



Egypt University of Informatics

Computer and Information Systems

Data Analysis Course

# *Exploring the Impact of Video Games: Behaviors, Preferences, and Perceptions*

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# Introduction

 Dive into the World of Gaming: Your Voice Matters! 

Hey there, fellow gamer! Are you ready to embark on an epic journey into the heart of gaming? Whether you're a seasoned pro or a casual player, your insights are crucial in unraveling the mysteries of video games and their impact on our lives.

Picture this: You're about to embark on a thrilling adventure through virtual worlds, where every decision you make shapes the outcome. But wait, there's a twist! We're not just talking about in-game choices here; we want to delve deeper into how gaming influences the way we think and behave in the real world.

From the adrenaline rush of high-octane battles to the quiet contemplation of immersive storylines, video games offer a plethora of experiences. But do they truly shape our personalities and moral compass? That's what we're here to find out!

By participating in this survey, you're not just sharing your gaming preferences; you're contributing to a grand quest to uncover the secrets of gaming psychology. So grab your controller, summon your inner hero, and let's embark on this epic quest together!

Your journey begins now. Are you ready to level up? Let's do this!

## Research Question

"How does gameplay style, characterized by tendencies towards aggressive or calm approaches, influence individuals' real-life behaviors and moral decision-making processes in video game environments?"

## Hypothesis

I hypothesize that individuals who exhibit a preference for aggressive gameplay styles in video games will demonstrate a greater tendency towards impulsive decision-making and may exhibit lower empathy levels compared to those who prefer calm gameplay styles. Additionally, I expect that in-game moral choices and behaviors will correlate with real-life moral reasoning and decision-making patterns.

## Population of Interest:

The population of interest for this study comprises individuals aged 18-45 who regularly engage in video gaming activities across various platforms and genres.

## Sampling Method:

A stratified random sampling approach will be employed to ensure representation across different age groups, genders, and gaming preferences within the target population. This method involves dividing the population into distinct strata based on relevant characteristics (e.g., age, gender, gaming preferences) and then randomly selecting participants from each stratum.

This sampling approach is considered the best for this study as it allows for the obtainment of a diverse and representative sample of individuals who regularly engage in video gaming activities. By stratifying the population, it ensures that each subgroup is adequately represented in the sample, thus increasing the generalizability of the findings to the broader population of gamers.

## Bias Identification:

As the survey designer, one potential bias I might have is a personal preference for certain types of video games or gameplay styles, which could inadvertently influence the framing of survey questions or the selection of examples. To mitigate this bias, I employed the following strategies:

1. **Diverse Representation:** I ensured that the survey questions encompassed a wide range of gaming experiences, genres, and play styles, not solely reflecting my personal preferences. This approach helps to capture a more comprehensive view of the gaming landscape and minimizes bias towards specific game types or playstyles.
2. **Pilot Testing:** Before finalizing the survey, I conducted pilot testing with a small group of individuals representing diverse gaming backgrounds. Their feedback and input helped identify any potential biases or assumptions in the questions, which were then addressed and adjusted accordingly.
3. **Objective Language:** I strived to use neutral and objective language throughout the survey to avoid leading participants towards certain responses. By presenting questions in a clear and unbiased manner, I aimed to minimize the impact of personal biases on respondents' answers.
4. **Peer Review:** I sought input from colleagues or peers with different gaming preferences and perspectives to review the survey design. Their insights and suggestions helped ensure that the survey questions were fair, balanced, and free from personal bias.

Through these measures, I took proactive steps to identify and mitigate potential sources of bias in the survey design, thereby enhancing the validity and reliability of the data collected.

## Survey Questions:

What is your age?

Gender

How often do you play video games?

What types of video games do you typically play?

How many hours per week do you spend playing video games on average?

Do you feel that playing video games has a positive impact on your mental health?

Have you ever experienced negative consequences from playing video games? (e.g., decreased physical activity, social isolation, decreased academic/work performance)

Do you believe that video games can influence behavior in real life?

Have you ever felt addicted to playing video games?

Do you think video game companies understand their audience's preferences and behaviors well?

How do you typically learn about new video games to play?

When playing games, do you usually prefer?

When you play games like Red Dead Redemption 2, do you usually?

