach the situation with compassion and understanding, educate oneself about their condition, communicate openly and honestly, and provide support (LaMontagne et al., 2023; Pedrelli et al., 2015).

In conclusion, our study indicates a need for more understanding of mental health and well-being in society. Although participants' knowledge and attitudes improved after the study, stigma-related mental health knowledge is still critical in promoting awareness and support for individuals with mental health challenges. Our study also emphasizes the importance of increased government spending on mental health services and promoting inclusivity and support for individuals with mental health challenges in the community.

Recommendations

Future researchers should effectively explore strategies to reduce stigma and discrimination against mental health issues. Moreover, there is a need for more extensive research on the impact of mental health interventions, such as symposiums, seminars, and workshops on students' knowledge, attitudes, and practices. Future studies can also investigate the effectiveness of different mental health interventions for students in various settings, such as urban and suburban areas. Finally, more research is needed to evaluate the effectiveness of mental health policies and programs implemented by the government and institutions to support individuals with mental health challenges.

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Research Article

University female students' cybersex behaviours: correlational and regional study

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Article Info

Received: 3 April 2023

Accepted: 25 June 2023

Online: 30 June 2023

Keywords:

Correlational study

Cyber sex

Female students

Regional study

Self-control

Abstract

Sexuality is a taboo topic for Indonesian families. Because sexual behavior is heavily influenced by cultural and customary norms, sexual orientation, and most importantly religion. Indonesians embrace Islam by the end of 2022 or 87.02% of the population in the country. Students are a group that uses and is connected to the internet every day, making all individual activities easier and accessing information faster. But behind the benefits, of course, there are also negative impacts from those who abuse the internet by sharing pornographic sites. Several social media found lots of pictures, videos, stories, with pornographic elements that spread freely without any protection. The activity of accessing, distributing and providing pornographic content is called cybersex. Cybersex is not a new phenomenon in Indonesia but it is increasing due to the pandemic and has had many negative impacts on the younger generation. One of the things that can be done to avoid cybersex is to increase self-control. The study aims to determine whether there is a relationship between self-control and cybersex behavior in female students in one of normal in Indonesia. Respondents in this study were female students in one of normal city university of Indonesia, as many as 350 subjects aged 18 to 24 years and were not married. This study uses a quantitative method with data collection techniques using a questionnaire through the Google form. The results of the data analysis show that there is a negative relationship between self-control and cybersex behavior. This can be seen from the results of the hypothesis test using Spearman rho with a result of 0.00 and a correlation value between variables of -0.385, which means that the higher the self-control, the lower the cybersex behavior. Cybersex is a topic of controversy because it relates to how physical and mental health conditions result from the negative impacts it causes. Recommended that future researchers use qualitative or experimental research methods to obtain more in-depth research results and it is not recommended to use quantitative research methods because the scale used will cause the subject to fill in a scale that does not correspond to his condition.

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To cite this article

Anugrah, P., & Dewi, E.M.P. (2023). University female students' cybersex behaviours: Correlational and regional study. *Psychology Research on Education and Social Sciences*, 4(2), 59-67.

Introduction

About Indonesian Culture and Stigma

Sexuality is a taboo topic for Indonesian families. Because sexual behavior is heavily influenced by cultural and customary norms, sexual orientation, and most importantly religion. Based on data from the Ministry of Home Affairs of the Republic of Indonesia, Indonesia's population is 273.32 million. 241.7 million Indonesians embrace Islam by the end of 2022 or 87.02% of the population in the country.

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In the cultural norms in Indonesia, both women and men are taught not to do anything related to sex before they get married. Because having sex before marriage is of course not allowed. This applies to both women and men. Society's stigma for men will appear such as being at risk of suffering from infectious diseases, and impregnating women before marriage. Whereas for women having sex before marriage is a disgrace to the family and is said to be no longer a virgin. The feminist movement that defends women's virginity in Indonesia is quite weak because there is still a lack of public awareness and the culture and beliefs of the people in Indonesia have been strong for a long time.

Therefore, in several cases it was found that teenagers channeled their sexual desires through masturbation by watching pornographic videos to reduce this risk. Society's associations with attraction to pornography are more closely related to men. The existence of pornography on the internet is also a fairly new phenomenon. There is therefore little scrutiny either in academia or in the popular media of women engaging in cybersex.

Problem Cybersex Students

Student is a title held by a person studying at a college or university (Fitriana, 2020) Students are required to have good morals, because students act as role models in the midst of society. The learning process at this time involves a lot of internet access. The emergence of the internet makes it easier for students to find reference materials and learning materials. According to APJII data (2022) it is stated that students and students contribute to the internet network as much as 99.26%. Based on these data, it is hoped that the internet can have a positive impact and be utilized as well as possible according to needs.

During their development, students are in a transitional phase from late adolescence to early adulthood. According to Santrock (2011) suggests that the transition from late adolescence to early adulthood is called emerging adulthood which occurs at the age of 18 to 25 years. This period is characterized by sexual activity. Students are intellectuals who should be able to use the internet for positive things and not take advantage of existing technology for negative things. The ease of accessing the fast and sophisticated internet cannot be separated from abuse. Quoted from Raharjo and Prastya (2021) stated that the Ministry of Communication and Informatics revealed that there were 1,573,282 negative content spread on internet sites from January to October 2021. Based on the overall data, Kominfo found that pornographic content dominated.

Based on initial data distributed via the Google form, it was found that out of 31 subjects, 67.7% of female students had accessed and opened adult sites, while 32.3% had never accessed adult sites. This statement supports the results of research conducted by Daneback, Cooper, and Mansson (2005) who argued that ages 19 to 24 years are the age group that engages in cybersex the most. The data shows that the adolescent to early adult age group dominates cybersex behavior.

