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PEARSON'S CORRELATION ANALYSIS IN PREDICTING PSYCHOLOGICAL DISORDER CONDITIONS IN ONLINE GAME PLAYERS IN INDONESIA: A CASE STUDY ON VALORANT

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Abstract

In modern times, technology is developing very rapidly, especially in the gaming industry. This results in game addiction. Online game addiction is known as Internet Game Disorder (IGD). This can have an impact on other psychological disorders such as Attention Deficit Hyperactivity Disorder (ADHD), and Generalized Anxiety Disorder (GAD). This study aims to determine the relationship between Valorant game player statistics and IGD, ADHD, and GAD. The method used is a qualitative and quantitative approach. In the qualitative method, 30 samples of Indonesian valorant players were taken in filling out the questionnaire and in the quantitative method, 400 samples of Indonesian valorant players were taken using the Slovin formula to conduct interviews. The data obtained is applied simultaneously and looks for relationships between these data. Based on the results of qualitative and quantitative data analysis, the correlation results obtained for IGD, ADHD, and IGD have a very low relationship to player performance so player performance has a very low impact on the occurrence of psychological disorders.
Keywords*: Pearson Correlation, IGD, ADHD, GAD, Video Games.*

Abstrak

Di zaman modern, teknologi berkembang sangat pesat terutama pada industri game. Hal ini mengakibatkan terjadinya kecanduan game. Kecanduan game online dikenal sebagai Internet Game Disorder (IGD). Hal ini bisa berdampak pada gangguan psikologi lainnya seperti Attention Deficit Hyperactivity Disorder (ADHD), dan Generalized Anxiety Disorder (GAD). Penelitian ini bertujuan untuk mengetahui hubungan antara statistik pemain game Valorant dengan IGD, ADHD, dan GAD. Metode yang digunakan yaitu pendekatan kualitatif dan kuantitatif. Pada metode kualitatif, diambil sebanyak 30 sampel pemain valorant Indonesia dalam pengisian kuisioner dan pada metode kuantitatif, diambil sebanyak 400 sampel pemain valorant indonesia dengan perhitungan menggunakan rumus Slovin untuk melakukan wawancara. Data yang didapatkan diterapkan secara bersamaan dan mencari hubungan antara data - data tersebut. Berdasarkan hasil analisis data kualitatif dan kuantitatif, memperoleh hasil korelasi IGD, ADHD, dan IGD memiliki hubungan yang sangat rendah terhadap performa pemain sehingga performa pemain memiliki dampak yang sangat rendah terhadap terjadinya gangguan psikologis.

Kata kunci*: Korelasi Pearson, Psychological Disorder, SPSS, IGD, ADHD, GAD, Video games.*

1. INTRODUCTION

Video Game is the latest form of evolution that have been present in In modern times like today, technology is developing very rapidly and affecting various aspects, for example in the gaming industry. Games have developed far from

traditional games to digital games which have different types such as chess games in board games, Valorant games in computer games, and clash of clans games in mobile games. Of every type of game, there are those that have many players who can show that the game is good and some players who can show that the game is bad [1].

Nowadays online games are very easy to download and play. Online games are in great demand by various groups, from children to teenagers to adults who like online games. The negative side of this game is that gamers tend to spend a lot of time playing. This makes gamers addicted. Online game addiction has become a global phenomenon. Internet games should be played for amusement, but instead, they are overplayed and utilized as a way to escape from reality, which leads to online game addiction. [2]. The continuous and uncontrolled use of online games causes game addiction among gamers and has a detrimental effect on them. Online game addiction is known as Internet Game disorder (IGD).

Other psychiatric conditions like ADHD and GAD can also be brought on by game addiction. One of the most prevalent behavioral illnesses or mental health issues in young children is Attention Deficit Hyperactivity Disorder (ADHD)[3]. Addiction symptoms were found in 23% of people who play video games. The chances of getting addicted to video games are higher especially when playing games. [4]. Anxiety disorder known as a generalized anxiety disorder (GAD) is characterized by a state of elevated bodily arousal and a sense of pervasive dread and impending doom. GAD is characterized by persistent anxiety that is not triggered by a specific object, situation, or activity [5]. Anxiety is a major mental health problem that is often associated with video/internet games. Many studies have investigated this correlation using various methods [6].

By analyzing the health of devoted gamers in Indonesia, the author will examine and use player and game statistics to determine whether they have IGD and whether they are prone to psychological diseases like GAD and ADHD. This study is an attempt to detect Internet Gaming Disorder and many other psychological disorders such as ADHD and GAD at an early stage using game and player statistics along with personal information.