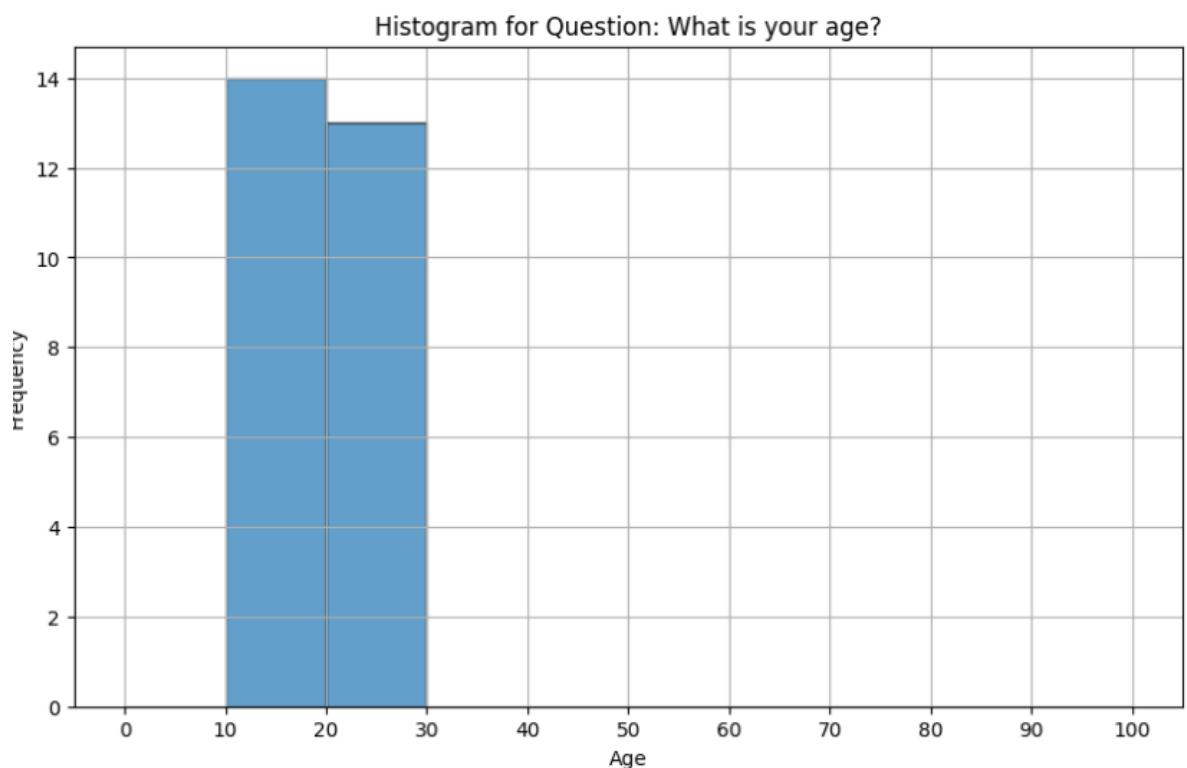
Online survey link: <https://forms.gle/QH1Y9C9H3GNtTgc67>

Number of samples collected: 25

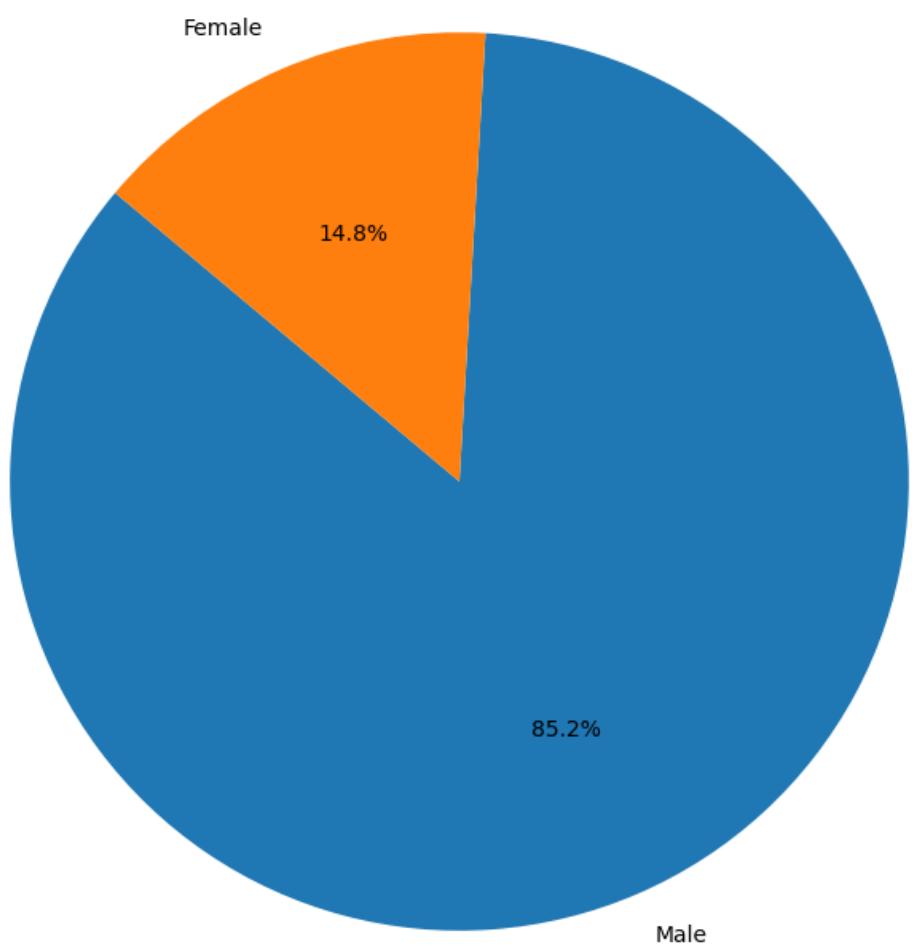
## Analysis:

```
Mean age: 18.785714285714285
Mode age: 20
Median age: 19.0
Standard deviation of age: 2.1440472885433763
```