In the results of further observations, the phenomenon of students doing cybersex has been found more and more and has been included in a lot of news where there are many female students offering sex video calls or selling porn video links. There is also a rise in the phenomenon of open booking out (open BO) where it is not uncommon for videos of their sexual relations to be traded.

Carnes, Delmonico, Griffin (2001) suggests that there are several categories of forms of cybersex behavior, the first of which is access to internet pornography (for example, images, videos, text stories, magazine, movie, and games) because anyone it's easy to find that. The second form of cybersex behavior is accessing multimedia software that does not have to be online (such as watching VCD/DVD videos or pornographic films and playing pornographic games on a laptop or computer). Maheu (Lestari & Hartosujono, 2017) argues that Cybersex takes place when a computer contains tests, the unique data and images obtained from software, and from the internet or the internet for sexual sexuality used by people mainly involving two or more people are involved in whom everything that arouses sexuality is caused at others through images, sound, videos and reading. There are 4 aspects of cybersex; Online Sexual Compulsivity, Online Sexual Behavior Isolated, Online Sexual Behavior Social, and Online Sexual Spending (Carnes et al in Sauvika, 2017).

Arifani (2016) argues that adolescents and adults aged 12 to 24 use the internet for sexual education, entertainment, and pornographic shows which are transmitted to each other through adult online activities. The allure of cybersex lies in anonymity, meaning that most people visiting sexual sites on the internet do so for reasons of security and anonymity.

Factors that influence cybersex

Lestari & Hartosujono (2017) argued that self-control is the factors that influence cybersex behavior. Self-control shows how individuals can control their behavior, emotions and other drives in order to be accepted by society and not disturb the comfort of other individuals. The higher a person is able to control himself, the higher the control of his behavior. Conversely, the lower the self-control, the lower a person makes decisions that have a large negative risk. Ghufroon and Risnawati (2011) suggest that when individuals have high self-control, individuals are able to control everything related to their behavior. This means that individuals can organize and give consideration to making decisions in carrying out an action such as not opening adult content and trying to divert attention when curiosity or lust arises. High self-control in individuals can overcome the lack of ability and overcome various bad things that might happen from outside. High self-control can also help individuals to suppress and or prevent impulsive behavior. Conversely, when self-control is low, what happens is that individuals cannot suppress or prevent impulsive behavior which will lead to deviant behavior and addiction.

Averil (1973) proposes three aspects of self-control. One is behavioral control which involves managing implementation and the ability to modify stimulus, the second cognitive aspect involves obtaining information and making judgments, then the last aspect is decision control.

The results of study by Lestari & Hartosujono (2017) on the relationship between self-control and cybersex behavior at Glagah Sari Yogyakarta with a total of 80 subjects, show that the hypothesis stating a negative relationship between self-control and cybersex behavior is acceptable. In other word, the higher the self-control, the lower the cybersex behavior. Conversely, the lower the self-control, the higher the cybersex behavior.

In Indonesia, there may be a shift in the value of causes based on research results Hening (2015) has conducted research with the title: "Cybering's Future Acceptance in Germany and Indonesia". This study aims to compare cybering activities (cybersex) in German and Indonesian society. This comparative research shows that no significant differences were found between Indonesians and Germans in viewing or accepting new ideas of sexuality such as cybering. However, there is quite a difference in their acceptance of the cybering phenomenon if the activity will continue to occur in the future. The results of the study show that Indonesians seem more able to accept the existence of cybersex activity in the future compared to Germans. Social and cultural aspects seem to be overshadowed by the fact that society has now become increasingly global. This is in line with the increasing influence of internet penetration and new media technology.

Based on the explanation above, it can be concluded that students who are connected to the internet at any time have a risk of being caught in deviant behavior, namely cybersex due to low self-control. Deviant behavior such as cybersex can also attack anyone, both men and women. Based on preliminary data, female students access adult content due to boredom, pressure and curiosity. The anonymity factor is an internet feature that makes it easier for female students to hide their identities when accessing adult content. For this reason, the researchers concluded that it was important to conduct research on the relationship between self-control and cybersex behavior in female students in Indonesia because most of the subjects who filled out the initial data came from Indonesia. The purpose of conducting research is to determine the relationship between self-control and cybersex behavior in female students Indonesia.

Problem of Study

The problem in this study is there a relationship between self-control and cybersex behavior in female students in Indonesia? and is there a shift in value?

Method

Research Model

Quantitative method with correlational design is used in this research. According to Punch (2005) quantitative research has a meaning as research conducted based on empirical experience by collecting data in the form of numbers that can be counted and are numerical in nature. In addition, quantitative research is also defined as research based on certain assumptions, as well as determining variables and conducting analysis using valid research methods. These variables are related to Cybersex and Self-control.

Participant

The population in the study is female students university at Indonesia who were still in college, aged 18-24 years, active internet users and not married. The sample in the study used non-probability sampling, namely accidental sampling. Accidental sampling is a sampling technique by chance, meaning that anyone who is found and assessed as suitable to be a data source will be asked for availability to be a research respondent (Hadi, 2015). The sampling technique uses Isaac and Michael's theory with a total sample size of 350 subjects.

