

Master of Science in Public Health



**Assessment of Videogame Streaming User group's
Motivations, Opportunities and Dangers among
Adolescents in Islamabad City**

By

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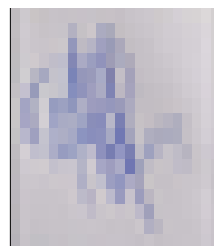
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This dissertation is the result of an independent investigation. Where my work is indebted to others, I have made acknowledgments.

I declare that this work has not been accepted in substance for any other degree, nor is it currently being submitted in candidature for any other degree.



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Dedicated to all those who have been a constant source of support and encouragement for me in my research work

I couldn't be able to accomplish this task without your support.....

ABSTRACT

Background: Live video game streaming is a kind of social media streaming which combines both online gaming and traditional broadcasting, which has become famous in recent years due to advancement in bandwidth of internet and latest web services. Users use the videogame streaming platforms driven by a range of motivations. It is important to characterize the different forms of participation in videogame streaming platforms to evaluate the phenomenon and reflect on its advantages and disadvantages.

Objectives: The purpose of the study was to identify user groups, distinguish between different motivations, and address the associated opportunities and dangers.

Methodology: a cross sectional study was conducted on school going students who were 13-18 years of age. Questionnaire was developed using two validated tools; Enjoy scale and internet gaming disorder scale short form (IGDS9-SF). Pearson Chi Square test of Independence and multivariate binary logistic regression was used to identify associations and main predictors of motivations, opportunities and dangers.

Results: More than half of students (n=176, 55.3%) had low motivation and opportunities of online video game streaming. While majority of students were experiencing high levels of dangers of online videogame streaming (n=256, 80.5%). Multiple regression analysis showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported high and low levels motivation and opportunities. It was observed that students of 16-18 years of age were nearly two times more prone to experienced dangers as compared to those of 13-15 years of age (p value= 0.031).

Conclusion: It is suggested that awareness needs to be created regarding opportunities and dangers of videogame streaming on adolescents and teenagers.

Keywords: Associations, Multivariate Regression Analysis, E-Health, Videogame Streaming, Online Gaming, Opportunities, Dangers.

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LIST OF ABBEREVIATION

VGS	Videogame Streaming
IL	Information Literacy
PVG	Problematic video gaming
SPSS	Statistical Package for Social Sciences
GAS	Game addiction scale
TV	Television
PSQI	Pittsburgh sleep quality index
COVID-19	CoronaVirus Disease 2019
SDQ	Strength and difficulties questionnaire
C.I	Confidence interval
GAMS	Gaming motivation scale
IGDS9-SF	Internet gaming disorder scale short form

CHAPTER I: INTRODUCTION

Videogames are one of most commercial and compelling forms of entertainment. Live video game streaming is a kind of social media streaming which combines both online gaming and traditional broadcasting, which has become common in recent years (Li et al., 2020). Adolescents and young people for videogame streaming use various platforms like Youtube, Twitch, Douyu, Huya, etc. As compared to online gaming, videogame live streaming provides multi directional interaction to its users.

Users of live streaming are categorized into two different groups that are streamer and audience. Streamers are the producers of live streaming. They record and publish real-time video by their own mobile devices (such as smart phones, tablets, and desktop computers). They display game skills, teach game strategies and manage their self-image by chatting with audiences on the platform, such as expressing their interests and attitudes towards life. Audiences are consumers of live streaming and they watch the content on mobile devices or desktop computers. Live streaming platforms enable audiences to chat with streamers and other consumers, acquire information and learn skills related to games. At times the chatting of audience with live streamer leads to creation of a sense of intimacy, which can have negative consequences (Zimmer et al., 2018).

Videogame streaming is highly addictive. Addiction to it has been included as a tentative disorder in fifth edition of Diagnostic and Statistical Manual of Mental Disorders. There is an ongoing debate on motivation of young people for videogame streaming, its potential benefits and disadvantages. Knowing the different motivations of different users is essential in order to gain an understanding of their behaviour and to identify distinct profiles. Motivation is an

important factor, which affects the desire to continue playing. Some earliest studies conducted to determine motivation behind videogames have found certain motivation factors like playing video games for fun, a way of beating boredom, a source of escapism and fun and strengthening of friendship networks. Now the motivation behind videogame streaming have changed as many people do streaming for earning money, becoming famous and teaching skills to other players (Sjöblom & Hamari, 2017).

The literature on the utility and benefits of video games reveals enormous potential. These games are associated with development of spatial, social and educational skills. Some studies have determined that videogame streaming leads to development of enhanced cognitive abilities, social, educational, spatial skills and improved coordination of senses such as sight or touch (Johnson & Woodcock, 2019).

Everything has some pros and cons, similarly videogame streaming has some adverse effects on health of its users. They lead to development of abusive behaviour and lack of control in people using it. The negative effects include antisocial behaviour, addictive behaviour, lack of sleep, decline in work and academic performance and continual tiredness. They also have adverse effects on society including harassment, or dissemination of offensive or inappropriate content. Problematic gaming is resulting in personality problems like aggression and hostility in children, adolescents and young adults. This problem is of growing concern in parents and caregivers. Unfortunately, there is no consensus on clinical definition of videogame addiction but world health organization has regarded gaming disorder as a behavioural addiction (González et al., 2017; Zolides, 2021)

A lot of research has been done to determine the positive or negative aspects associated with this phenomenon i.e., videogame streaming, but no studies have identified user groups or differences between them and their perceptions (Luis Javier Cabeza-Ramírez et al., 2021). A research pointed out that it is essential to identify homogenous subgroups within the users of videogame streaming because it will help in understanding heterogeneity of population under study, gaming and viewing behaviour. The identification of subgroups within a population has been used in different contexts like binge watching of television series, people who engage in online betting for exploratory data analysis. The results generated from this kind of research can identify the potential risk groups (Jeong et al., 2020).

1.1. Rationale

Videogame streaming among school students is an important phenomenon that greatly affects their physical, mental and social health, with negative consequences on their academic performance and physical activities. The risks associated with videogame streaming are anxiety, behaviour disorders, aggression, loss of productivity, functional impairment and suicidal thoughts. Despite the negative effects of videogame streaming on lives of school students, scarce literature is available in Pakistan regarding this issue. Lack of evidence in this regard may pose a challenge for understanding the severity of this issue.

Therefore, the current study will be conducted to find out the videogame streaming user groups, motivations, opportunities and dangers among school students. It will also help to identify the potential user groups in study population. The understanding of user groups and their motivations for videogame streaming can be very important in highlighting the potential risk groups. Moreover, the findings of the current study will help in the development of interventions

for reducing the risks of potential risk groups. They will be useful in improving physical, mental, social wellbeing and academic performance of study population.

1.2. Objectives

1. To assess the videogame streaming user group's, motivations, opportunities and dangers among public and private school students in Islamabad.
2. To determine association of motivations, opportunities and dangers of videogame streaming with socio demographic variables and player attributes.
3. To find out the potential determinants that affects the videogame streaming.

CHAPTER II: LITERATURE REVIEW

2.1. Context

A videogame is an interactive digital entertainment used through a game console like play station or Xbox, computer, tablet or phone. Live video game streaming is a kind of social media streaming which combines both online gaming and traditional broadcasting. It has been present from past twenty years but in recent years, it has become very famous due to advancement in bandwidth of internet and latest web services. Social media platforms used by people for videogame streaming are YouTube, Twitch, Douyu and Huya (Cabeza-Ramírez et al., 2021). A research has reported that in 2019, people had spent 12 billion hours on watching videogame streaming on top four streaming platforms i.e., YouTube gaming, Twitch, Facebook Gaming and Mixer (Shen, 2021).

Videogame streaming is a type of broadcast entertainment where live e games and videogames are broadcasted. It is a kind of holistic communication channel because instead of just broadcasting video content, it also allows its user to interact with one another during broadcast. Therefore, it allows a high level of communication and interaction. As compared to online gaming, videogame live streaming provides multi directional interaction to its users (Smith et al., 2013). This study aims to find out the user group's, motivations, opportunities and dangers of videogame streamers among school going students in Islamabad. However, before introducing this study it is important to understand the background of videogame live streaming.

2.2. Videogame Streaming Platforms

Videogame streaming platforms are those websites or web applications which allow people to conduct and watch live streaming. Some common videogame streaming platforms are Twitch,

Youtube, Douyu and Huya. The streaming platforms allow streamers to play game and audience to watch them. They also allow chat option to the streamers and audience. Through these platforms, the audience can chat with their favourite streamer, other audience and they can also gather data about the videogame streams. There are different channels for the streamers which the audience need to subscribe so they can regularly watch their favourite streamers. The platform earns money by placing advertisements of the videogame streaming. The audience can also support their favourite streamer by subscribing his channel and by donating money to him/her (Cheung & Huang, 2011).

The concept of video game streaming was first introduced in 2011 when Justin.tv launched Twitch.tv, the first streaming platform dedicated to games and gamers. Since its release in 2011, the platform witnessed a rapid growth in terms of popularity managing to attract millions of users every year (Edge, 2013). Initially this platform began as a gaming content exclusive platform but after its success in audience it transformed itself to deliver other types of contents. Now one of the most watched contents of twitch is “just chatting”, with about 325,000 weekly audience. This platform is one of widely used platforms for video game streaming (Twitchtracker, 2021).

The audience of video game streaming platforms consists of about 65% males and 35% female users. The demographics of the audience show that they are from all age groups with the majority of them belonging to teens and younger adults, i.e., Gen Z and millennials. This information is important and can help the developers of platforms and advertisers in their future work (Edge, 2013).

The community of video game live streamers consists of different kinds of individuals with different intentions. The live streamers are streaming the games for different reasons and different audiences (Smith et al., 2013). There are three most popular communities of live streaming services that are e-sports, speed running and let's play. E-Sports community consists of those people who play video games for the purpose of competition. The phenomenon of e-sports began in the era when players of arcade games would challenge each other to compete for top position. The community of e-sports has now expanded and now live streaming professional tournaments and leagues are also conducted. The second type of community is known as speed runners. This community consists of those individuals who take it as a challenge to complete a game as fast as possible. During live streaming the speed runners impart important tips and tricks to the audience regarding the game which they are playing. It has developed into a real spectator sport where a number of audiences watch the live streamers playing their favourite games. The third is known as "let's play" community. The members of this community are different from the other two communities. They play and broadcast a game for the purpose of amusement and enjoyment. These players are usually very informal and they share their experience while playing the game with their audience. These were the three main categories of live video game streamers (Nascimento et al., 2014).