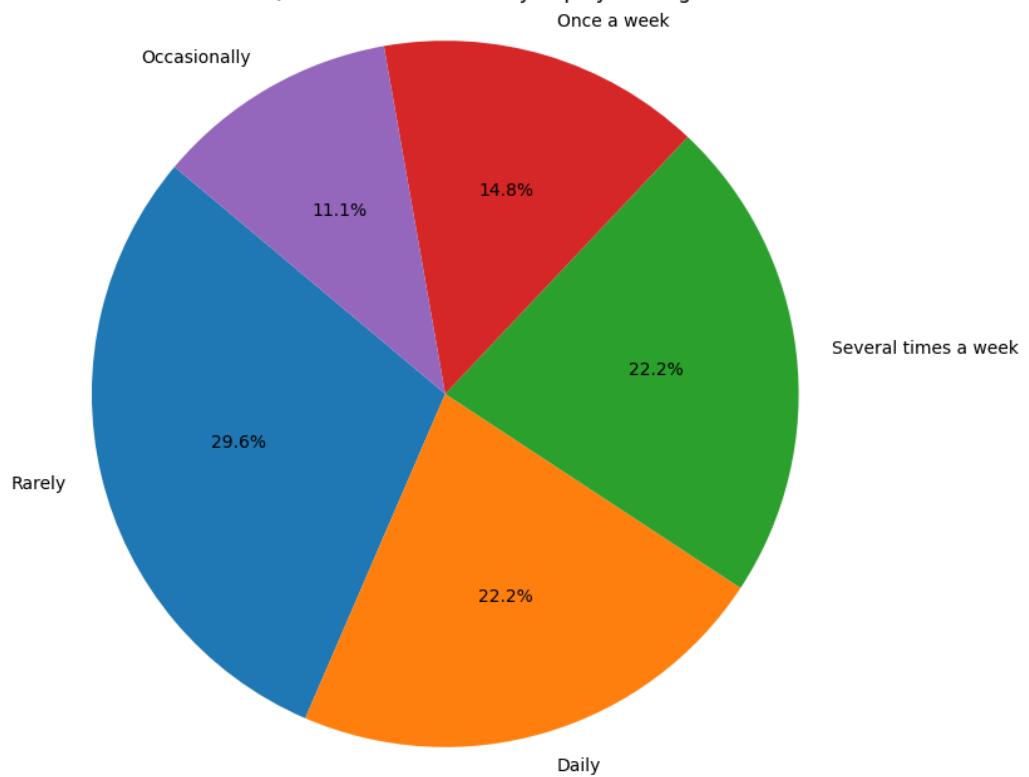
```
Mean Gender: Female      0.148148
Male          0.851852
dtype: float64
Mode Gender: Female      0
Male          1
Name: 0, dtype: uint8
Median Gender: Female    0.0
Male          1.0
dtype: float64
Standard Deviation Gender: Female    0.362014
Male          0.362014
dtype: float64
```