Participants were exposed to demographic data based on age 18 years (13 respondents), 19 years (42 respondents), 20 years (46 respondents), 21 years (69 respondents), 22 years (134 respondents), 23 years (32 respondents), 24 years (14 respondents). Then based on the origin of the participating universities, namely Makassar State University (199 respondents), State Islamic University (8 respondents) STIE Tri Dharma (7 respondents), Indonesian Muslim University (13 respondents), Muhammadiyah University Makassar (12 respondents), Polinas LP3I (7 respondents), Gunung Sari STIKES (8 respondents), Pelamonia Institute of Health Sciences (1 respondent), Fajar University (13 respondents), Bosowa University (33 respondents), and Atmajaya University (12 respondents). Furthermore, data on ethnic origin of the participants were Bugis (145 respondents), Makassar (135 respondents), Mandar (15 respondents), Javanese (12 respondents), Batak (1 respondent), Malay (1 respondent), Toraja (21 respondents), Luwu (2 respondents), Manado (1 respondent), Betawi (1 respondent), Buton (2 respondents), Bali (1 respondent), Bugis Makassar (3 respondents), Bojo (1 respondent), Enrekang (8 respondents), and Selayar (1 respondent). The latest demographic data is the religion adhered to by the participants, Islam (320 respondents), Christianity (28 respondents), Hinduism (2 respondents).

Data Collection Tools

The data collection methods in this study use the Likert scale. The Likert scale is used to measure the attitudes, opinions and perceptions of individuals or groups of individuals towards social phenomena (Sugiyono, 2014). The Likert scale model in this indicator is presented in the form of statements (supportive and unfavorable statements). Likert-type response options consist of five options: Strongly Disagree (STS), Disagree (TS), Neutral (N), Agree (S), and Strongly Agree (SS) (Azwar, 2017). Two types of scales were used in this study, namely the cybersexual behavior scale and the self-control scale.

Validity was tested using Aiken's V and by competent expert testing (expert judgement). Azwar (2018) proposes calculating the content coefficient based on the results of expert assessment of up to n people on a set of items to determine the extent to which these items represent measured constructs with the validity of Aiken's V content.

Cybersex Scale

The cybersex scale uses aspects of Carnes, Delmonico, Griffin (2001) compiled by Sauvika (2016). The scale consists of 20 item statements. Each clause statement consists of two types namely favorable and unfavorable. Aspects of cybersex in this study are online sexual coercion, isolated online sexual behavior, isolated online sexual behavior, and spending on online sexual services. Cronbach alpha reliability value is 0.89.

Self-Control Scale

The self-control scale that will be used in this study is a Likert scale using aspects suggested by Averill (1973). This scale consists of 14 items compiled by Mulya (2021) and modified by the researcher according to the needs of the study. Aspects measured on the self-control scale include behavioral control, cognitive control, and decision-making control. Cronbach alpha reliability value is 0.79.

Data Analysis

The data analysis in this study uses a descriptive analysis and a correlation test. The descriptive analysis consisted of an analysis of the number of study participants (N), mean score on a scale (M), standard deviation (SD), minimum score (Xmin), and maximum score (Xmax). The descriptive analysis was carried out using the SPSS 26.0 application for Windows. Then, the obtained results were divided into five categorization areas, namely very low, low, medium, high and very high, according to the categorization standards. Correlation test using the *Spearman rho test*.

Ethic

Ethical Committee for Psychological Research valid until July 2nd 2023

Results

The self-control scale consists of 10 items with a score range of 1 to 5. The research data shows that the lowest score is 11 and the highest score is 50 with a standard deviation of 6.66.

Table 1. Self-control behavior self-report perception

	Hypothetical				Empirical	
	Min	Max	Mean	SD	Mean	SD
Self Control	11	50	30	6,66	40,40	6,05

The criteria for categorization of self-control variables in female students can be seen in the following table:

Table 2. Self-control perception level categorization

Category	Criteria	Frequency	Percent
Very low	< 17	1	0,29%
Low	17-22	1	0,29%
Medium	23-36	77	22,00%
High	37-43	152	43,43%
Very high	43 <	119	34,00%
Total		350	100%

The table above shows that there are 119 subjects who are in a very high category of self-control in 34.00%. The high category there are 152 subjects or 43.43%. In the medium category there are 77 subjects or 22.00%. In the low category there is 1 subject by percentage 0.29%. Then in the very low category there is one subject with a percentage of 0.29%. The results of the table above show that the empirical mean is greater than the hypothetical mean. This means that the respondent's level of self-control tends to be high.

The description of the results of the subject's score on the cybersex scale was obtained from the respondent's score on the scale item. The cybersex scale consists of 14 items with a score range of 1 to 5.

Table 3. Cybersex behavior self-report perception

Variable	Hypothetical				Empirical	
	Min	Max	Mean	SD	Mean	SD
Cybersex	14	58	42	9,333	24,80	8,83

The research data shows that the lowest score is 14 and the highest score is 58 and standard deviation is 9.333. The results of the table above show that the empirical mean is smaller than the hypothetical mean, this means that the level

of cybersex is low, or statistically there are more people who do not show cybersex behavior. The categorization of cybersex variables in female students can be seen on the table:

Table 4. Cybersex perception level categorization

Category	Criteria	Frequency	Percent
Very low	< 23	162	46,29%
Low	23-32	132	37,71%
Medium	33-50	54	15,43%
High	51-61	2	0,57%
Very high	61 <	0	0,00%
Total		350	100%

Table 4 shown that there are 0 subjects who are in the very high cybersex category with a percentage of 0.00%. High category there are 2 subjects with a percentage of 0.57. In the medium category there are 54 subjects with a percentage of 15.43%. In the low category there are 132 subjects with a percentage of 37.71%. In the very low category there are 162 subjects with a percentage value of 46.29%.