2. RESEARCH METHODOLOGY

2.1. Research Flow

The following are the stages of the author in conducting research that is designed in the form of a research flow framework. The purpose of this research flow is to describe the stages that will be carried out by the author as shown in Figure 1.

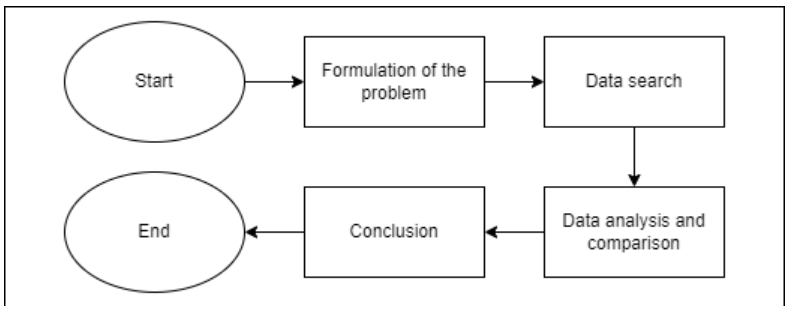

Figure 1. Research Flow

The research flow starts from the problem formulation process based on the topics raised for this research. Furthermore, the search for data to collect all the information and data obtained so that the authors can determine what will be produced in this study. In the third step, there is the data analysis and comparison stage and then a conclusion will be drawn from the results of the data analysis.

2.2. Data Collection Instruments

2.2.1. Valorant Gameplay

Because Valorant lacks an in-game performance statistics tracker, participants' in-game performance information will be gathered via tracker.gg/valorant, which is touted as the "best Valorant status tracker" online. Several Valorant metrics trackers were explored by researchers, but they experienced severe issues, particularly with accessibility. The data collection will be restricted to competitive games because these games are scored and necessary to climb up the rankings, which incentivizes participants to concentrate and perform better and improves the quality of the obtained data. The author collected the following statistical data for the game Valorant:

Rounds Played: Number of games played.
Win: Number of matches won.
Lose: the number of matches lost.

2.2.2. Internet Gaming Disorder (IGD)

Internet Gaming Disorder Scale–Short-Form (IGDS9- SF) [7] which contains 9 items on a Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often).

Table 1. IGD Question

Criteria	Over the past year…
Preoccupation	Was there ever a period when all you could think about was the time you could play games?
Tolerance	Are you feeling dissatisfied because you want to play more?
Withdrawal	Have you ever felt miserable when you can't play games?

Criteria	Over the past year…
Persistence	Can't you cut down on your gaming time, after other people repeatedly tell you to play less?
Escape	Have you played games so you don't have to think about annoying things?
Problems	Have you ever argued with others about the consequences of your gaming behavior?
Deception	Do you hide the time you spend playing games from others?
Displacement	Have you lost interest in hobbies or other activities to only get what you want to do?
Conflict	Have you ever had serious conflicts with your family, friends or partner over playing games?

2.2.3. Attention Deficit Hyperactivity Disorder (ADHD)

A six-item screening test called the ADHD Self-Report Scale (ASRS-v1.1)[8] can be used to check for ADHD in adults. The following alternatives were used to respond to each of the six questions: with a score of 1, never When given a score of 2, occasionally when given a score of 3, frequently when given a score of 4, and very frequently when given a score of 5. The following questions are intended to assist you to ascertain whether or not they might be exhibiting symptoms of ADHD.

a. How often have you made a careless mistake when you had to work on a boring or difficult project?
b. How often do you have trouble keeping your attention when you are doing boring or repetitive work?
c. How often do you have trouble concentrating on what people are saying to you, even when they are speaking to you in person?
d. How often do you find it difficult to work out the final details of a project, after the challenging parts have been worked out?
e. How often do you have trouble getting things organized when you have to do a task that requires organization?
f. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?