There are three main features of video game streaming which distinguish them from video games. The first feature is live streaming, which means that games are performed in real time and streamers share their online video while playing a videogame with their audience. This allows the streamer and audience to chat with one another in real time, this feature makes these games attractive and appealing to the audience. The second feature is that this type of video game streaming activity allows sociability. It is a type of social media where audience and

streamer can interact with each other by subscribing, chatting, giving rewards and learning game techniques and skills. The third distinguishing feature is that this medium spreads suspense as compared to the traditional media. The audience has suspense regarding the game which is being played by streamers. They are interested in the game and watch excitedly that anything can happen at any moment in the game. Suspense makes these games alluring (Hamilton et al., 2014; Tang et al., 2016).

2.3. Motivations behind Video Game Streaming

There are certain needs and motivations associated with the use of media. In the past, various studies have highlighted different motivations behind using media which have been grouped into five main categories which are cognitive, affective, social integration, personal integrative and tension release need factors (Luis Javier Cabeza-Ramírez et al., 2020).

With the advent of technology, different forms of media have been created. Video Game streaming is also a form of media and used widely across the globe. Many studies have been conducted to determine the motivations and reasons for which audiences use video game streaming platforms. Three major motivations for using video game streaming platforms are obtaining information, tension release entertainment and social motivations linked to communication and sense of belonging. The tension release aspect can be explained as that individuals use video game streaming platforms for recreation, entertainment purposes and as an alternative to television and social networking websites. They can use these mediums for watching others play games and enjoy, which at times they may not do while playing the games themselves because playing a game can be a cause of tension for some individuals (Gros et al., 2017).

The social motivation behind using these streaming platforms may be to expand social circles through making new friends or to interact with other individuals. Some people need for use it to become part of the community who also like and play games. Chat rooms are available on these platforms which allow users to text one another, joke or discuss games they are playing or any other topic (Hilvert-Bruce et al., 2018).

Information is another type of motivation of users for video game streaming. These platforms can be used as a means of obtaining information regarding gaming. It can be used for learning gaming skills or strategies. The number of users using or watching a game can give idea to the creator of games that either their game is being liked by users or not. This information can help in developing games in future (Johnson & Woodcock, 2019).

2.4. Benefits of Video Game Streaming

Video Game streaming is a means of entertainment and fun but it is proposed that it may have a positive impact on young individuals and most importantly students. It is said that video game based activities can reduce a teacher's workload, learning time and help in building problem solving skills. They can help students in subjects like geography, mathematics, physics and languages which are difficult in contextual form. VGS has helped in developing critical, social, information literacy (IL) and computer literacy skills. In information and library management settings, these sort of game based activities can be used for delivering information literacy class rooms and library instructions. It can be used for distribution of knowledge internationally. It has allowed its users throughout the globe to seek, locate and steer information effectively and efficiently. The IL skill learned through this medium allows students, general public and knowledge seekers to extract the information that they need from the huge amount of information that is available. Studies have shown that education by means of VGS has increased

the engagement of students, level of motivation and learning. However, in Pakistan the VGS industry is in developing stage, so VGS based learning is not studied much in the local context. Studies need to be conducted in this direction to determine the impact of VGS on education and learning (Adachi & Willoughby, 2013).

2.5. Dangers of Video Game Streaming

Everything in the universe has pros and cons. Similarly, Video Game Streaming has some dangers and hazards associated with it (Müller & Wölfling, 2017). It can lead to low social integrity, educational and career performance. VGS can cause addiction, aggression, lack of power and excessive gaming. In 2013 the American Psychiatric Association declared excessive gaming as an internet gaming disorder. Some individuals also do gambling on VGS which is ethically a wrong practice. At times some people may harass or exploit young children on these platforms. These platforms pose a threat to the younger children and their parents. They also impact mental health and well-being in a negative manner. Studies show that they are associated with low self-reliance, low confidence, violence, depression and addictive behaviours. It can also affect the social health of people using it excessively leading to lower actual interaction among males and females, abnormal activities, solitude, decreased cognitive welfare and anxiety. It can lead to mental troubles. It is reported to lower the urge for education and learning in some people using it. It is an alarming situation and needs further research to understand its severity (Milani et al., 2018).

2.6. Videogame streaming user Group's, Motivations, Opportunities and Dangers; A Worldwide view

Video Game streaming is an important technology that is being used widely across the globe. It is a new phenomenon and an unexplored medium. It is an interesting topic for investigation (Sjöblom & Hamari, 2017). Research on this phenomenon and its user behaviour is in its initial stages. Some studies have been conducted to explore determinants of broadcasting purpose (Zhou et al., 2019) and the audience watching purpose (Luis Javier Cabeza-Ramírez et al., 2020; Hou et al., 2020). I will discuss some studies about VGS.

A study was conducted to explore the links between gaming motivations, the daily frustration of basic psychological needs, and reports of problematic video gaming (PVG). 1209 individuals were included in study. They were asked to give their responses on a structured questionnaire containing questions regarding gaming motivation and PVG. Results determined that PVG was positively associated with motivations for gaming that are autonomy, competence and frustration (Mills et al., 2018).

A study was conducted in Spain to determine the motivations for which people play video game streaming. The study was conducted to explore the connection between playing video games and watching video game streaming. The study population included individuals more than 16 years of age. Data was collected from 1402 individuals. A structured questionnaire was used to collect information about video game streaming. The questionnaire consisted of 4 sections, socio demographics section, reasons for using streaming platforms, perceptions of positive use and potential problematic use of VGS. The results showed that positive expectations about use of VGS are directly related with time spent playing and negative related with time spent watching. The potential problematic uses are determined more by an increase in time spent playing than in

time spent watching, with watching being treated as a complementary activity to gaming (L. Javier Cabeza-Ramírez et al., 2022) .

Another study was conducted in Spain to determine motivations and create subgroups of audience on the basis of time that they spent on viewing and gaming. This study was conducted on 580 young individuals who were between the age group 14 and 24. The study identified four types of people who were using VGS platforms: hobby, social, casual and problematic. It was determined that females and older age individuals were in greater numbers in casual and social subgroups. While males and younger age were in greater numbers in hobby and problematic subgroups. This is an alarming situation and it needs to be addressed. There is a need for in-depth research on these results, so that appropriate action can be taken to address this issue (Luis Javier Cabeza-Ramírez et al., 2021).

A study was conducted to determine the motivation of users behind using video streaming platform i.e. Twitch. A structured questionnaire was used to collect data from study participants. The questionnaire had questions related to dimensions like entertainment, socialisation and information. Data was collected from 791 study subjects. The mean scores of all three dimensions were determined through SPSS software and it was seen that entertainment had the highest mean score of 3.39, followed by information with a mean score of 2.21 and socialisation had lowest mean score of 1.91. The results concluded that dimension socialisation was important and it was mostly the reason why people used the VGS platform (Gros et al., 2017).

Video Game streaming has been associated with aggressive and addictive behaviours. Addiction means that when a person is being extra concerned about the online apps or activities and devotes a lot of time to those activities. It is when a person has an uncontrollable motivation for

specific online activities (Andreassen et al., 2014). A study was conducted to determine whether addictive behaviours are associated with online gaming. A web based cross sectional study was conducted by using a structured questionnaire that was created from game addiction scale (GAS). 23,533 participants filled the online form and were included in data analysis. The mean age of study subjects was 35.8 years. Regression analysis was performed on data. Sex (women), anxiety and marital status (being single) were associated with addictive behaviours. It was concluded that online gaming can give rise to addictive behaviours (Andreassen et al., 2016).

Video Game streaming has become famous across the globe, with increasing audiences. The community of VGS has grown so large that specific live streaming web services like Twitch TV and YouTube live have been created to cater the needs of audiences and live video game streamers. A study was conducted to explore the practices and advantages of streamers and audiences in the VGS community. The study investigated the three communities of VGS that are speed running, let's play and e sports. The members of different communities have different reasons for watching and playing VGS. The information provided from research could be of importance to the interactive television community (Smith et al., 2013).

Excessive VGS has been declared as an emerging public health issue among teenagers and young adults (Kwon et al., 2011). A significant amount of research work has been done on this issue in the past few years. Researchers are trying to understand the impact of excessive online gaming and VGS on the lives of people who are using it (Kircaburun et al., 2020). It is essential to understand this phenomenon, its prevalence and health impact in our country. Some studies have been conducted in Pakistan to understand this phenomenon will discuss them briefly.

The excessive use of VGS and online gaming can affect the sleep wake cycle of individuals and can lead to sleep disturbance and insomnia. A study was conducted in Pakistan to determine the prevalence of addiction of online gaming and explore its affects upon the quality of sleep in adults. The study took place during the time when a national lockdown was imposed in Pakistan due to COVID-19 Pandemic. Convenience sampling was used for collecting data from a sample of 618 individuals. Data was collected through an online survey. Questionnaire was composed of socio demographics questions, Pittsburgh sleep quality index (PSQI) and Game addiction scale (GAS). 57% of study participants had played online games. Out of those participants who had played online games, 12.5% were determined as addicted to online gamers on the basis of their GAS scores. Gaming addiction was more prevalent in males as compared to females. The results showed that addiction was associated with poor sleep quality, sleep disturbance, higher daytime dysfunction and less sleep duration. It was concluded that gaming addiction was associated with poor sleep quality (Zaman et al., 2022).

A study was conducted in Lahore, Pakistan. The purpose of study was to determine the videogame based academic and information literacy learning of school going students. A qualitative phenomenological research method was used for collecting data from study participants. The students included in study were teenagers and those who played videogames and VGS. The study participants said that the challenge of completing different stages of a game and interaction with other online gamers allow them to improve their information literacy and communication skills. It was concluded that video games have a positive impact on learning of students (Khalid & Batool, 2018).