Correlation of Cybersex behavior with self-control

The hypothesis is, to shows that there is a negative relationship between self-control and cybersex behavior in female students in Indonesia. The analysis technique used is Spearman rho with the help of the SPSS 26 for windows program. Spearman rho test results can be seen in the following table:

Table 5. Hypothesis Test Results

Variable	<i>r</i>	<i>p</i>	Explanation
Self control	-0,385	0,000	Significant at $p < 0,05$
Cybersex			

According on the results of the Spearman's Rho correlation test in the table, the result is (r) = -0.385 ($p < 0.05$), that means the level of strength of the relationship (correlation) between self-control variables and cybersex behavior is -0.385. The correlation coefficient in the table above is negative (-0.385), be found a negative relationship between self-control and cybersex behavior in female students in Makassar City. This means that the higher the individual's self-control, the lower the cybersex behavior that appears. Contrarily, if self-control is low, cybersex behavior becomes high.

Discussion and Conclusion

The results of descriptive analysis on female students in Makassar City show that some subjects have high self-control. The research data in the table shows that only 1 subject shows low self-control which 0.29%. Then there was 1 subject who showed very low self-control with a percentage value of 0.29. While those included in the moderate category were 77 subjects or 22.00%. In addition, there were 152 subjects or 43.43% who were in the high category, shows that the majority of subjects are in the category of high self-control. For the very high category, 119 subjects were found with a percentage of 34.00%.

Self-control as the ability to organize, direct, control, and a form of direct behavior that can lead to positive consequences that can be developed and used by individuals during the process of life, in their social environment. Marsela and Supriatna (2019) suggest that individuals who have high self-control, they will behave more positively and be able to be responsible, such as the responsibility of being a student, namely by learning. Female students in Makassar City who are the majority of research samples have high self-control so they can still control themselves. High self-control allows individuals to consider decisions not to be tempted to open adult sites until addiction occurs.

In the results of the study there were 119 subjects with a percentage of 34.00% having very high self-control. Chita, David, and Pali (2015) suggest that individuals who have high self-control are very concerned about their responses to behavior in various situations. This means that when in a good situation the individual can perform good actions.

Meanwhile, when in a bad situation or condition, the individual makes a decision that has been considered and does not harm any party, including himself.

Horskotter (2014) (Mulya 2021) suggests that individuals who are included in the high category are considered to have good self-control. Good self-control means that individuals are able to overcome dilemmas over themselves so that the actions that emerge are decisions that have been considered based on goals and do not conflict with existing norms.

The results of the study showed that there were 2 subjects who were in low and very low self-control categories, in which each category contained 1 subject with a percentage value of 0.29%. Self-control plays a role in self-adjustment, so that when self-control is not good, the resulting behavior tends to deviate. It is clearer that individuals who are categorized as having a low level of self-control are those who are unable to direct and regulate their main behavior, are unable to interpret the stimulus they face into the main form of behavior and are unable to choose the right action so that it will lead to negative behavior such as smoking, fighting, stealing, robbing, and buying and selling illegal goods.

Horskotter (Mulya 2021) suggests that individuals make judgments about certain actions, such as good and bad, right and wrong, but sometimes feel tempted to act or do bad or wrong things because of a lack of ability to control their actions. When individuals act according to their goals and preferences about what is good and right, they are considered to be able to control themselves. Individuals who are in the high and medium categories are considered to have been able to control themselves.

The research data shows that there are no subjects who show very high cybersex. While in the high category there are 2 subjects with a percentage of 0.57% indicating that there are subjects who have cybersex behavior. Then there are 54 subjects with a percentage of 15.43% in the medium category, which means that individuals in the medium category have exploratory experiences of pornographic content but some can overcome this not to make it an addiction. The Internet provides an opportunity for individuals to explore pornographic content. In the low category there are 132 subjects with a percentage of 37.71%. In the very low category there are 162 subjects with a percentage value of 46.29%. This shows that female students in Makassar City are able not to be involved in cybersex behavior or in other words the subject is able not to abuse the internet towards deviant behavior.

According to a review by Ballester-Arnal, Castro, Gil-Llario, and Gil-Julia (2017) of ISST score results, women who spend more time online cybersex report high levels of cybersex addiction. With so much time online, experiencing cybersex addiction seems more relevant to women than men. This result is consistent with studies documenting a lower prevalence of cybersex-related problems in women than in men (Ross, Mansson & Daneback, 2012).

Cybersex is a series of online sexual activities such as finding sex partners, having conversations about sex and seeking sexual content in the form of photos, audio or video. Individuals who fall into the high category of this behavior have characteristics such as repeated cybersex, feel anxious when they cannot access cybersex sites, make jokes about sex, stay awake alone to access pornographic sites, and are willing to spend more money to buy pornographic content on social media. internet (Sauvika, 2017).

Cavaglion & Rashty (2010) In cybersex, women experience emotional instability and an ambiguous sense of loss when their partner is physically present but psychologically absent. There is a split in their perception of the past and present, the difficulty of integrating the "bad" behavior of porn addicts with the good side of their porn addicts. Due to the behavioral nature of pornography addiction, women oscillate between moral guilt and medical apology, between negligence, denial and spying. The presence of the computer in virtual life is unclear, which creates an unbearable feeling of contamination and competition in the bedroom and in real life.

The results of the descriptive analysis show that cybersex among female students in Makassar City is in the very low category of cybersex. Individuals who fall into the low category have characteristics such as feeling reluctant to make jokes about sex, being able to divert cybersex behavior to other, more positive behaviors.

The results of testing the hypothesis using the sperman rho test show results $(r) = -0.385$ ($p < 0.05$), which means that the level of strength of the relationship (correlation) between self-control variables and cybersex behavior is -0.385. So

that there is a negative relationship between self-control and cybersex behavior in female students in Indonesia. This means that the higher the individual's self-control, the lower the cybersex behavior that appears. Conversely, if self-control is low, cybersex behavior becomes high. The results of the hypothesis test show that H_a is accepted and H_0 is rejected, or in the sense that the research hypothesis is accepted.