2.2.4. Generalized Anxiety Disorder (GAD)

A 7-item anxiety scale called the Generalized Anxiety Disorder (GAD-7)[9] is used to diagnose and gauge the severity of GAD. A 4-point Likert scale (1 = Hardly at all to 4 = Almost every day) was used to rate each of the seven items. These are some inquiries:

a. Feeling nervous, anxious, or on edge
b. Inability to stop or control worrying
c. Feeling sad, depressed, or hopeless
d. Little interest or pleasure in doing something

2.3. Data Collection Method

At this stage, the writer will collect data and information related to the game performance data of Valorant, IGD, ADHD, and GAD. The information collected will be used by the author in the research process. The data collection method used in

this study is using a qualitative and quantitative approach with the IGD, ADHD, and GAD variables as the independent variables and the Player Performance variable as the dependent variable. In the qualitative method, 30 samples of Indonesian Valorant players were taken and in the quantitative method, 400 samples of Indonesian Valorant players were taken using the Slovin formula. Participants were asked for identifying details such as their age and gender. The game's platform and each player's Valorant username are two pieces of information that are also gathered. It is necessary for the players to submit their player statistics. X In addition, participants completed the Adult ADHD Self-Report Scale (ASRS-v1.1), Generalized Anxiety Disorder (GAD-7) and Single-Item Self-Esteem Scale, as well as the Internet Gaming Disorder Scale-Short-Form (IGDS9-SF).

2.4 Data Analysis

At this stage, the author will analyze the data from the previous data collection method.

2.4.1. Player Performance

From the data that the author has obtained, it can be analyzed as if your respondent gets a total score of more than 150 points then you are a very good player, conversely if the respondent has a score below 50 points then you are a player who is not good at it.

2.4.2. Interner Gaming Disorders (IGD)

A total score can be obtained from the authors' data by adding up all of the responses given to the nine IGDS9-SF items, and it can range from 9 to 45 points, with a higher score indicating a higher level of Internet Gaming Disorder. Researchers had to check whether participants supported at least five criteria out of nine by considering answers as '5: Very Often,' which translates as criteria support, to distinguish irregular gamers from non-regular gamers.

2.4.3. Attention Deficit Hyperactivity Disorder (ADHD)

According to the data obtained by the authors, if your patient receives a total score of 24 points or more in Part A or Part B, they are most likely to have ADHD in adulthood; if your patient receives a total score of 17-23 points, they are most likely to have ADHD. If your patient scores 0-17, they are unlikely to have ADHD as an adult.

2.4.4. Generalized Anxiety Disorder (GAD)

Using the information gathered by the author, the total score is computed by averaging the results of the four items. The following scores are assigned: normal (0-2), mild (3-5), moderate (6-8), and severe (9-12). A combined score of 3 for the first two questions indicates anxiety. Depression is indicated by a combined score of three on the final two questions.

2.5 Data Comparison

From the data that has been obtained by the author, the writer will apply the data simultaneously and look for relationships between these data. The author analyzed the data using the IBM SPSS Statistics 25 application. The results of the data comparison will then be used as a conclusion.

3. RESULTS AND DISCUSSION

3.1. Characteristics of Respondents Based on Gender

From the data that the author has obtained, it can be analyzed as if your respondent gets a total score of more than 150 points then you are a very good player, conversely if the respondent has a score below 50 points then you are a player who is not good at it.

Table 2. Gender Quantitative Data

No	Jenis Kelamin	Jumlah	Persentase
1	Pria	356	89%
2	Wanita	44	11%
	Total	400	100%

Based on the quantitative data above, there were more male respondents, namely 356 people or 89% compared to female respondents, namely 44 people or 11%. It can be concluded that more men play Valorant games than women.

Table 3. Gender Qualitative Data

No	Jenis Kelamin	Jumlah	Persentase
1	Pria	39	97,5%
2	Wanita	1	2,5%
	Total	40	100%

Based on the quantitative data above, there were more male respondents, namely 39 people or 97.5% compared to female respondents, namely 1 person or 2.5%. It can be concluded that more men play Valorant games than women.

3.2. Characteristics of Respondents by Age

Based on the results of research based on gender where the total number of respondents to quantitative data was 400 people and qualitative data was 30 people, the details can be seen in the following table:

Table 4. Age of Respondents Quantitative Data

Usia	Jumlah	Persentase
<15	17	4,25%
15-17	47	11,75%
18-25	316	79%
26-40	18	4,50%
>40	2	0,50%

Based on the data above, it can be seen that out of 400 respondents, 17 people or 4.25% were less than 15 years old, 15-17 people, or 11.75% were 15-17 years old, and respondents aged 18-25 years were the most filled out many questionnaires, namely as many as 316 people or 79%, as many as 18 people or 4.50% aged 26-40 and as many as 2 people or 0.50% aged more than 40 years.