Another study was conducted in Pakistan to determine the effects of online video game streaming on psychosocial development of children. The study was conducted on children

between 8-14 years of age. Sample size was 300. A structured questionnaire was used to collect data about socio demographic variables and Strength and difficulties questionnaire (SDQ). The sample had 58.3% males as compared to females. The results showed that 112 study participants were engaged in violent online video games. A significant correlation was found among all the domains of SDQ and video games. Linear regression analysis predicted that online video gaming had an impact on psychosocial development of children (Yousaf et al., 2021).

Videogame streaming among school students is an important phenomenon that greatly impacts their physical, mental and social health, with negative consequences on their academic performance and physical activities. There is a lack of literature in Pakistan regarding this issue. Lack of evidence in this regard may pose a challenge for understanding the severity of this issue. Therefore the current study will be conducted to find out the video game streaming user groups, motivations, opportunities and dangers among school students. It will also help to identify the potential user groups in study population. Moreover, the findings of the current study will help in addressing the problem at the individual as well as societal level.

2.7. Conceptual framework

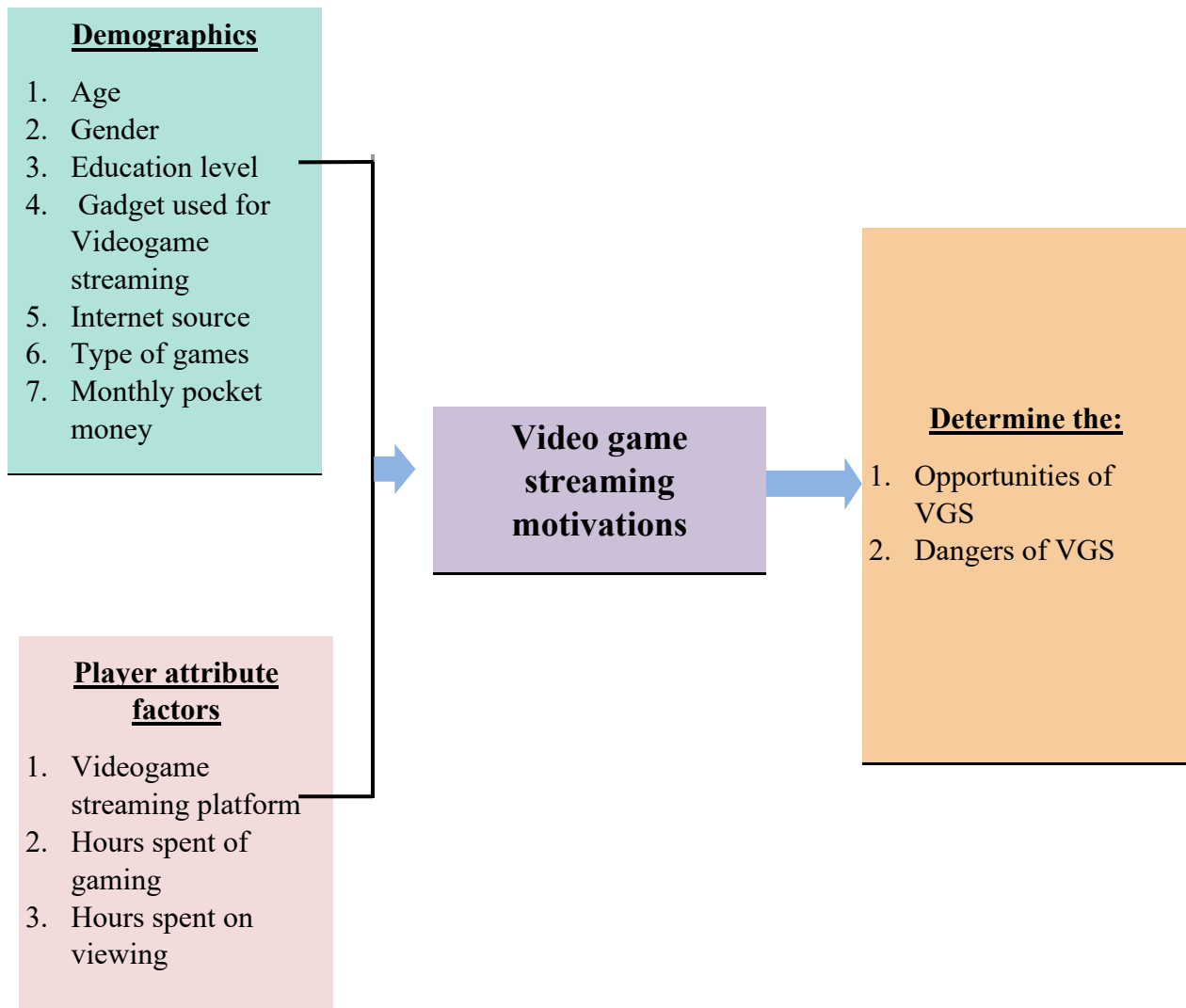


Figure 1: Conceptual Framework of Videogame Streaming user group's, motivations, opportunities and dangers.

2.8. Operational Definitions

- **Videogame Streaming:** is a type of social media streaming which combines both online gaming and traditional broadcasting.
- **Motivation and opportunities:** are important factors which affect the desire to do videogame streaming. In current study they were determined by a scale which consisted of sixteen questions. The scale was 3 point Likert in nature. The categories of motivation were made on basis of mid points. Score (0-23) was low motivation while (24-32) was high motivation.
- **Dangers:** Are the adverse effects caused by videogame streaming. In current study they were measured by a 5 point Likert scale comprised of 7 questions. Score (15-26) was low danger while (27-36) was High danger.

CHAPTER III: METHODOLOGY

3.1. Research Design

A quantitative research approach using cross-sectional study design was used for the current study.

3.2. Research Duration

Study period for the current research was six months from March-August 2023.

3.3. Study Setting

The study was carried out at public and private schools of Islamabad city.

3.4. Research Participants

The study was conducted on school going students. Sample was selected on the basis of inclusion and exclusion criteria.

3.4.1. Inclusion Criteria

1. Those children who were 13-18 years of age.
2. Both male and female children were included.
3. Those children who were present in schools on the day of data collection.
4. Those who used video game for playing or streaming.
5. Those who had been playing videogame streaming for a period of 6 months or more.

3.4.2. Exclusion Criteria

1. Those who were absent at day of data collection.
2. Those who didn't wanted to participate.

3.5. Sample Size Calculation

Sample size was calculated by using OpenEpi Menu, Version 3.01 software. Previous prevalence of videogame streaming was taken as 27% as reported by a study conducted to determine effects of online videogames on psychosocial development of children in Pakistan in 2021 (Yousaf et al., 2021). Calculated sample size was 303 with 95% confidence interval (C.I) and 5% margin of error. After adding 5% non-response rate, final sample size came out to be 318 students.

3.6. Sampling Strategy

The schools for data collection were selected through simple random sampling and students for the desired sample were selected through a non-probability consecutive sampling strategy.

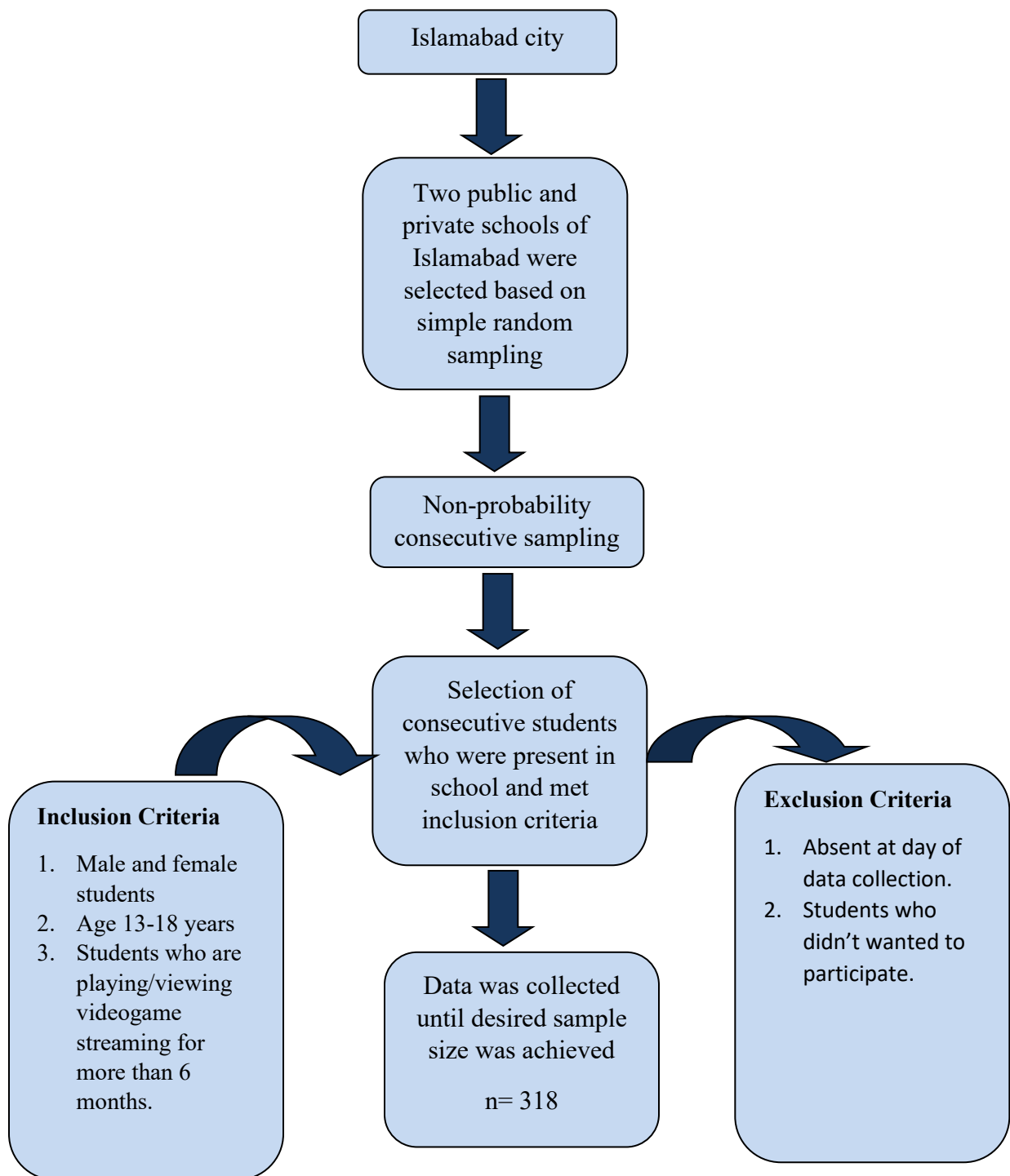


Figure 2: Non probability consecutive sampling strategy

3.7. Data Collection Instrument

3.7.1. Questionnaire Design

Data was collected using a self-administered questionnaire. A Performa was developed to collect data regarding socio demographics characters of respondents, player attributes of respondents, motivations and opportunities of videogame streaming and dangers of videogame streaming. Questionnaire was developed using three validated tools; gaming motivation scale (GAMS) (Lafrenière et al., 2012), Enjoy scale (Davidson et al., 2022) and internet gaming disorder scale short form (IGDS9-SF) (Pontes & Griffiths, 2015).