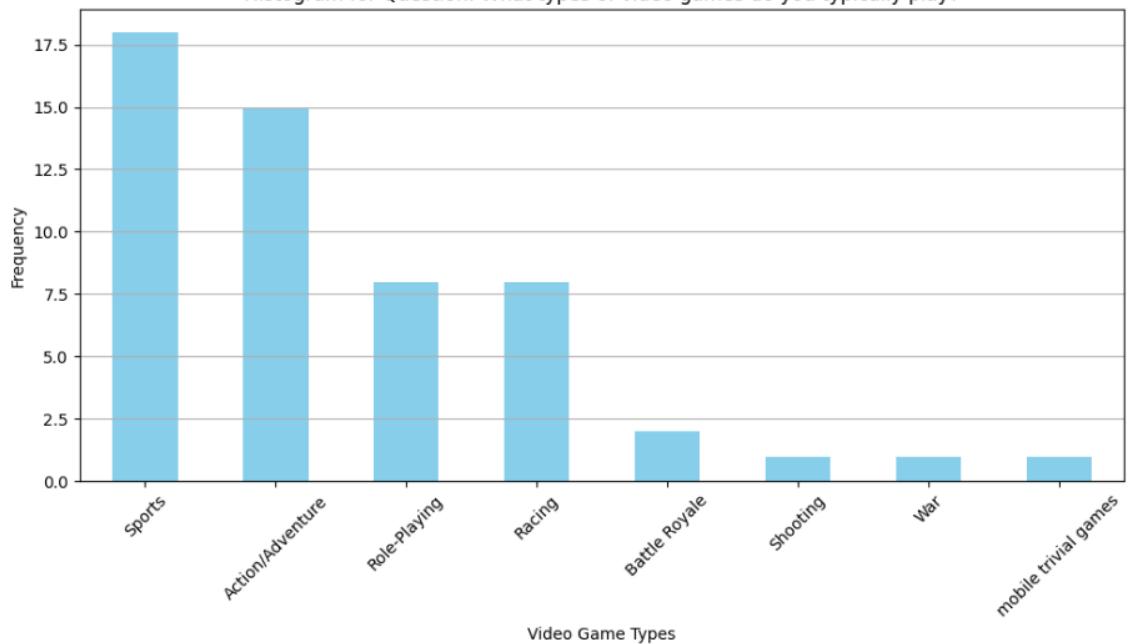
Pie Chart for Question: Gender



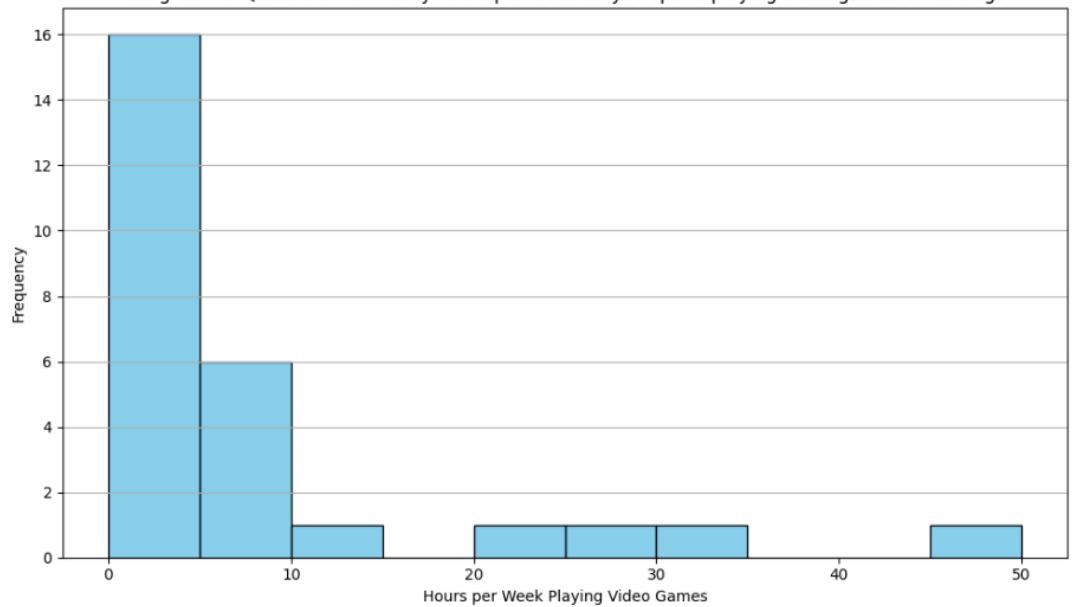
Pie Chart for Question: How often do you play video games?



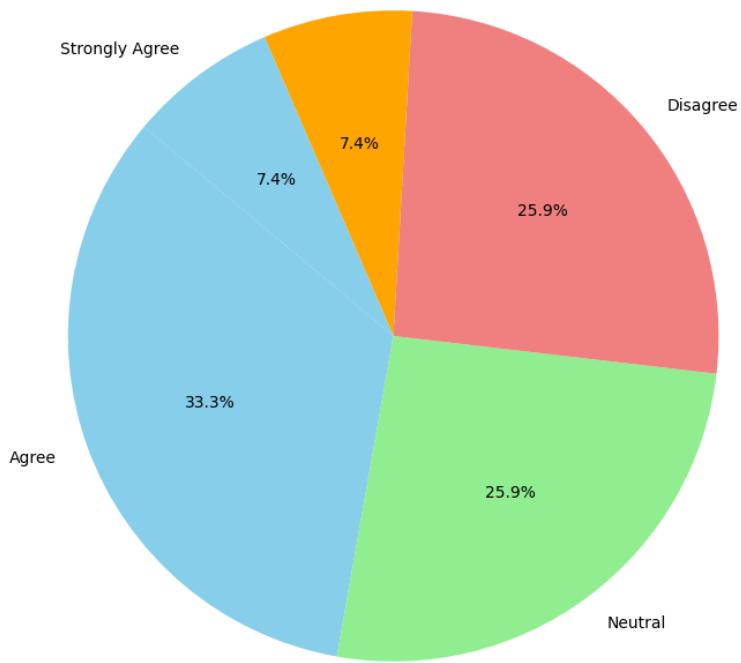
Histogram for Question: What types of video games do you typically play?



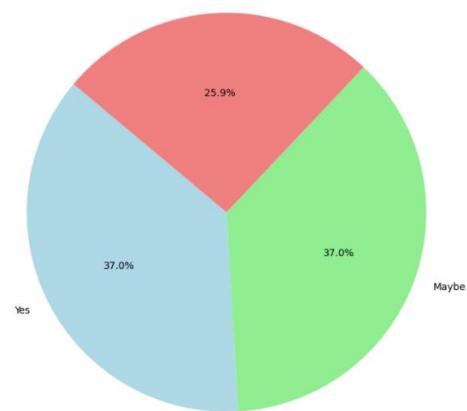
Histogram for Question: How many hours per week do you spend playing video games on average?