Table 5. Age of Respondents Qualitative Data

Usia	Jumlah	Persentase
<15	0	0%
15-17	0	0%
18-25	40	100%
26-40	0	0%
>40	0	0%

Based on the data above, it can be seen that of the 40 participants, all were aged 18 to 25 years.

3.3. Validation & Reliability Test

Several tests are needed to analyze the collected data. The author begins data analysis by conducting a data quality test, which begins with validating the suitability of the research data for use with a validity test. The author concludes that all research instruments used in the qualitative and quantitative approaches are valid based on the results of the validity test carried out because the test scores are above 0.3. Validity can also be identified by a sign (**) given by SPSS. The author then validates the research instrument with a reliability test to see whether it is reliable to use. Based on the results of the reliability test conducted by the author, it can be concluded that all research instruments with qualitative and quantitative approaches are reliable because Cronbach's Alpha value is above 0.6.

3.4. Normality Test

The residual values of the regression model are then tested for normality to see if they are or are not distributed normally. You can tell if the data in this study are normally distributed or not using the normal P-P plot of the Regression Standardized Residual chart. If the data or points are dispersed along the diagonal line and move in the same direction as the diagonal line, the data is said to be normally distributed. The opposite is true if the data or points are distant from the line or are distributed differently than the diagonal. The PP Plot of the Regression Standardized Residual's normal graph is as follows:

Charts

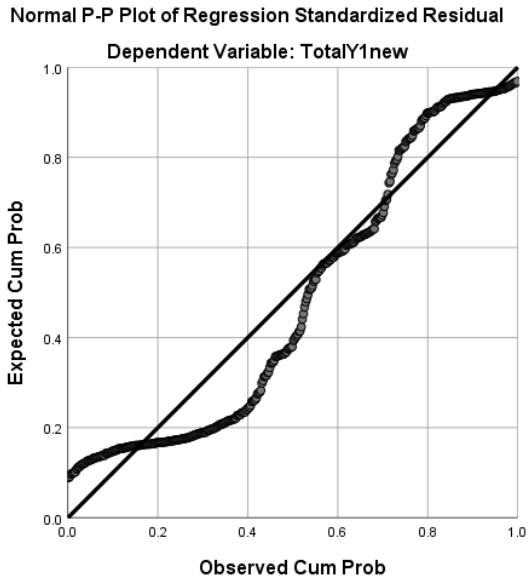

Figure 2. Quantitative Data P-Plot Chart

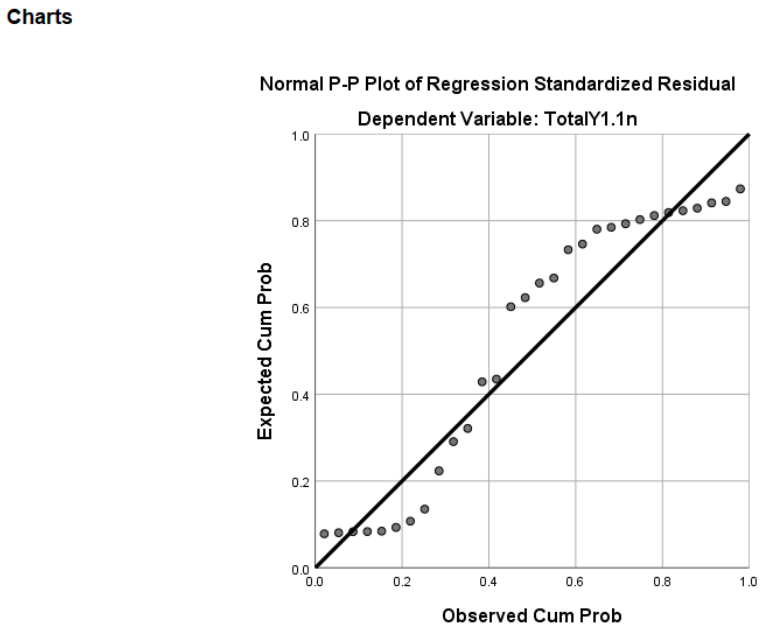

Figure 3. Qualitative Data P-Plot Chart

It is clear from Figure 2 using the quantitative method and Figure 3 using the qualitative method that the points generally move in the diagonal direction. Therefore, we can say that the normality assumption is satisfied by this regression model.