3.7.2. Contents of Questionnaire

Questionnaire was composed of four sections:

1. **First part** included Socio demographic variables like age, gender, education status, monthly pocket money, gadget and video game streaming related question,
2. **Second part** included Player attributes related questions like preferred platforms for gaming/viewing, weekly time spent on gaming and self-perception of skill level.
3. **Third part** included measurement of Motivations and opportunities by using a validated scale, Enjoy scale (Davidson et al., 2022). To measure motivation and opportunities 16 questions were included. These 16 questions were based on five different domains i.e., “Pleasure”, “Relatedness”, “Competence”, “Challenge/ Improvement”, and “Engagement”. All these domains were based on enjoy scale.
4. **Fourth part** to measure dangers. It includes internet gaming disorder scale short form (IGDS9-SF).It has seven questions related to aggression and addictive behaviour(Pontes & Griffiths, 2015).

3.7.3. Study Variables

3.7.2.1. Outcome Variable

The major construct of the questionnaire was to assess the motivations, opportunities and dangers of video game streaming. The outcome variables were motivations, opportunities and dangers, which were measured by a validated questionnaire. The outcome variables were divided into two categories i.e., low and high based on median scores.

3.7.2.2. Independent Variable

Data on independent variables were collected through a structured Performa which was constructed after international and national literature review. The Performa included socio demographic variables such as gender, age, education level, gadget related questions, number of hours spent on playing/ viewing etc and players attributes (streaming/ watching platform, hours spend on streaming and watching, self-perception of skill level).

3.8. Data Collection Process

3.8.1. Pilot Testing

Pilot testing was performed before starting the formal data collection procedure by including 10% of the actual sample size. Performa was tested for any future changes. After pilot study, two questions were excluded from danger section of questionnaire. Data from pilot testing were not included in final analysis. Pilot testing showed that reliability of motivations and opportunities scale (16 items) was 0.763 and danger scale (7 items) to be 0.628.

Reliability Statistics	
Cronbach's Alpha	N of Items
.763	16

Figure 3: Reliability of Motivation and Opportunities of VGS Scale

Reliability Statistics	
Cronbach's Alpha	N of Items
.628	7

Figure 4: Reliability of Dangers of VGS Scale

3.8.2. Formal Data Collection

Data were collected by the researcher herself and no data collectors were hired. All the students who were studying in school were approached for data collection. Permission was also taken from the school management for conducting research. Students were explained the purpose of the research and assent forms were attached to students diary one day before data collection. Next day students with signed assent form and those who met the inclusion and exclusion criteria were given questionnaires for purpose of data collection. Data collection was completed in approximately one month. All filled questionnaires were kept protected in plastic files and no one had access to it other than researcher.

3.9. Data Analysis Procedure

Code book was developed and data were entered in Statistical Package for Social Sciences (SPSS) version 26. After careful data entry, data were checked for any error before proceeding to

the further analysis. After data cleaning, data transformation were carried out for certain variables. Data analysis was done in two phases; descriptive analysis and inferential analysis.

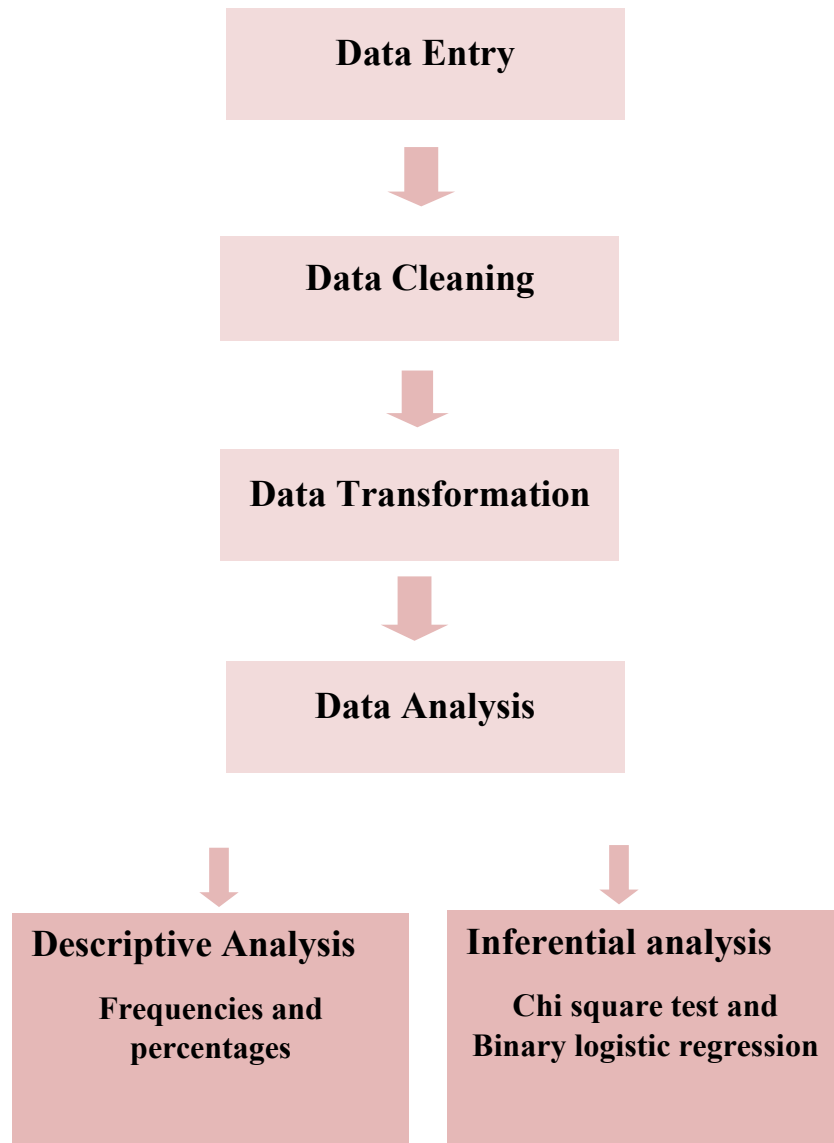


Figure 5: Data Analysis Plan

3.9.1. Data Transformation

The data were entered into SPSS and after that the total scores for motivations, opportunities and dangers were computed. After computation, they were converted into two categories based on median scores.

3.9.2. Descriptive Analysis

Descriptive statistics were generated for socio demographic characteristics and player attribute variables. For categorical variables, data was summarised in the form of frequencies and percentages and presented in table form, Bar chart and Pie chart. Frequencies and percentages were also reported for the motivations, opportunities and dangers.

3.9.3. Inferential Analysis

Association of motivations, opportunities and dangers were determined with socio-demographic and player attribute variables using Pearson Chi Square test of Independence. Furthermore, multivariate binary logistic regression was used to identify main predictors of motivations, opportunities and dangers. ENTER method was used for regression. First category of each categorical variable was selected as reference category. Coding was done as 0 and 1 for binary variables. Results of Omnibus test were used to check if the model was significant or not while for checking the overall effect of independent variables on dependent variable, Nagelkerke R square and Cox & Snell R square test were used.

3.10. Ethical Considerations

Before starting formal data collection, approval from Institutional Review Board (IRB) of Al-Shifa School of Public Health Rawalpindi, Pakistan was taken. Permission letter from the Head of Department of Al-Shifa School of Public Health was obtained regarding access to public and private schools in Islamabad. Permission was also taken from the school management for

conducting research. Students were explained the purpose of the research and assent forms were attached to students diary one day before data collection. Next day students with signed assent form were given questionnaires for data collection purpose. Participants were assured for the confidentiality of their data. Data collected from the respondents was kept anonymous and was not shared with anyone. Data was entered in SPSS anonymously. After data entry, hard copies of collected data were kept at a safe place.

CHAPTER IV: RESULTS

For current study, data of 318 students who were studying in public and private schools of Islamabad city were collected. A summary of descriptive and inferential analysis is given below.

4.1. Socio demographic characteristics

A total of 318 respondents were included in the study. Majority of the respondents were female (n=180, 56.6 %), and from the age group 13-15 years (n=208, 65.4%). It was noted that most of them were using cell-phones (n=162, 50.9%) for videogame streaming, having personal email-account (n=197, 61.9%). A summary of sociodemographic characters is given in Table 1.