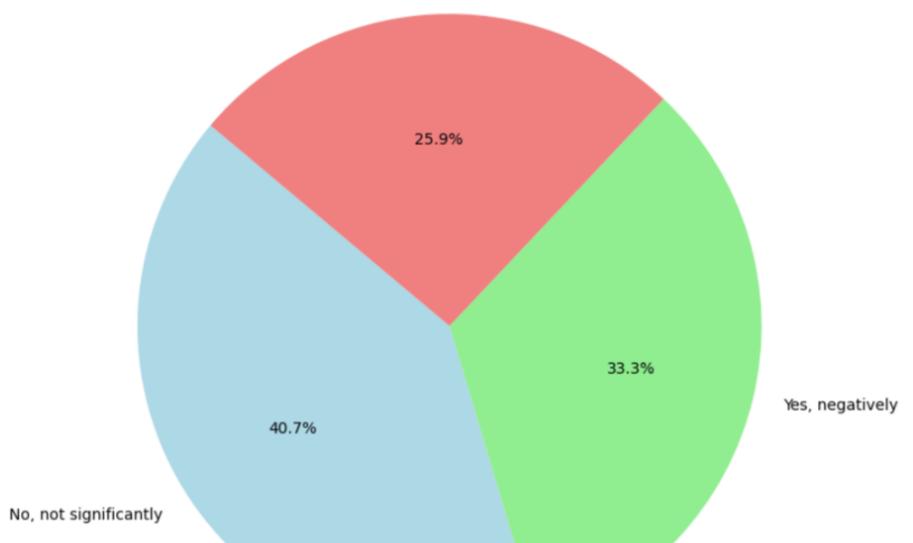
Pie Chart for Question: Do you feel that playing video games has a positive impact on your mental health?  
Strongly Disagree



Pie Chart for Question: Have you ever experienced negative consequences from playing video games? (e.g., decreased physical activity, social isolation, decreased academic/work performance)



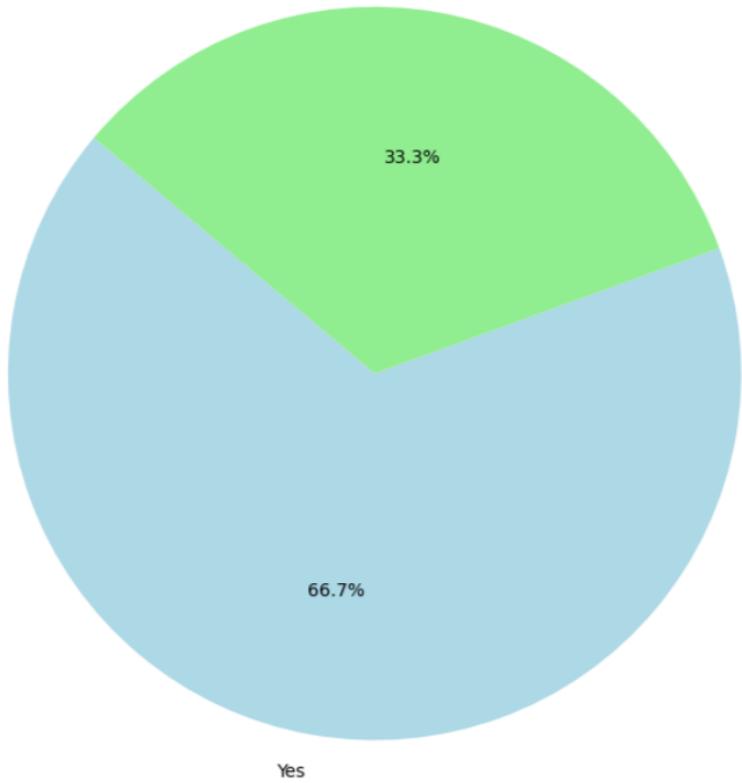
Pie Chart for Question: Do you believe that video games can influence behavior in real life?





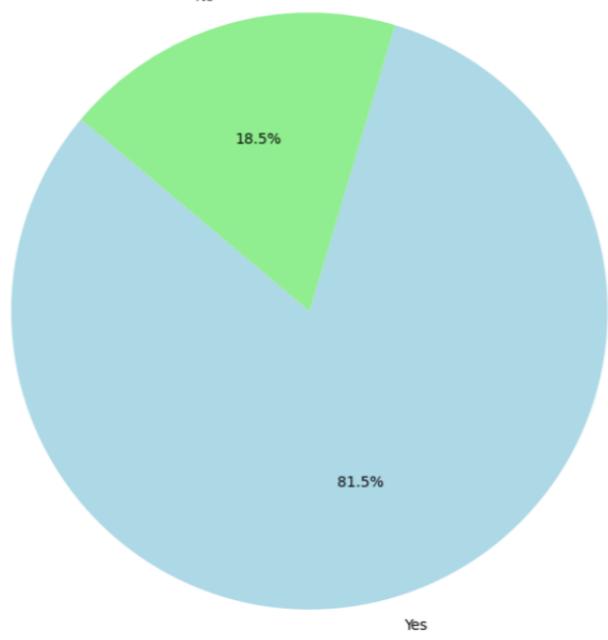
Pie Chart for Question: Have you ever felt addicted to playing video games?