Student activities that are inseparable from the internet allow students to use the internet every day. Especially students who previously did have an addiction to the internet. It is not uncommon to find someone who has internet addiction tends to lead to negative things, especially cybersex. While using the internet, students can easily find advertisements or sites that lead to pornography. With sexual urges that cannot be controlled properly, it can encourage them to do cybersex (Febriyani, 2017).

Individuals have a system in themselves to be able to regulate and direct behavior which is called self-control. Hurlock (2011) (Rahman, 2022) suggests that self-control is related to how individuals control their emotions and impulses from within themselves. Individuals who have a low level of self-control will lead to impulsive, selfish behavior, easily lose emotional control which causes frustration, prefer simple tasks that involve physical abilities and like to take risks. Someone who has low self-control is more likely to get involved in criminal matters and deviant acts.

Individuals who are able to develop self-control will be able to refrain from behavior that is contrary to social norms. If self-control is low then cybersex activities will be carried out and if it is carried out continuously without prevention then it will become cybersex addiction, but if self-control is high, then it will be able to control its cybersex activities, and seek information about sexuality only as needed and not make addiction (Robani, 2019).

Ferree, (2003) explain that the behavioral element of healthy sexuality is actually the absence of problematic sexual behaviors such as compulsiveness. As mentioned above, women who use the Internet for sexual purposes are not necessarily addicts. However, just as marijuana is often a gateway to harder drugs, even the recreational use of online sex exposes a woman to the possibility of addiction. For some people, going online is almost instantaneously addictive, similar to a heavy cocaine addiction.

Based on the results of the research that has been done, it can be concluded that self-control of female students in Makassar City is in the high category and cybersex behavior is in the very low category. The results of the hypothesis test carried out by Spearman rho analysis showed a result of 0.00 and a correlation value of -385, so it can be concluded that there is a relationship between self-control and cybersex behavior in female students in Makassar City.

Recommendations

In this study, the researcher is of course aware that the study is far from perfect. then the researcher makes suggestions. It is recommended that future researchers use qualitative or experimental research methods to obtain more in-depth research results and it is not recommended to use quantitative research methods because the scale used will cause the subject to fill in a scale that does not correspond to his condition.

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Research Article

The incremental bias: Likert scale to measure career interest in RIASEC theory

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Article Info

Received: 2 May 2023

Accepted: 25 June 2023

Online: 30 June 2023

Keywords:

Scale development

Career interest

RIASEC

2717-7602 / © 2023 The PRESS.

Published by Young Wise Pub. Ltd.

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Abstract

Surveys based on Likert scales continue to dominate research practice. The Likert scale is the most widely adopted scale in social science studies. There has been much debate about the use of a Likert scale (eg: is it classified as ordinal or interval data, response bias, response options). This study aims to prove the weakness of the Likert scale used to measure Holland's Theory of Career Choice (RIASEC) career interest. The number of participants was 1752 high school students. The RIASEC career interest instrument was developed based on the Likert scale. Statistical analysis uses correlation to prove the relationship between types of career interest. The results show a positive correlation between types of career interest. For example, conventional with artistic ($r = 0.379$), investigation with interpretation ($r = 0.286$). What's interesting is the correlation between R-S ($r = 0.134$), I-E ($r = 0.286$), and A-C ($r = 0.379$) is positive, the correlation should be negative because the relationship between the two is opposite.

To cite this article

Mudhar, M., Mufidah, E.F., & Pravesti, C.A., (2023). The incremental bias: Likert scale to measure career interest in RIASEC theory. *Psychology Research on Education and Social Sciences*, 4(2), 69-76.

Introduction

Quantitative research is considered an organized investigation of phenomena by collecting numerical data and statistical, mathematical or computational analysis. The source of quantitative research is the positivism paradigm that uses a statistical approach as a data analysis technique, for example descriptive research, inferential, experimental design, surveys and so on, quantitative research also explains or predicts the relationship between variables which is an important characteristic of quantitative research (Creswell & Creswell, 2018).

Quantitative research relies on the collection and analysis of numerical data to describe, explain, predict, or control variables and phenomena of interest (Gay et al., 2009). One of the principles underlying quantitative research is the philosophical belief that the world is relatively stable and uniform so that we can measure and understand it and make broad generalizations about things in this world.

The psychological scale as a measurement instrument is very important and necessary in quantitative research. The use of Likert scales in instruments is widely used compared to other types of scales or instruments (Joshi et al., 2015; Nemoto & Beglar, 2014). The Likert scale provides advantages, including being able to collect a large number of data or respondents in a short time, which can provide high reliability and validity (Nemoto & Beglar, 2014).

One of the issues that are being debated is whether the Likert scale is ordinal or interval (Jamieson, 2004), although Rensis Likert himself thinks that the Likert method has the quality of an interval scale, many consider the Likert scale to

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be ordinal (Hodge & Gillespie, 2003). The conventional interval scale implies that the difference between two successive scales reflects the same difference in the variable being measured. The nature of the interval on the Likert scale assumes that the intensity of feelings between "strongly disagree" and "disagree" is equivalent to the intensity of feelings on scales in other sequential categories.

Another drawback of Likert scaling comes from its closed response format (Hodge & Gillespie, 2003). Respondents are forced to make a choice from the given options which may not match their actual answer. In fact Russell & Bobko (1992) suggests increasing the number of points on the scale to get closer to a continuous size, although this opinion is still much debated (Croasmun & Ostrom, 2011). Brown & Maydeu-Olivares (2013) assessment of the Likert scale is highly dependent on the interpretation of the scale rating. Individual differences in interpreting the options (scale rating) will affect the validity of the test score.

In fact, the Likert scale is most often used in investigating individual differences, such as motivation, anxiety, and self-confidence (Nemoto & Beglar, 2014), but in some studies of the Likert scale has also been created to measure career interest, such as research from (Oh et al., 2012; Sari et al., 2018).