3.5. Correlation Analysis between Variables X1, X2, X3, and Y1

In the next stage, a normality test is carried out whose purpose is to test whether the residual values of the regression model are normally distributed or not. To test whether the data in this study are normally distributed or not, this can be determined using the normal

To facilitate the interpretation of the strength of the relationship between the two variables, the authors propose the following criteria:

a. Pearson Correlation value 0.00 - 0.20 = Very low correlation
b. Pearson Correlation value 0.21-0.40 = Low correlation
c. Pearson Correlation value 0.41-0.60 = Moderate correlation
d. Pearson Correlation value 0.61-0.80 = Strong correlation
e. Pearson Correlation value 0.81-1.00 = Very strong correlation

To find out the relationship/correlation between IGD (X1), ADHD (X2), GAD (X3), and Valorant Gameplay (Y1) variables on quantitative data, the SPSS program is used with the following calculation results:

a. Quantitative Data Correlation Analysis between IGD Variables and Player Performance

The Pearson correlation value between the IGD variable (X1) and Player Performance (Y1) is 0.043, which means that the relationship between the IGD and Player Performance is in the very low ratio category. The ER contribution is

R2 = r2 x 100% = (0.043)2 x 100% = 0.18%. This means that 0.18% of the Player Performance variable (Y1) is explained by the IGD variable (X1) and the remaining 99.82% is determined by other variables outside the research.

b. Quantitative Data Correlation Analysis between ADHD Variables and Player Performance

The Pearson correlation value between the variable ADHD (X1) and Player Performance (Y1) is 0.073, which means that the relationship between ADHD and Player Performance is also in the very low ratio category. The contribution of ADHD is R2 = r2 x 100% = (0.073)2 x 100% = 0.53%. This means that 0.53% of the Player Performance variable (Y1) is explained by the ADHD variable (X1) and the remaining 99.47% is determined by other variables outside the study.

c. Quantitative Data Correlation Analysis between GAD Variables and Player Performance

The Pearson correlation value between GAD (X1) and Player Performance (Y1) is 0.08, which means that the relationship between GAD and Player Performance is also in the very low ratio category. The GAD contribution is R2 = r2 x 100% = (0.08)2 x 100% = 0.64%. This means that 0.64% of the Player Performance variable (Y1) is explained by the GAD variable (X1) and the remaining 99.36% is determined by other variables outside the research.

Furthermore, the relationship/correlation between IGD (X1), ADHD (X2), GAD (X3), and Valorant Gameplay (Y1) variables in the qualitative data was used by the SPSS program with the following calculation results:

a. Qualitative Data Correlation Analysis between IGD Variables and Player Performance

The Pearson correlation value between the IGD variable (X1) and Player Performance (Y1) is 0.050, which means that the relationship between the IGD and Player Performance is in the very low ratio category. The ER contribution is R2 = r2 x 100% = (0.050)2 x 100% = 0.25%. This means that 0.25% of the Player Performance variable (Y1) is explained by the IGD variable (X1) and the remaining 99.75% is determined by other variables outside the research.

b. Data Correlation Analysis between ADHD Variables and Player Performance

The Pearson correlation value between the variable ADHD (X1) and Player Performance (Y1) is 0.152, which means that the relationship between ADHD and Player Performance is also in the very low ratio category. The contribution of ADHD is R2 = r2 x 100% = (0.152)2 x 100% = 2.31%. This means that 2.31% of the Player Performance variable (Y1) is explained by the ADHD variable (X1) and the remaining 97.69% is determined by other variables outside the study.

c. Data Correlation Analysis between GAD Variables and Player Performance

The Pearson correlation value between GAD (X1) and Player Performance (Y1) is 0.036, which means that the relationship between GAD and

Player Performance is also in the very low ratio category. The GAD contribution is R2 = r2 x 100% = (0.036)2 x 100% = 0.12%. This means that 0.12% of the Player Performance variable (Y1) is explained by the GAD variable (X1) and the remaining 99.88% is determined by other variables outside the research.

4. CONCLUSION

Based on the results of research by the authors using quantitative and qualitative methods, it can be concluded that:

a. There are more male respondents than female respondents.
b. The age of most respondents is in the range of 18 to 25 years.
c. All research instruments are reliable because Cronbach's Alpha value is above 0.6.
d. The normality test employs the Regression Standardized Residual graph's normal P-P Plot to obtain the results of the points that follow and approach the direction of the diagonal line, indicating that this regression model meets the normality assumption.
e. Correlation analysis of IGD, ADHD, and IGD have a very low relationship to player performance. So, Valorant players have a very low impact on the occurrence of psychological disorders.

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