No

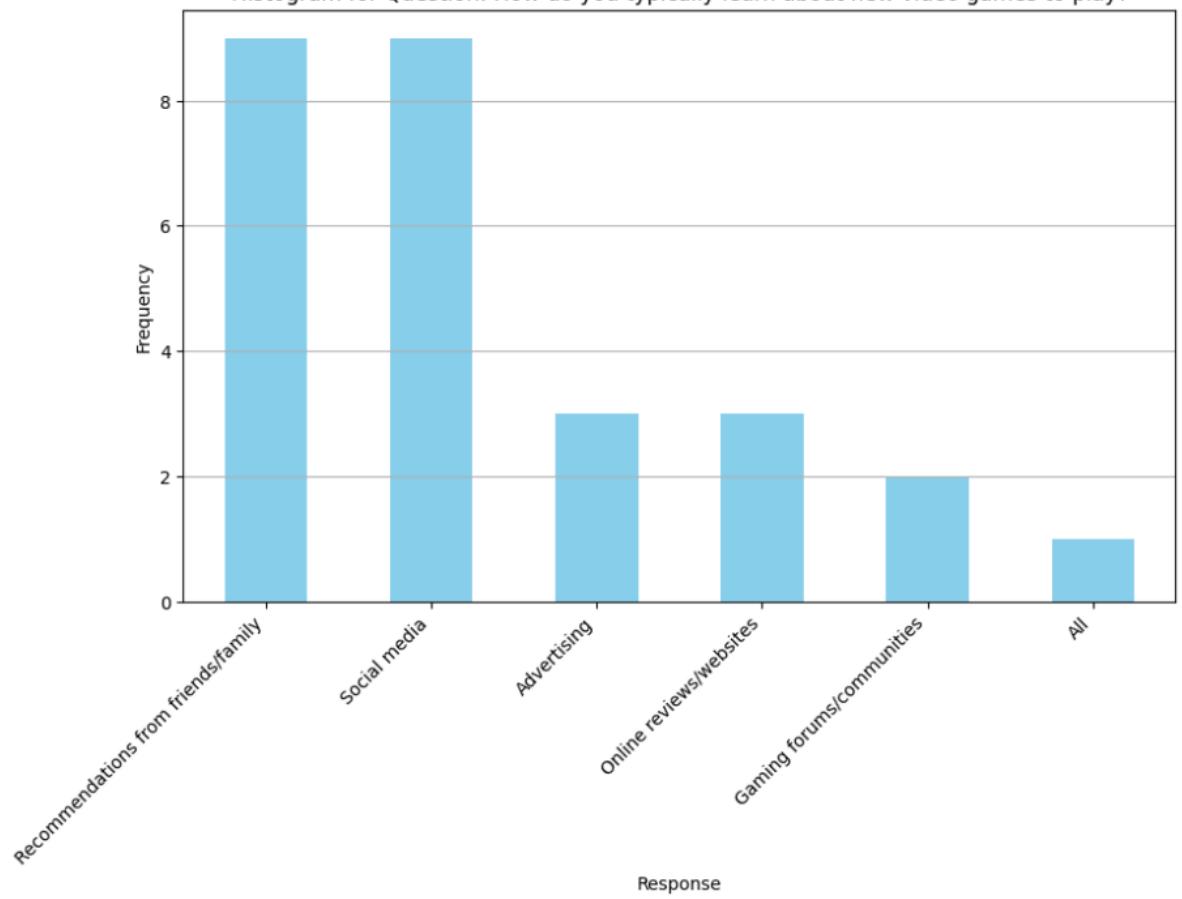


Pie Chart for Question: Do you think video game companies understand their audience's preferences and behaviors well?