Table 1: Frequency and percentages of socio demographics characteristics

S. No.	Variable	Frequency(n)	Percentage %
1	Age		
	13-15 years	208	65.4
	16-18 years	110	34.6
2	Gender		
	Male	138	43.4
	Female	180	56.6
3	Grade of study		
	7	83	26.1
	8	36	11.3
	9	179	56.3
	10	8	2.5
	11	3	0.9
	12	9	2.8
4	Monthly pocket money		
	Yes	128	40.3
	No	190	59.7

5	Gadget used for video games		
	Phone	162	50.9
	Tablet	89	28.0
	Laptop	39	12.3
	Desktop computer	28	8.8
6	Password for gadget		
	Yes	199	62.6
	No	119	37.4
7	Parents know about password		
	Yes	178	56.0
	No	140	44.0
8	Parents keep a check on gadget		
	Yes	154	48.4
	No	164	51.6
9	Parents limited gaming time		
	Yes	181	56.9
	No	137	43.1
10	Internet source		
	WiFi	269	84.6
	Lan cable	17	5.3
	Mobile data	32	10.1
11	Playing online games		
	Online	61	19.2
	Downloaded	93	29.2
	Both	164	51.6
12	Play video games		
	Yes	161	50.6
	No	157	49.4
13	With whom prefer playing games		
	Siblings	54	17
	Friends	100	31.4

	Both	164	51.6
14	Online videogame streaming		
	Friends	66	20.8
	Family	64	14.5
	Internet	125	39.3
	Self explored	81	25.5
15	Personal email account		
	Yes	197	61.9
	No	121	38.1

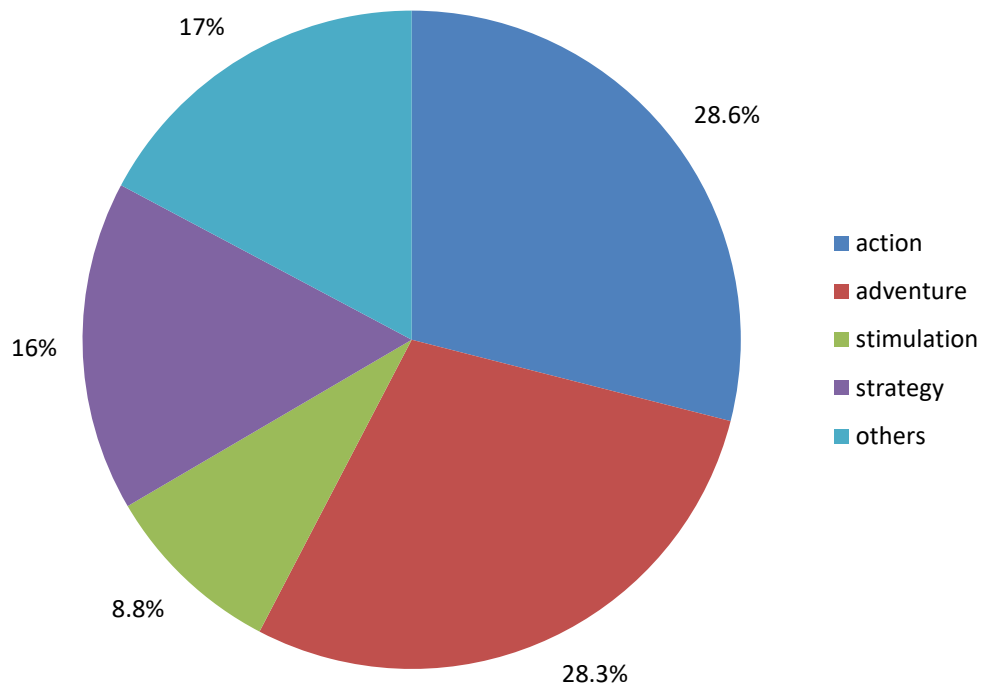


Figure 6 : Frequency and percentage of types of games students prefer to play

It was seen that majority of students preferred to play action (n=91 ; 28.6%) and adventure (n=90 ;28.3%) games. While rest of students played other types of games.

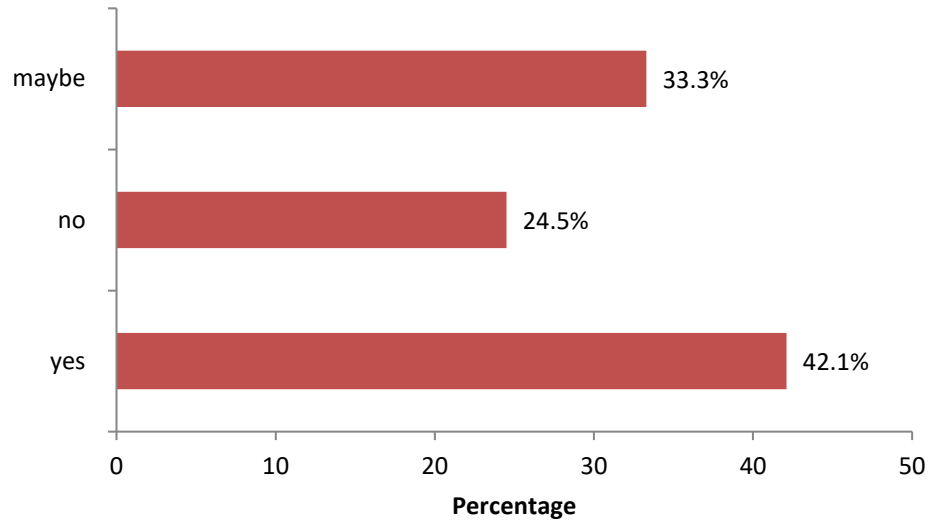


Figure 7: Frequency and Percentage of Students Who Agreed Playing and Watching Videogames Streaming Were Educational

Findings of study showed that most of students agreed that playing and watching videogames streaming were educational (n=134; 42.1%).

4.2. Player Attributes

In current study, player's attributes were also determined. It was noted that most of the students (n=134, 42.1%) spent at least one hour from their daily routine while playing games. Furthermore, more than half of students have regular self-perception of skill level (n=175, 55%) while only (n=85; 26.7%) had perception of expert skill level.

Table 2: Frequency and Percentage of Player Attributes Variables

S No.	Variables	Frequency (n)	Percentage %
1	Videogame streaming platforms		
	Watching	205	64.5
	Streaming	23	7.2
	Both	90	28.3
2	Daily hours spent on games		
	0-1 hr	134	42.1
	2 hr	83	26.1
	3 hr	18	5.7
	4 hr	14	4.4
	More than 4 hr	37	11.6
3	Daily hours spent on viewing		
	0-1 hr	127	39.9
	2 hr	57	17.9
	3 hr	40	12.6
	4 hr	7	2.2
	More than 4 hr	36	11.3
	None	51	16
4	Self perception of skill level		
	Amateur	58	18.2
	Regular	175	55.0
	Pro/expert	85	26.7

4.3. Descriptive Results for Outcome Variable

Motivation and opportunities of online videogame streaming among students were assessed in this study.

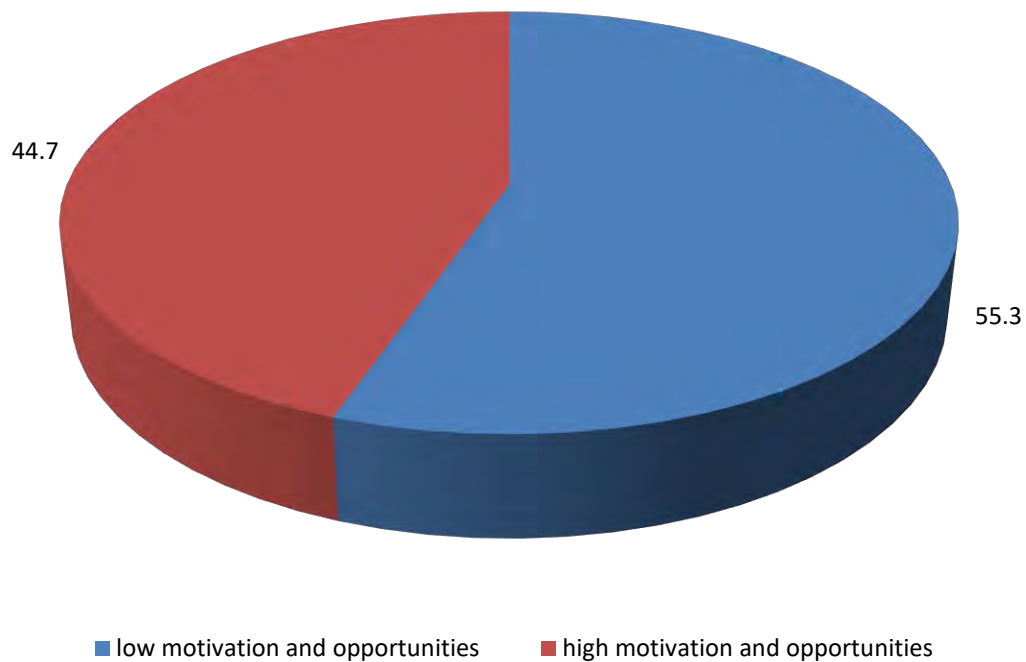


Figure 8: Level of Motivation and Opportunities among students

It was found that more than half of students have low motivation and opportunities of online video game streaming (n=176, 55.3%) as given in figure 3.

Dangers of online videogames streaming among students were also determined in this study.

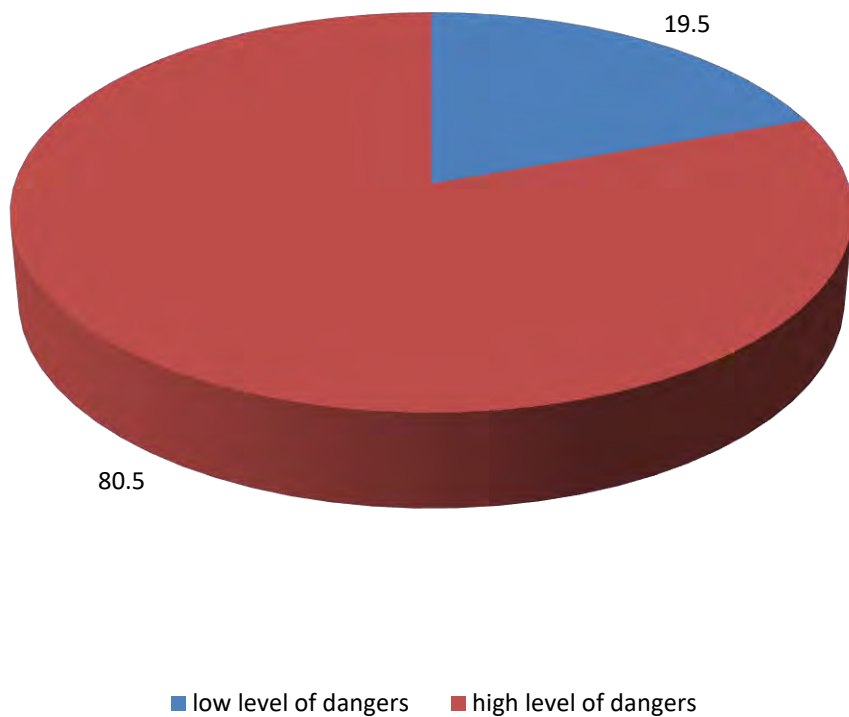


Figure 9: Dangers Effects of Videogame streaming among students

Results showed that majority of students are experiencing high levels of dangers of online videogame streaming (n=256, 80.5%).