The development of the Hollands model career interest instrument has received great attention in various studies on vocational education. Holland's theory has become the dominant new paradigm in the last 50 years for describing one's interests (Ambiel et al., 2018). Holland argues that a person's pattern of interest can be described into six main types of interest, namely, Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C) which are abbreviated as RIASEC.

One of the career interest instruments is the Self Directed Search (SDS) which was developed by Holland (Campbell & Borgen, 1999; Rayman & Atanasoff, 1999; Reardon & Lenz, 1999). SDS is widely used throughout the world as a measure of interest because it is easy to use and has been tested empirically (Nauta, 2010). Oh et al. (2012) and Sari (2018) developed and researched RIASEC career interests using a Likert scale.

Career interest in someone is not singular, meaning that everyone has some or maybe all of the six career interests, and how big is the degree of each interest or a combination of several types. Each type of interest has a correlation with other types (Holland, 1997) which is shown in the form of a hexagon (figure 1). The six types of interests in hexagon order (see figure 1) illustrate the relationship between types of interests such as adjacent, alternate, and opposite. Relationships between adjacent and most related interest types (eg, realistic and investigative), alternate interest types (eg, realistic and artistic; realistic and enterprising) have an intermediate relationship, and opposite interest types (eg, realistic and social) this relationship least related or even opposite (Nye et al., 2012; Wetzel & Hell, 2014).

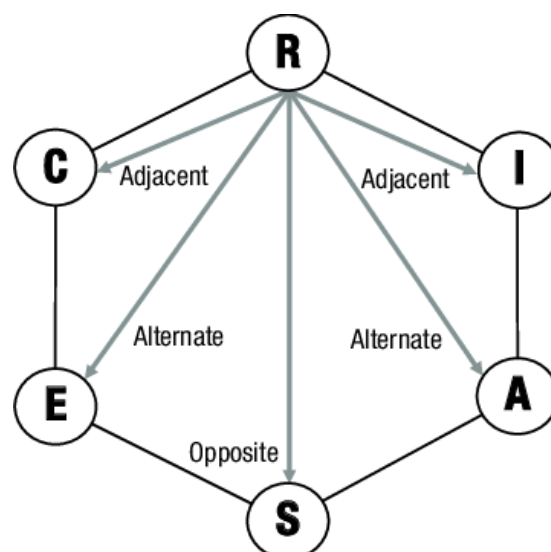


Figure 1. Holland's hexagon model and degrees of congruence

Likert Scale

The popularity of the Likert method stems from a number of facts. First, a Likert scale can be created and modified easily. Second, measurement results in the form of numbers can be directly analyzed with statistics. In general, with Likert scaling, researchers can collect and analyze large amounts of data in less time and effort.

The Likert scale, introduced by Rensis Likert in 1932, is the most widely used psychometric scale in social survey research. It asks respondents to specify their consent. For a 5-point Likert scale, the level of agreement: 1 = strongly disagree (SD), 2 = disagree (D), 3 = neither agree nor disagree (NN), 4 = agree (A), and 5 = strongly agree (SA). Depending on what is being measured, the scale label may have different wording. When measuring frequency, for example, labels or words used such as "always, often, sometimes, not always or never" can be used. The Likert scale is well designed for expressing opinions or attitudes.

The Likert scale has been widely used to measure observable behavioral attributes in various areas of social science measurement, such as motivation and self-efficacy (Nemoto & Beglar, 2014). Examples of variables measured include a fondness for music education (Orr & Ohlsson, 2005), Educational and Career Interest (Oh et al., 2012), attitude, career perception, and career interest (Sari et al., 2018).

Holland's RIASEC

Career interest in someone is not singular, meaning that everyone has some or maybe all of the six career interests. Holland (1997) explains that people tend to show more than one, and even have all kinds of interests with the degree of each interest, therefore a person's vocational interest or career interest is a combination of several types. Each type of interest has a correlation with other types (Holland, 1997).

Holland's theory of career departs from personality type as the main factor in career selection and development. This theory assumes that work interest is an aspect of personality, so job descriptions are also related to personality descriptions. The development of his theory rests on the idea that career choice is based on compatibility with personality. He believes that one's job satisfaction is related to similarities between personality and work environment.

Holland's model of career interest measurement has received great attention in various studies on career interest or vocational education interest. The RIASEC model from Holland (1997) has become the dominant new paradigm in the last 50 years for describing one's interests (Ambiel et al., 2018). One of the career interest instruments is the Self Directed Search (SDS) which was developed by Holland (Campbell & Borgen, 1999; Rayman & Atanasoff, 1999; Reardon & Lenz, 1999). SDS is widely used throughout the world as a measure of interest because it is easy to use and has been tested empirically (Nauta, 2010).

As explained earlier, the relationship between the types of RIASEC interests is closest and most related (for example, realistic and investigative, artistic and conventional, enterprising and investigative). Interest types that have alternate relationships (eg, realistic and artistic; realistic and enterprising). Interest types that have adjacent (eg, realistic and social) relationships are at least related or even opposite.

Purpose of the Study

This study aims to provide empirical facts about the limitations of the Likert scale for measuring RIASEC career interest. To simplify the analysis process, the following research questions are guided:

- Do the items have sufficient reliability and validity coefficients?
- Are the relationships R-I, A-S, and C-E classified as adjacent?
- Are the relationships R-A, and R-E classified as alternate?
- Are the relationships R-S, A-C, and E-I classified as opposite?

Method

Participant

This research was conducted on high school students in Surabaya, due to the Covid-19 pandemic, data collection was carried out online using the Google Form facility. The number of samples obtained was 1752 students. 22.603% male students and 77.397% female students.