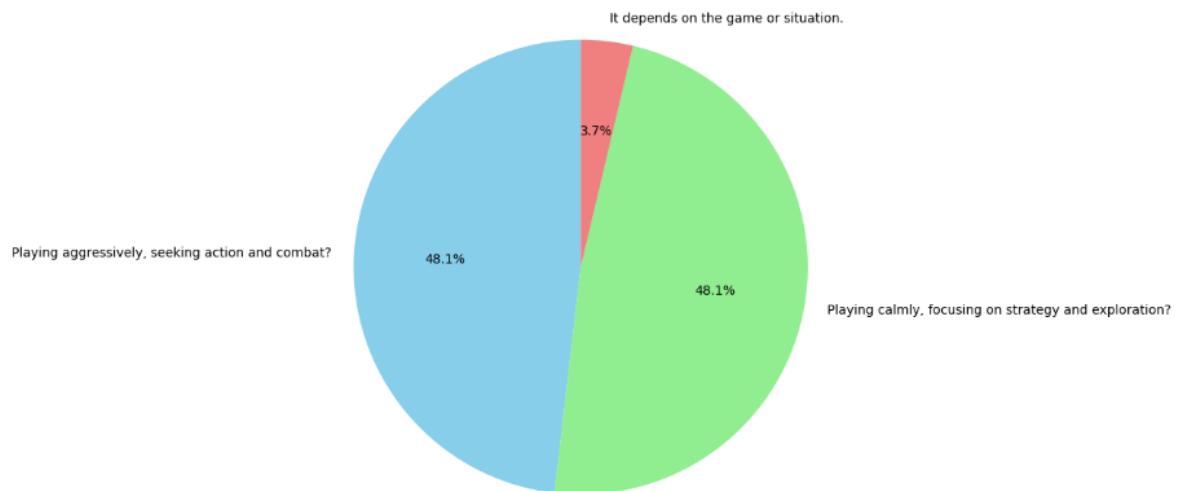
No



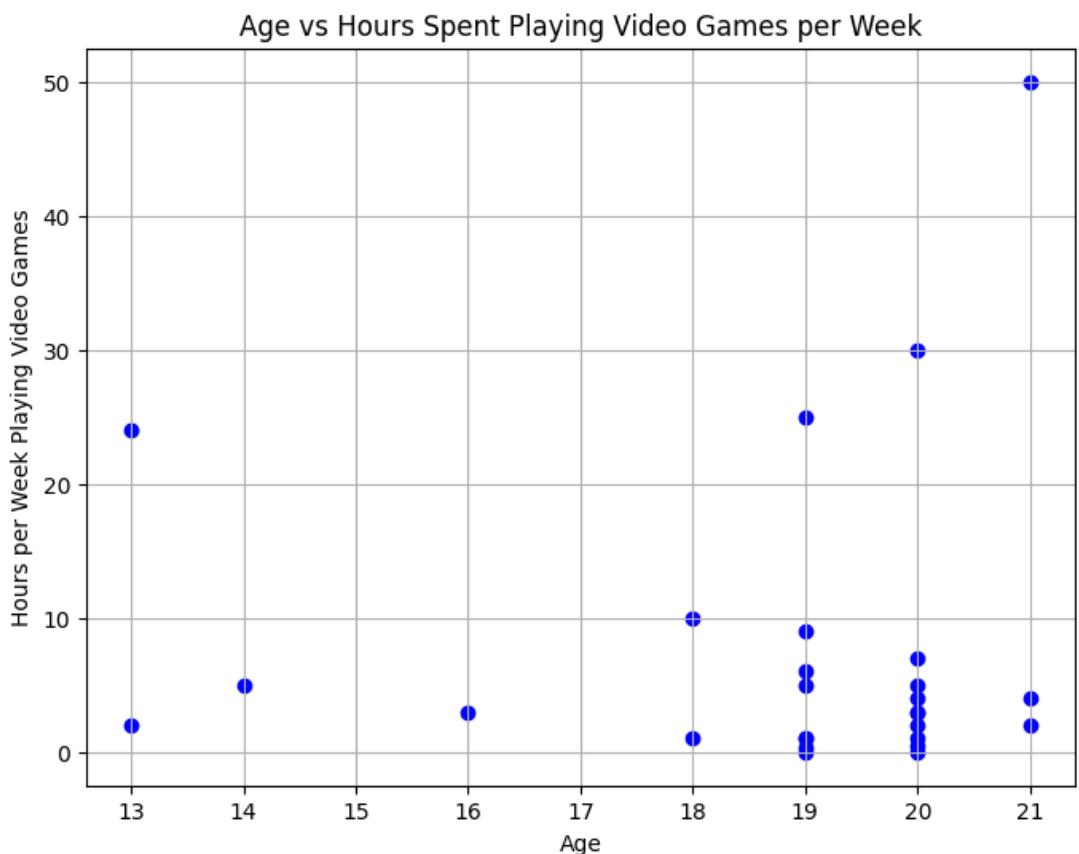
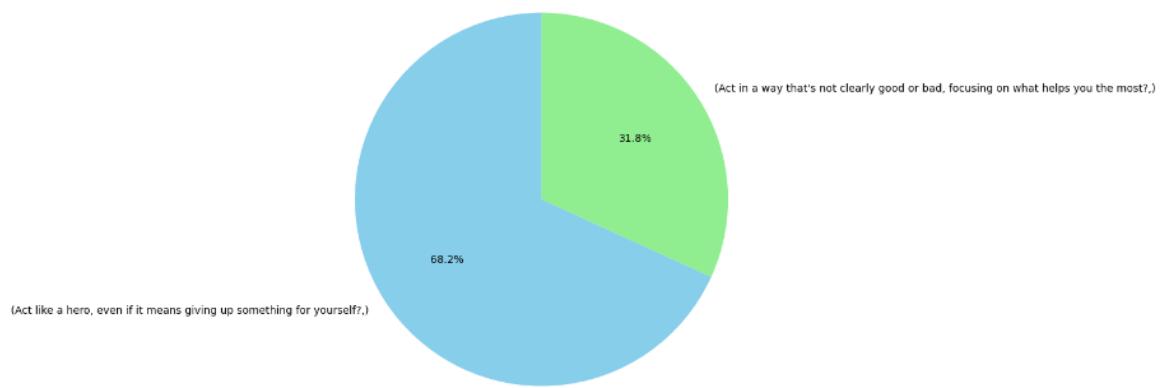
Histogram for Question: How do you typically learn about new video games to play?



Pie Chart for Question: When playing games, do you usually prefer?



Pie Chart for Question: When you play games like Red Dead Redemption 2, do you usually?



In my survey, calculating the mean, mode, median, and standard deviation provides valuable insights into the distribution and central tendency of the collected data. Here's how each measure contributes:

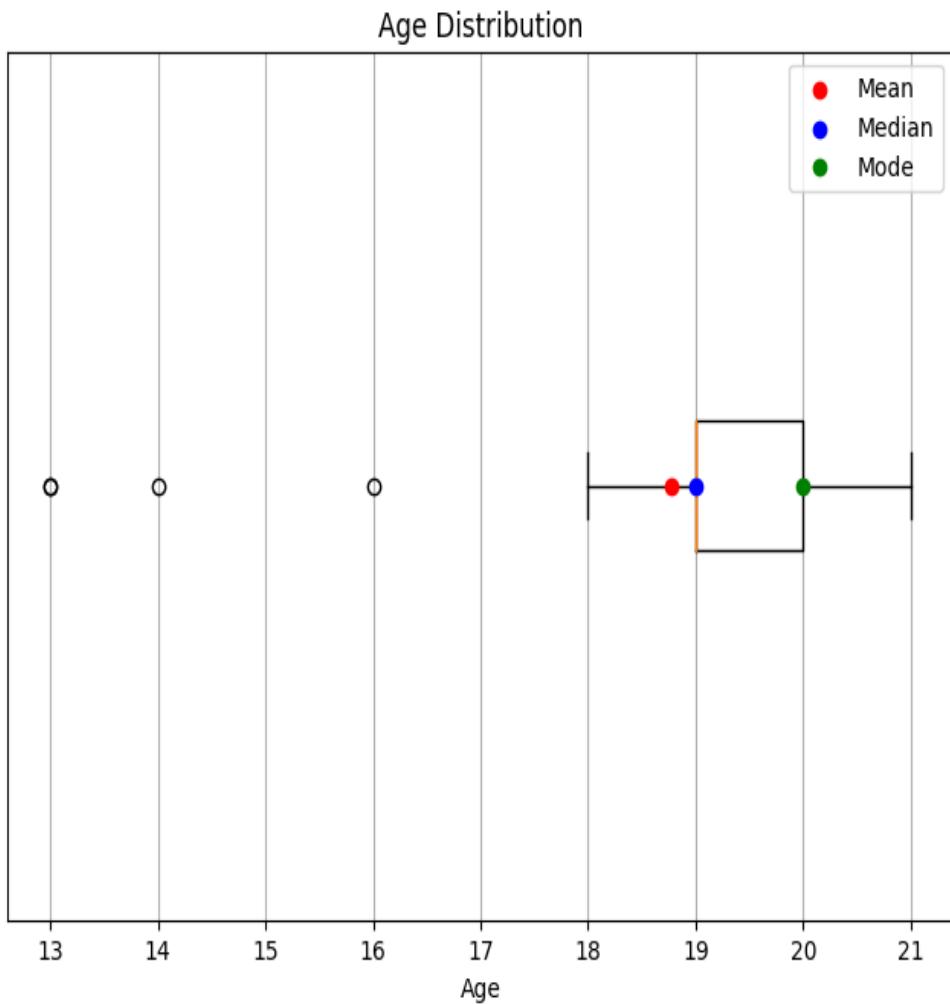
1. **Mean:** The mean offers an average value, representing what most respondents, on average, reported. For instance, if I'm analyzing age or hours spent playing video games, the mean provides a single number summarizing the typical response within my sample.
2. **Mode:** The mode reveals the most frequently occurring value in my dataset, helping to identify the most common response among participants. For questions with multiple-choice answers, like types of video games played, finding the mode unveils the most popular choices.
3. **Median:** Unlike the mean, the median represents the middle value when all responses are sorted. It's less influenced by extreme values, providing a more robust measure of central tendency. This is particularly useful if my data is skewed or contains outliers, offering a clearer picture of the typical response.

By exploring these descriptive statistics, I gain valuable insights into the typical characteristics or behaviors of my survey participants. This information aids in understanding data distribution, spotting trends, and making comparisons across different groups or variables in my survey.

Calculating the standard deviation adds another layer of insight into the variability or spread of the data around the mean. In the context of my survey, understanding the standard deviation provides information about the dispersion of responses from the average. A higher standard deviation indicates greater variability among responses, while a lower standard deviation suggests that responses are closer to the mean.

Regarding gender, calculating statistical measures such as mean, mode, median, and standard deviation helps in understanding any gender-based differences or patterns in responses. For example, if I'm analyzing responses to questions related to gaming habits or preferences, calculating these measures separately for different gender groups allows me to identify any significant disparities or trends between male and female respondents.

By conducting statistical analysis on gender-specific data, I can uncover valuable insights into potential gender-based preferences, behaviors, or attitudes within the context of my survey. This information can be crucial for making informed decisions, tailoring interventions or strategies, and ensuring inclusivity and fairness in my survey analysis and interpretations.



The scatter plot shows the relationship between age and hours spent playing video games, indicating that there's correlation between age and gaming hours. From the age of 13-16, they play from 30 minutes to 30 hours. From the age of 18 to 21, they play from 30 minutes to 8 hours. This means that the younger age plays more hours than the older age, so this means that the age of the younger age is more affected by their behavior. Well, in terms of For adults, the graph shows that they are playing for the purpose of entertainment

## Conclusion

The survey provided valuable insights into the gaming habits, preferences, and attitudes of the participants. From the data collected, it is evident that there is a diverse range of gaming preferences among individuals, with varying levels of engagement and opinions regarding the impact of gaming on mental health and behavior. Further analysis of the survey data could reveal additional trends and patterns, contributing to a better understanding of the gaming community.

## Potential Issues

In the last question, I was trying to link the age of playing and its effect on a person's way of thinking and behavior. If we consider that we have linked them and found that the age of those between 13-16 years chooses the first or second choice, then this means that they are in the stage of beginning to be influenced by good or evil. Their influence on their choice will be determined by the same choice, even if it is in any situation or any game, but at the age of 18-21 and above, whatever their choice, this indicates that they were already influenced by their choice before that.

Pie Chart for Question: When you play games like Red Dead Redemption 2, do you usually?