4.5. Inferential Analysis

4.5.1 Pearson Chi-Square Results for Motivation and Opportunities of video game streaming

Association of motivation and opportunities of online videogames streaming with socio demographic variables and player's attributes was determined using Pearson Chi Square Test of Independence after confirming the assumptions of the test. All p-values below 0.05 were considered statistically significant. It was noted that male and female were reported high levels of motivation and opportunities of videogame streaming (n= 71, 22%). Similarly, students who played online and downloaded both videogames reported mainly high levels of motivation and opportunities (n=91, 29%). Likewise, students who got to know about videogame streaming through internet reported mainly high levels of motivation and opportunities (n=60, 19%) as compared to those who came to know about video gaming through friends or siblings. Moreover, greater number of students who used to watch video games reported low levels of motivation and proposed benefits (n=126, 40%) as compared to other groups. Furthermore, students who spent 0-1 hour in video game streaming, reported relatively low-level motivation and opportunities levels (n=80, 25%). All these factors were found significantly associated with motivation and opportunities ($p < 0.05$). A summary of association of sociodemographic characters and motivation and opportunities are given in table 3.

Table 3: Association of Motivation and Opportunities of Videogame streaming and Socio demographic Characteristics

S. No	Variables	Low motivation and opportunities n (%)	High motivation and opportunities n (%)	Chi-Square (df)	P-value
1.	Age 13-15 years 16-18 years	107 (34) 69 (22)	101 (32) 41 (13)	3.708 (1)	0.54
2.	Gender Male Female	67 (21) 109 (34)	71 (22) 71 (22)	4.555 (1)	0.033
3.	Grade of study 7 8 9 10 11 12	48 (15) 20 (06) 94 (30) 04 (01) 02 (01) 08 (03)	35(11.1) 16(53) 85(26.3) 04(01) 01(0.1) 01(0.1)	5.134 (5)	0.400
4.	Monthly pocket money Yes No	76 (24) 100 (31)	52 (15) 90 (28)	1.407 (1)	0.236
5.	Gadget used for video games Phone Tablet Laptop Desktop computer	96 (30) 49 (15) 15 (05) 16 (05)	66 (21) 40 (13) 24 (08) 12 (04)	5.542 (3)	0.136
6.	Password for gadget Yes No	112 (35) 64 (20)	87 (27) 55 (17)	0.188 (1)	0.644

7.	Parents know about password Yes No	98 (310) 78 (24)	80 (25) 62 (19)	0.014 (1)	0.907
8.	Parents keep a check on gadget Yes No	82 (26) 94 (27)	72 (72) 70 (22)	0.532 (1)	0.466
9.	Parents limited gaming time Yes No	92 (29) 84 (26)	89 (28) 53 (17)	3.469 (1)	0.063
10.	Internet source Wi-Fi Lan cable Mobile data	148 (46) 07 (02) 21 (07)	121 (38) 10 (03) 11 (04)	2.761 (2)	0.251
11.	Playing games Online Downloaded Both	36 (11) 67 (21) 73 (23)	25 (08) 26 (08) 91 (29)	18.612 (2)	0.0001
12.	Play video games alone Yes No	95 (30) 81 (26)	66 (21) 76 (30)	1.768 (1)	1.184
13.	With whom prefer playing game Siblings Friends Both	32 (10) 56 (18) 68 (28)	22 (07) 44 (14) 76 (24)	0.541 (2)	0.763
14.	Know about online videogame streaming through				

	Friends	46 (15)	20 (07)	8.606	0.035
	Family	27 (09)	19 (06)	(3)	
	Internet	65 (20)	60 (19)		
	Self-explored	38 (12)	43 (13)		
15.	Types of games prefer to play				
	Action	51 (16)	40 (13)		
	Adventure	47 (15)	43 (14)	4.946	0.293
	Stimulation	12 (04)	16 (05)	(4)	
	Puzzle	28 (09)	23 (07)		
	Others	36 (11)	18 (06)		
16.	Playing and watching videogames streaming educational				
	Yes				
	No	67 (21)	67 (21)	2.968	0.227
	Maybe	48 (15)	30 (09)	(2)	
		61 (19)	45 (14)		
17.	Personal email account				
	Yes	109 (34)	88 (28)	0.000	0.994
	No	67 (21)	54 (17)	(1)	
18.	Video games streaming platforms				
	Watching	126 (40)	79 (25)		
	Streaming	11 (03)	12 (04)	8.885	0.012
	Both	39 (12)	51 (16)	(2)	
19.	Daily hours spent on games				
	0-1 hr.	80 (25)	54 (17)		
	2 hr.	43 (13)	40 (13)	13.450	0.020
	3 hr.	08 (02)	10 (03)	(5)	
	4hr.	08 (02)	06 (02)		

	More than 4 hr.	13 (04)	24 (06)		
	None	24 (07)	08 (02)		
20.	Daily hours spent on viewing				
	0-1hr.	78 (24)	49 (15)		
	2 hr.	30 (09)	27 (08)		
	3 hr.	15 (05)	25 (08)	10.430	0.064
	4 hr.	03 (01)	04 (01)	(5)	
	More than 4 hr.	17 (05)	19 (06)		
	None	33 (10)	18 (06)		
21.	Self-perception of skill level				
	Amateur	36 (11)	22 (07)	5.566	0.062
	Regular	102 (32)	73 (23)	(2)	
	Expert	38 (12)	47 (15)		

4.5.2 Pearson Chi-Square Results for Dangers of video game streaming

Association of dangers of online videogames streaming with sociodemographic variables and player's attributes was determined using Pearson Chi Square Test of Independence after confirming the assumptions of the test. All p-values below 0.05 were considered statistically significant. Results revealed that high dangers of video game streaming were reported by majority students of 13-15 years of age (n=160, 50%) as compared to students of 16-18 years of age (n=96, 30%). Similarly, students who got to know about video game streaming internet reported greater number of high dangers of video game streaming (n=96, 30%) as compared to others. There was no association was observed between other variables with sociodemographic character.

Table 4: Association of Dangers of Videogame streaming and Socio demographic Characteristics

S. No	Variables	Low dangers n (%)	High dangers n (%)	Chi-Square (df)	P-value
1.	Age 13-15 years 16-18 years	48 (15) 14 (04)	160 (50) 96 (30)	4.910 (1)	0.027
2.	Gender Male Female	33 (10) 29 (09)	105 (33) 151 (48)	3.029 (1)	0.082
3.	Grade of study 7 8 9 10 11 12	11 (03) 06 (02) 43 (13) 02 (01) 00 (00) 00 (00)	72 (23) 30 (09) 136(42) 06 (02) 03 (01) 09 (03)	7.642 (5)	0.177
4.	Monthly pocket money Yes No	28 (09) 34 (11)	100 (31) 156 (49)	0.772 (1)	0.380
5.	Gadget used for video games Phone Tablet Laptop Desktop computer	28 (08) 17 (05) 09 (03) 08 (02)	134 (42) 72 (23) 30 (10) 20 (06)	2.303 (3)	0.512
6.	Password for gadget Yes No	34 (11) 28 (09)	165 (52) 91 (27)	1.970 (1)	0.160

7.	Parents know about password Yes No	28 (09) 34 (11)	150 (47) 106 (33)	3.654 (1)	0.056
8.	Parents keep a check on gadget Yes No	26 (08) 36 (11)	128 (40) 128 (40)	1.300 (1)	0.254
9.	Parents limited gaming time Yes No	30 (09) 32 (10)	151 (47) 105 (33)	2.286 (1)	0.131
10	Internet source Wi-Fi Lan cable Mobile data	49 (15) 03 (01) 10 (03)	220 (69) 14 (04) 22 (07)	3.135 (2)	0.209
11.	Playing games Online Downloaded Both	13 (04) 16 (05) 33 (10)	48 (15) 77 (24) 131 (41)	0.480 (2)	0.787
12.	Play video games alone Yes No	32 (10) 30 (09)	129 (41) 127 (40)	0.030 (1)	0.863
13.	With whom prefer playing game Siblings Friends Both	13 (04) 18 (06) 31 (08)	41 (13) 82 (26) 133 (42)	0.900 (2)	0.637
14.	Know about online videogame streaming				

	through				
	Friends				
	Family	15 (05)	51 (16)	10.346	0.016
	Internet	12 (04)	34 (11)	(3)	
	Self-explored	29 (09)	96 (30)		
		06 (02)	75 (24)		
15.	Types of games prefer to play				
	Action	12 (04)	79 (25)		
	Adventure	18 (06)	72 (23)	4.233	0.375
	Stimulation	07 (02)	21 (07)	(4)	
	Puzzle	13 (04)	38 (12)		
	Others	12 (04)	42 (13)		
16.	Playing and watching videogames streaming educational				
	Yes				
	No	29 (09)	105 (33)	0.818	0.664
	Maybe	13 (04)	65 (20)	(2)	
		20 (06)	86 (27)		
17.	Personal email account				
	Yes	36 (11)	161 (51)	0.493	0.483
	No	26 (08)	95 (30)	(1)	
18.	Video games streaming platforms				
	Watching	42 (13)	163 (51)	1.852	0.396
	Streaming	02 (01)	21 (07)	(2)	
	Both	18 (06)	72 (23)		
19.	Daily hours spent on games				
	0-1 hr.				