Measurement

The instrument used to measure career interest is the Career Interest Scale which was compiled based on Holland's theory which is often called RIASEC (realistic, investigative, artistic, social, enterprising, and conventional). The preparation of the instrument was based on a Likert scale, with alternative answers ranging from strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Prior to field testing the Career Interest Scale instrument, the content validity test was carried out by 7 panelists who had competence in psychometrics. After going through the panel process, it is followed by grammar corrections and field trials.

Results and Discussion

To answer the first question "Do the items have sufficient reliability and validity coefficients?" Data were analyzed using the SPSS application to determine the mean, standard deviation, loading factor, and Cronbach's Alpha. The reliability coefficient of Cronbach's Alpha is realistic 0.906, investigative 0.866, artistic 0.803, social 0.673, enterprising 0.726, and conventional type 0.717 (see table 1).

Table 1. Means, standard deviations, loading factor, and Cronbach's Alpha

Type	Items	Mean	SD	Loading Factor	Cronbach's Alpha
Realistic	R1	2.100	0.890	0.738	0.906
	R2	2.160	0.878	0.710	
	R4	2.190	0.846	0.659	
	R12	2.050	0.782	0.747	
	R22	2.100	0.863	0.784	
	R41	2.120	0.903	0.817	
Investigative	I7	2.920	1.079	0.665	0.866
	I8	2.290	0.892	0.651	
	I11	2.690	1.079	0.696	
	I20	2.300	0.939	0.725	
	I23	2.820	1.027	0.632	
	I24	2.460	0.892	0.616	
Artistic	A13	3.060	1.121	0.548	0.803
	A14	3.040	1.050	0.615	
	A15	3.480	0.968	0.512	
	A30	2.710	1.042	0.678	
	A33	2.850	0.979	0.477	
	A40	2.710	1.039	0.533	
Social	S16	3.380	0.961	0.528	0.673
	S25	3.860	0.879	0.431	
	S26	4.460	0.608	0.422	
	S29	3.030	1.135	0.372	
	S35	2.770	0.965	0.307	
	S38	4.130	0.707	0.440	
Enterprising	E6	2.850	0.965	0.291	0.726
	E9	4.250	0.853	0.297	
	E17	3.240	1.235	0.443	
	E27	2.710	1.121	0.568	

	E31	2.920	1.085	0.418	
	E32	2.940	1.045	0.612	
	E34	3.080	1.067	0.437	
	E36	3.170	0.992	0.278	
Conventional	C3	3.780	0.847	0.476	0.717
	C5	2.430	0.901	0.313	
	C19	2.870	1.062	0.521	
	C28	3.840	0.825	0.488	
	C37	3.760	0.894	0.518	
	C39	3.160	1.144	0.418	

To answer questions 2, 3, and 4 a correlation analysis was carried out, the results can be seen in table 2 and figure 2.

Table 2. Correlation between types of RIASEC career interest

	R	I	A	S	E	C
R	--	.379**	.278**	.134**	.268**	.282**
I		--	.311**	.326**	.286**	.408**
A			--	.305**	.324**	.239**
S				--	.571**	.498**
E					--	.430**
C						--

** p ≤ .01

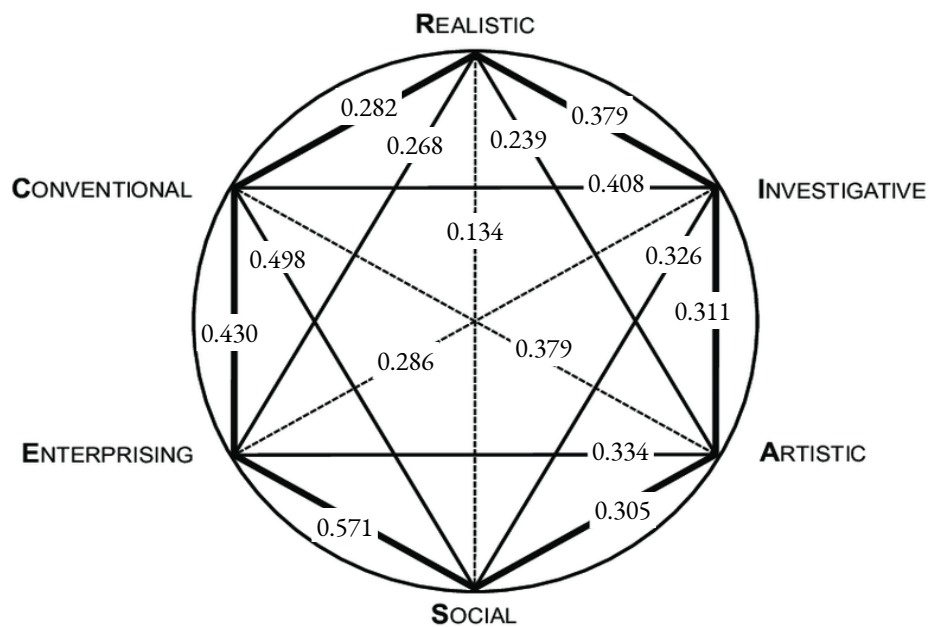


Figure 2. Correlation between types of RIASEC career interest

Do the items have sufficient reliability and validity coefficients?

Cronbach's alpha coefficient for each type of career interest is the lowest at .673 and the highest at .906. George & Mallery (2020) provides a minimum limit of .70 acceptable alpha coefficient. Meanwhile, if you refer to the guidelines presented by Schober & Schwarte (2018) the coefficient of .673 can still be said to be moderate.