	2 hr.	27 (08)	107 (34)		
	3 hr.	18 (06)	65 (20)	5.096	0.404
	4hr.	01 (01)	17 (05)	(5)	
	More than 4 hr.	02 (01)	12 (04)		
	None	10(03)	27 (08)		
		04 (02)	28 (08)		
20.	Daily hours spent on viewing				
	0-1hr.	28 (09)	99 (31)		
	2 hr.	07 (02)	50 (16)	6.432	0.266
	3 hr.	08 (02)	32 (10)	(5)	
	4 hr.	01 (01)	06 (02)		
	More than 4 hr.	11 (03)	25 (08)		
	None	07 (02)	44 (14)		
21.	Self-perception of skill level				
	Amateur	13 (04)	45 (14)	1.400	0.497
	Regular	36 (13)	139 (43)	(2)	
	Expert	13 (04)	72 (23)		

4.5.3. Multivariate Binary Logistic Regression analysis for Motivation and Opportunities of video game streaming

Multivariate binary logistic regression was carried out to identify the main predictors of motivation and opportunities of videogame streaming among students. Results showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported high and low levels motivation and opportunities. Model summary showed that it can cause a deviation in the levels of motivation and opportunities in the range of 11-15%. It was observed that odds of students who used to play

downloaded and online both video games for high motivation and opportunities were 2.764 as compared to odds of students who only played online games (p value= 0.001).

Table 5: Predictors of Motivation and Opportunities of Videogame Streaming using Multivariate Binary Logistic regression model

S.No.	Variables	AOR	P value	95% C.I.	
				Lower	Upper
1.	Gender				
	Male	1			
	Female	0.658	0.093	0.404	1.072
2.	Daily hours spent on games				
	0-1 hr.	1			
	2 hr.	0.958		0.526	1.745
	3 hr.	0.602		0.193	1.879
	4hr.	0.597	0.222	0.171	2.086
	More than 4 hr.	2.285		0.890	5.868
	None	0.706		0.277	1.796
3.	Video games streaming platforms				
	Watching	1			
	Streaming	1.38	0.515	0.518	3.720
	Both	1.74		0.891	3.421
		1.58		0.310	8.148
4.	Playing games				
	Online	1			
	Downloaded	1.136	0.001	0.532	2.428
	Both	2.764		1.425	5.364

4.5.4. Multivariate Binary Logistic Regression analysis for Dangers of video game streaming

Multivariate binary logistic regression was carried out to identify the main predictors of dangers of videogame streaming among students. Results showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported high and low levels of motivation. Model summary showed that it can cause a deviation in the levels of motivation and opportunities in the range of 5-8%. It was observed that students of 16-18 years of age were nearly two times more prone to experienced dangers as compared to those of 13-15 years of age (p value= 0.031).

Table 6: Predictors of Dangers of Videogame Streaming using Multivariate Binary Logistic regression model

S.No.	Variables	AOR	P value	95% C.I.	
				Lower	Upper
1.	Age				
	13-15 years	1			
	16-18 years	2.062	0.031	1.06	3.97
2.	Know about video streaming through				
	Friends	1			
	Family	0.896	0.807	0.370	2.169
	Internet	1.013		0.494	2.075
	Self-explored	3.827		1.383	4.591

CHAPTER V: DISCUSSION

This study was conducted on 318 students who were studying in public and private schools of Islamabad city were collected. The primary objective of the study were to assess the user groups, motivations, opportunities and dangers of videogame streaming among school students. Other objectives of study were to identify the socio demographic variables that were associated with study variables and to predict potential determinants that affected VGS. Majority of the respondents were female (n=180, 56.6 %), and from the age group 13-15 years (n=208, 65.4%). (n=162, 50.9%) of students were using cell-phones (n=162, 50.9%) for videogame streaming. About (n=197, 61.9%) had personal email accounts. Majority of students preferred to play action (n=91; 28.6%) and adventure (n=90; 28.3%) games. While rest of students played other types of games. Most of students included in study agreed that playing and watching videogames streaming were educational (n=134; 42.1%). A huge chunk of the students (n=134, 42.1%) spent at least one hour from their daily routine while playing games. Furthermore, more than half of students had regular self-perception of skill level (n=175, 55%) while only (n=85; 26.7%) had perception of expert skill level. More than half of students (n=176, 55.3%) had low motivation and opportunities of online video game streaming. While majority of students were experiencing high levels of dangers of online videogame streaming (n=256, 80.5%).

Pearson Chi Square Test of Independence was used for inferential analysis. Inferential analysis showed that gender(p value=0.033), those who play videogames(p vale=0.0001), have knowledge of videogame streaming(p value-0.035), those who use videogame streaming platforms (p value=0.012) and those who spent daily hours on videogame streaming apps (p value= 0.020) were statistically significantly associated with motivation and opportunities. Results revealed that high adverse effects of video game streaming was associated with students

age (p value=0.027) and students who had knowledge about videogame streaming (p value=0.016).

Multivariate binary logistic regression was used to identify the main predictors of motivation and opportunities of videogame streaming among students. Results showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported high and low levels motivation and opportunities. Model summary showed that it can cause a deviation in the levels of motivation and opportunities in the range of 11-15%. Similarly, results of dangers of VGS showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported high and low levels of dangers. Model summary showed that it can cause a deviation in the levels of dangers in the range of 5-8%. It was observed that students of 16-18 years of age were nearly two times more prone to experienced dangers as compared to those of 13-15 years of age (p value= 0.031).

More than half of students ($n=176$, 55.3%) had low motivation and opportunities of online video game streaming. Our results differ from another study where students reported high motivation for VGS(Luis Javier Cabeza-Ramírez et al., 2020). This difference may be due to difference in the socio demographics and culture. Another study showed the level of motivations similar to our study(Hamam & Hysaj, 2021). While majority of students were experiencing high levels of dangers of online videogame streaming ($n=256$, 80.5%). Similar results were reported by another studies(Kimmig et al., 2018; Pallavicini et al., 2022). Inferential analysis showed that gender (p value=0.033), those who play videogames (p vale=0.0001), have knowledge of videogame streaming (p value-0.035), those who use videogame streaming platforms (p value=0.012) and those who spent daily hours on videogame streaming apps (p value= 0.020) were statistically

significantly associated with motivation and opportunities. Our results are slightly different from a study conducted in Spain where motivations are associated age and those who use VGS for entertainment purposes. This difference in result may be because the difference in populations included in both studies(Luis Javier Cabeza-Ramírez et al., 2020). Other studies reported that motivation was positively associated with amount of hours people use on VGS and amount of individual streamers they choose to watch (L. Javier Cabeza-Ramírez et al., 2022; Sjöblom & Hamari, 2017). Results revealed that high adverse effects of video game streaming was associated with students age (p value=0.027) and students who had knowledge about videogame streaming (p value=0.016).

Multivariate binary logistic regression was used to identify the main predictors of motivation and opportunities of videogame streaming among students. Results showed that full model containing all predictors was statistically significant (p = 0.0001) indicating that the model was able to distinguish between respondents who reported high and low levels motivation and opportunities. Model summary showed that it can cause a deviation in the levels of motivation and opportunities in the range of 11-15%. A study conducted to predict motivations of VGS for using it, it was determined that that the model containing all predictors was not statistically significant (Chen & Chang, 2019). Our results differ from a study where tension release factor was determined as the strongest predictor of motivation for how much duration an individual will watch streaming (Sjöblom & Hamari, 2017). Similarly, results of dangers of VGS showed that full model containing all predictors was statistically significant (p = 0.0001) indicating that the model was able to distinguish between respondents who reported high and low levels of dangers. Model summary showed that it can cause a deviation in the levels of dangers in the range of 5-8%. It was observed that students of 16-18 years of age were nearly two times more prone to

experienced dangers as compared to those of 13-15 years of age (p value= 0.031). a study conducted on teenagers reported that age, gender and stress are predictors of dangers of VGS (Kimmig et al., 2018). Another study regression analysis showed that male, low income families, accessing information from multiple families were more prone to experience dangers of videogame streaming(Leung & Lee, 2012).

5.1. Strengths

This study was conducted by using a validated scale i.e. gaming motivation scale (GAMS), Enjoy scale and internet gaming disorder scale (IGDS9-SF), which makes the results of this research reliable. After conducting extensive literature search it was determined that study on assessment videogame streaming user group's, motivation, oppurtunities and dangers among school students was not conducted in Islamabad, so I have covered a literature gap regarding VGS by conducting this study. The study indicates that there are significant level of motivations and dangers of students regarding VGS. Awareness and education programs should be created for improving the understanding of user groups, motivations, oppurtunities and dangers of VGS.

5.2. Limitations

This study was a cross sectional study, so it cannot determine the cause effect relationship between VGS and socio demographic variables. It cannot be used to establish a temporal relationship. The questionnaire was composed of close ended questions so it can be difficult to explain the underlying reason a specific outcome by using it. Another limitation is that as the sample was only restricted to 2 public and private schools in Islamabad so we cannot generalize it to a general population. As our sample size was limited so we cannot make inferences about the whole population. Further research is required before generalizing research on whole population of Pakistan.

5.3. Conclusion

The study was conducted to assess the user groups, motivations, opportunities and dangers of videogame streaming among school students. Other objectives of study were to identify the socio demographic variables that were associated with study variables and to predict potential determinants that affected VGS. More than half of students (n=176, 55.3%) had low motivation and opportunities of online video game streaming. While majority of students were experiencing high levels of dangers of online videogame streaming (n=256, 80.5%). Variables statistically significantly associated with motivation and opportunities were gender(p value=0.033), those who play videogames(p vale=0.0001), have knowledge of videogame streaming(p value-0.035), those who use videogame streaming platforms (p value=0.012) and those who spent daily hours on videogame streaming apps (p value= 0.020). Multiple regression analysis showed that full model containing all predictors was statistically significant (p = 0.0001) indicating that the model was able to distinguish between respondents who reported high and low levels motivation and opportunities. It was observed that students of 16-18 years of age were nearly two times more prone to experienced dangers as compared to those of 13-15 years of age (p value= 0.031). It is suggested that awareness needs to be created regarding opportunities and dangers of videogame streaming on adolescents and teenagers.

5.4. Recommendations

Based on the current findings, following recommendations are put forward for the health authorities and future researchers to address this untapped public health issue.

- **Policy Level**

1. There should be proper awareness campaign regarding videogame streaming, its opportunities and dangers.
2. Greater efforts should be done to make an awareness campaign for those adolescents and teenagers who are at risk of being affected from Video game streaming, aiming to slow down the adverse impact of VGS on lives of individuals and build up a healthy society.
3. There should be special awareness sessions at schools and colleges where students should be taught to use Videogame streaming in a constructive manner.
4. The students should be encouraged to use physical activities and games instead of online and videogames.

- **Individual Level**

1. All parents should keep a check on activities of their children that either they are using videogame streaming devices in a normal way.
2. Parents should educate their children about the pros and cons of videogame streaming.
3. Parents should encourage their children to limit their screen time and engage them with other activities which can improve their physical health and intellectual abilities.

GANTT CHART

Activities	Month 1	Month 2	Month 3	Month 4	Month 5
Literature search					
Synopsis writing and IRB approval					
Pilot testing					
Data collection					
Data analysis					
Write up					
Thesis defence					

BUDGET

Budget item	Transport	Stationery and internet	Printing	Publishing
Pilot testing	1,500 Pkr/-	5,000 Pkr/-	1,200 Pkr/-	-
Data collection	10,000 Pkr/-	7,000 Pkr/-	10,000 Pkr/-	-
Thesis writeup	1,000 Pkr/-	5,000 Pkr/-	8,000 Pkr/-	8,000 Pkr/-
Total expenditure	12,500 Pkr/-	17,000 Pkr/-	19,200 Pkr/-	8,000 Pkr/-
Grand total	56,700 Pkr/-			

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ANNEXURE 1: Data Collection Tool

Assessment of Videogame Streaming User group's Motivation, Opportunities and Dangers among adolescents in Islamabad city

Socio demographic Section

Please read all questions carefully and tick the most appropriate answer.

1. What is your age? _____
2. What is your gender?
 - Male
 - Female
3. In which grade do you study?
 - 7
 - 8
 - 9
 - 10
 - 11
 - 12
4. Do you have monthly pocket money?
 - Yes
 - No
5. Which gadget do you use for videogame streaming?
 - Phone
 - Tablet
 - Laptop
 - Desktop computer
6. Do you have a password for your gadget?
 - Yes
 - No

7. Do your parents know about your password?

- Yes
- No

8. Do you have a personal email account?

- Yes
- No

9. Do your parents keep a check on your gadget?

- Yes
- No

10. Have your parents limited your gaming time?

- Yes
- No

11. what is your internet source?

- Wifi
- LAN- cable
- Mobile data

12. How do you play games?

- Online
- Downloaded
- Both

13. Do you play video games alone?

- Yes
- No

14. If no with whom do you prefer playing videogames?

- Siblings
- Friends
- Both

15. How do you know about online video streaming?

- Friends

- Family
- Internet
- Self explored

16. What type of games do you play?

- Action
- Adventure
- Stimulation
- Sports
- Strategy/puzzle
- Others _____

17 . Do you think playing and watching videogame streaming are educational?

- Yes
- No
- Maybe

Player Attributes Section

18. Why do you use video game streaming platforms?

- Watching
- Streaming
- Both

19. How many daily hours do you spend on gaming?

- 0–1 h
- 2 h
- 3 h
- 4 h
- More than 4 h
- None

20. How many daily hours do you spend on viewing?

- 0–1 h
- 2 h
- 3 h

- 4 h
- More than 4 h
- None

21. What is your self-perception of skill level?

- Novice/amateur
- Regular
- Expert/Pro

Motivation and Opportunities

Read following questions about online videogame streaming and answer them carefully:

S. No.	Questions	Disagree	Don't know	Agree
1	The video game streaming/watching allowed me to develop new skills			
2	The video game streaming/watching was pleasurable to me			
3	I lost track of what was going on outside of the video game streaming/watching			
4	I felt connected with others during the video game streaming/watching			
5	The video game streaming/watching made me feel happy			
6	I felt very capable during the video game streaming/watching			
7	I felt challenged, but not over-challenged, during the video game streaming/watching			
8	I liked interacting with others during the video game streaming/watching			
9	The video game streaming/watching was fun			
10	I improved my skills the last time I did the video game streaming/watching			
11	I am good at the video game streaming/watching			

12	I cooperated with others during the video game streaming/watching			
13	I liked doing the video game streaming/watching			
14	I felt challenged, but not under-challenged, during the video game streaming/watching			
15	I was proficient in the video game streaming/watching			
16	The video game streaming/watching made me feel good			

Potential Dangers

Read following questions about online videogame streaming and answer them carefully:

S. No.	Questions	Never	Rarely	Sometimes	Often	Very often
1	Do you feel preoccupied with your gaming behavior? (Some examples: Do you think about previous gaming activity or anticipate the next gaming session? Do you think gaming has become the dominant activity in your daily life?)					
2	Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?					
3	Do you feel the need to spend an increasing amount of time engaged in gaming to achieve satisfaction or pleasure?					
4	Do you systematically fail when trying to control or cease your gaming activity?					
5	Have you lost interest in previous hobbies and other entertainment activities as a result of your engagement with the game?					
6	Have you continued your gaming activity despite knowing it was causing problems between you and other people?					

7	Do you play to temporarily escape or relieve a negative mood (e.g., helplessness, guilt, anxiety)?					
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ANNEXURE 2: Informed Consent Form

I Ezzah Tahir Qureshi, am student of MSPH- Final Semester, at Alshifa School of Public Health, Rawalpindi. I am doing research on Assessment of Videogame Streaming User group's Motivation, Opportunities and Dangers among adolescents in Islamabad city.

PURPOSE OF THE RESEARCH

The purpose of this study is to assess the videogame streaming user group's, motivation, opportunities and dangers in students studying in public and private schools in Islamabad city.

PARTICIPATION

I do not anticipate that taking this study will contain any risk or inconvenience to you. Your participation is strictly voluntary and you may withdraw your participation at any time without penalty. I request you to answer the questions as honestly as possible. It will take no longer than 20 minutes to complete a questionnaire. All information collected will be used only for research purpose and will be kept highly confidential. Your identity and your responses will not be identifiable; all data will be stored anonymously. As this is solely a student project no incentive will be provided. Once study is completed, I would be happy to share the results with you if you desire.

Thank you for agreeing to participate in this study. Your feedback is important.

Assent Form

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my child's participation is voluntary and that he/she is free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this assent form. I voluntarily agree to take part in this study.

Consent

I have read and understand the information sheet and agree to take part in the study.

Signature _____ **Date** _____

ANNEXURE 3: IRB Letter



AL-SHIFA SCHOOL OF PUBLIC HEALTH
PAKISTAN INSTITUTE OF OPHTHALMOLOGY
AL-SHIFA TRUST, RAWALPINDI

MSPH-IRB/15-03
21st Mar, 2023

TO WHOM IT MAY CONCERN

This is to certify that **Ezzah Tahir Qureshi** D/O **Tahir Ghafoor Qureshi** is a student of Master of Science in Public Health (MSPH) final semester at Al-Shifa School of Public Health, PIO, Al-Shifa Trust Rawalpindi. He/she has to conduct a research project as part of curriculum & compulsory requirement for the award of degree by the Quaid-i-Azam University, Islamabad. His/her research topic, which has already been approved by the Institutional Review Board (IRB), is **“Assessment of videogame streaming user group’s motivation, opportunities and danger among adolescents in Islamabad city”**.

Please provide his/her necessary help and support in completion of the research project. Thank you.

Sincerely,

Dr. Ayesha Babar Kawish
Head

Al-Shifa School of Public Health, PIO
Al-Shifa Trust, Rawalpindi

AL-SHIFA TRUST, JEHLUM ROAD, RAWALPINDI – PAKISTAN
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Permission Letter

Respected Madam/ Sir,

I hope this letter finds you well. I am writing to request your permission to conduct a research study at your school that involves collecting data from students of grade 7 and above. My research topic is "Assessment of Video Game Streaming User Group's Motivations, Opportunities, and Dangers among Adolescents in Islamabad City." The purpose of this study is to gain a comprehensive understanding of the motivations, opportunities, and potential risks associated with video game streaming among adolescents in our community.

The study will be conducted in a responsible and ethical manner, strictly adhering to research guidelines and prioritizing the privacy and confidentiality of all participants. Here are the key details of the research plan:

Data Collection: Data will be gathered through questionnaire with the voluntary participation of students. The questionnaire designed to explore various aspects of video game streaming, including motivations, perceived opportunities, and potential dangers.

Participant Consent: Participation in the study will be entirely voluntary. For students under the age of 18, parental or legal guardian consent will be sought before their participation. Students aged 18 and above will provide their own informed consent.

Privacy and Confidentiality: All data collected will be anonymized and treated with the utmost confidentiality. No personally identifiable information will be disclosed in the research findings. Data will be securely stored and accessible only to the research team.

Duration: The data collection phase is estimated to last for two days, and it will be scheduled to minimize disruption to the school's academic activities.

Benefits: The study aims to provide valuable insights into the motivations, opportunities, and potential dangers associated with video game streaming among adolescents in Islamabad City. The findings will be beneficial for educators, parents, and policymakers in our community.

I kindly request your permission to conduct this research at your School. I believe that the knowledge generated from this study will be of great significance to both the academic community and the school itself. I assure you that every effort will be made to ensure the research is conducted professionally and in accordance with the school's policies and procedures.

Should you require additional information or have any concerns, please do not hesitate to contact me at ezzahtahir1@gmail.com or 03340813004, I am also open to scheduling a meeting to discuss this research proposal in greater detail.

Thank you for considering my request. I look forward to your positive response and the opportunity to contribute to a better understanding of video game streaming motivations, opportunities, and dangers among adolescents in Islamabad City.

Sincerely,
Ezzah Tahir Qureshi
Al-Shifa School of Public Health.

Allowed
Khumt Khatibi
21st April, 2022


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ANNEXURE 4: Pictures