The results of the validity test can be seen in the loading factor coefficient (table 1), the higher the coefficient, the higher the level of validity. Referring to the opinion of Schober & Schwarte (2018) regarding the limitations of the item-

total correlation coefficient, there are several items that are still considered weak, such as items on enterprising, social, and conventional which are still considered weak or less than .40. However, Azwar (2015) gives a tolerance of up to a minimum of .250.

It has been described that Holland's RIASEC career interests depicted in a hexagon have interrelationships between types of interests, such as adjacent, alternate, and opposite (Nye et al., 2012; Wetzel & Hell, 2014). The assumption is that types of interests that have an adjacent relationship will have a positive and strong correlation, while types of interests that have an opposite relationship will have a negative correlation. While the types of interests that have alternate relationships have intermediate relationships.

Are the relationships R–I, A–S, and C–E classified as adjacent?

I will start this discussion from adjacent type relationships. The correlation coefficients R–I, I–A, A–S, S–E, E–C, and C–R, show a positive correlation and the correlation is significant at the 0.01 level. The closeness between the RIASEC types indicates compatibility (Nye et al., 2012; Wetzel & Hell, 2014). Realistic and investigative types show people who like to do activities dealing with objects and data (Holland, 1997). Tend to be less sensitive to the social environment and prefer to preoccupy themselves with the world and their own environment. The same type of work is also found in the two personality types, namely laboratory workers, scientists, and mechanics.

Are the relationships R–A, and R–E classified as alternate?

Alternate type relationships (eg, R–A, and R–E) have a positive and significant correlation at the 0.01 level, indicating moderate paired congruence where in this congruence there are some similarities but not dominant and not as strong as the relationship between R–I or S– E. Realistic and artistic types are in different dimensions, realistic is in things while artistic is in the people dimension (Prediger, 1982), but there is still a closeness because realistic and artistic both exist in the dimension of objects.

For example, realistic types are said to have an "aversion" to activities favored by social types and vice versa. Artistic and conventional types are "opposites in the hexagonal model, and they imply multiple opposites" (Holland, 1997). Overall, it appears that the theory-based two dimensions fit the hexagonal model.

Are the relationships R–S, A–C, and E–I classified as opposite?

There are three pairs of opposite types, namely realistic with social, investigative with enterprising, and artistic with conventional (R-S, A-C, and E-I). The opposite type means that the higher the realistic type, the lower the social type interest. Theoretically, realistic types are said to have "aversion" to activities favored by social types (Prediger, 1982), and conversely artistic and conventional types "are opposites in the hexagon model, and they imply a lot of opposites" (Holland, 1997). The research results show otherwise, the correlation coefficients in the R–S, A–C, and E–I type pairs are all positively correlated. this shows results that are not in line with the theory of the hexagonal model. In general, the correlation confirms that the RIASEC circumplex structure on the opposite properties will be negatively correlated (Wetzel & Hell, 2014).

The development of a Likert scale instrument is arranged for each type of interest (eg Realistic, Investigative, Artistic, Social, Enterprising, and conventional) separately. So in answering do not compare with other types that are opposite. This can be types that should be opposite and will have scores that are equally high. To clarify this statement, see the following example.

Table 3. Example for test

	SA	D	N	A	SA
<i>I enjoy repairing power tools</i>				√	
<i>I enjoy participating in social activities</i>				√	

SD: Strongly disagree D: Disagree N: Neutral A: Agree SA: Strongly agree

When respondents are asked to choose between strongly disagreeing and strongly agreeing, it is possible for respondents to choose the same option (for example, agree) for all items even though the items are opposite. Respondents should have answered different options when faced with two opposing items (for example, the first item was answered agree, and the other item was answered disagree).

Here it is clear that the Likert-type career interest scale is unable to provide a difference between one type of interest and the opposite type of interest. When someone is asked to choose "do you prefer tea or coffee drinks" then there should be different choices of the two drinks, it is impossible for the interest in the two drinks to have the same score.

In the example above, the two items of interest according to the RIASEC hexagon model from Holland are of opposite types, but the respondents respond the same way. Response bias can affect Likert scale items (Brown & Maydeu-Olivares, 2013; Guenole et al., 2018). Basically, the assessment of a single stimulus item (Likert scale) relies on the assumption that respondents interpret the rating scale in the same way (Friedman & Amoo, 1999).

Conclusion and Implications

Holland's RIASEC career interest is depicted in a hexagon. Each type has a relationship with the other types (adjacent, alternate, opposite). In theory, the adjacent and alternate types are positively correlated and the opposite type is negatively correlated, but the results show different things (the opposite type relationship is positively correlated). The Likert scale has a bias in measuring RIASEC career interest. The Likert scale belongs to the single response scale of the respondent's interpretation.

Guidance and counselling services in schools aim to assist students in aligning their interests with their learning activities. As one of the tools to assist counsellors in directing students according to their interests is the career interest instrument. Much research and development of career interest instruments has been carried out (see Bartlett et al., 2015; Burns, 2014; Chartrand et al., 1990; Tracey, 2008). But it still needs to be done because of the development of science, technology, and culture.

The Likert scale is most often used in research (Nemoto & Beglar, 2014), including to measure career interest (Oh et al., 2012; Sari et al., 2018). Holland's RIASEC career interests depicted in hexagons have a relationship between types of interests, such as adjacent, alternate, and opposite (Nye et al., 2012; Wetzel & Hell, 2014). There are three pairs of opposite types, namely Realistic with social, Investigative with Enterprising and Artistic with Conventional, meaning that the higher the realistic type, the lower the social type interest. The results of the study show different facts, especially in opposite type pairs, all correlation coefficients are positive and significant, meaning that these results are in contrast to the concept depicted on the hexagon.

Acknowledgment

The authors would like to thank PGRI Adi Buana University Surabaya, Indonesia for providing the opportunity to conduct this research.

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