EXPLORING THE MOTIVES AND ADDICTIVE BEHAVIORS OF ESPORTS PLAYERS IN PAKISTAN

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I hereby certify that the thesis I submitted as part of my Master of Science in Software Engineering (MSSE) candidacy at the National University of Modern Languages, titled "Exploring the Motives and Addictive Behaviors of Esports Players in Pakistan," is entirely original and has not been submitted or published previously. In addition, I firmly promise that I won't apply again for any other degree from this university or any other in the future. I am also aware that my thesis or dissertation may be canceled and my degree may be withdrawn if there is any indication of plagiarism, even after the degree has been granted.

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ABSTRACT

With changing lifestyles, outdoor games have been replaced by esports games, which are rapidly gaining popularity among young players in Pakistan. These esports games are a kind of competition in which players compete against one another, either in teams or individually, following a set of rules. However, despite the popularity of esports games, there is a lack of research on players' motives and behaviors symptoms of players in Pakistan. Hence, the objective of this study is to determine how prevalent esports games are among young players in Pakistan. To fulfill this objective, a survey methodology was used. Survey questions on demographics, esports motives, and addictive behavioral symptoms were asked by participants using convenience and snowball sampling techniques. A total of 420 esports players participated in the survey. For the analysis of the data, factor analysis was performed to examine the variables of esports game consumption. The results reveal six motives to play esports games: violence, entertainment, coupling, fantasy, psychological benefits, and skill enhancement. As for the behavioral symptoms, salience, withdrawal, mood modification, and loss of control emerged as the four main symptoms. Additionally, survey results reveal that esports games do carry positive aspects of enhancing social skills and interactions among the players while helping them exhibit behaviors and emotions that are not coherent with mental disorders.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Background

In the last several years, Electronic Sports (esports) have seen enormous growth in popularity, ranking among the most widely used types of online entertainment [1]. Esports definitions and classifications remain elusive despite the continuing expansion, and the sector is still widely seen as being in its infancy. Esports, a part of the gaming industry, are videogames that allow for mobile or computer-mediated interaction and can be played on a variety of devices, from personal computers to gaming consoles like the Microsoft Xbox or Nintendo Switch, in real-time competitive, tournament-based sports settings [2]. Esports is a phenomenon that has its origins in the cultures of the 1980s and 1990s and originated from the video game industry [3]. Esports, a relatively new addition to gaming culture, are steadily displacing other pursuits as the most important and well-liked aspects of online gaming communities among the younger generation [4].

Similarly, video game [5] playing has more recently been professionalized in the arena of competitive gaming, and for a small number of players, it has become a potential career option. Esports is the name for this most recent kind of video game competition (electronic sports). The relevance and popularity of esports, a relatively new facet of gaming culture, are rapidly increasing, especially among young people and newly emerging adults who are passionate gamers.

Esports games include different sub-categories, such as Real-time War games, FPS (First-Person Shooters), MOBA (Multiplayer Online Battle Arena), and Sports Videogames. These games stand out because they let a large number of players connect to the internet and

communicate with one another simultaneously. The most current and well-liked game is Player Unknown's Battlegrounds (PUBG) [6]. In this game, 100 players are thrown into a virtual island, where they split up into teams and engage in a deathmatch until one team is left. It can be played on game consoles and smartphones and was officially launched in December 2017. Over 100 million people have downloaded it from the Google Play Store. Similarly, over 30 million people play the game every day now across the world [7].

The game can be played with friends or people. The majority of players are addicted to this game and spend much too much time playing it. Despite being classified as players over 16, many youngsters still play this esports game. According to a survey [8] on esports players, 47% of the players had played one or more violent video games.

After having a renowned reign in sports exports, Pakistan has recently seen promising growth in competitive online games as it is known as esports [9]. It is the fifth most populous nation in the world with a population of over 225.2 million and has shown significant growth in esports games consumption, although fell behind in the development of esports games [10]. Similarly, in Pakistan, around ten million players play pubg regularly [9], whereas 0.8 million and 0.6 million players play Counter-Strike and Dota 2, respectively [11]. A survey conducted in 2020 during the Covid-19 shutdown revealed that Pakistani youths are becoming more and more interested in the consumption of esports games [9]. The statistics are very certainly far higher today, as the game's popularity among teenagers increases. Not only among kids and teenagers, but also among adults, playing video games has become one of the most common pastimes.

The Internet along with associated digital technologies has enabled advanced business models to emerge, with users often creating and consuming content on the Internet for free [12]. This situation is especially important in the context of esports, both in terms of how online video game content is consumed and the games that make up the most popular esports titles. Similarly, esports broadcasts [13] are primarily consumed through online video streaming platforms such as Twitch, where access to content is free on the platform, and individual streamers earn income from the community through subscriptions, donations, advertising and sponsorships, and other commercial activities.

Similarly, youth all around the world now consider playing esports games to be one of their favorite hobbies recently [7]. Moreover, studies consistently show that games can provide many positive benefits, including therapeutic, medical, health, cognitive, and educational benefits [12] [14]. However, for very few people, esports games can be a problem for them. Similarly, video games [15] and various types of virtual games are viewed negatively because of a lack of communication and social interaction, tendencies toward violence, addiction, depression, and aberrant behaviors that go against the normal norms of society which are often seen as.

Competitive video games, often known as esports, started to gain recognition for having a beneficial effect on their players as they evolved. Esports players' enhanced self-confidence, empathy, and nationalism are examples of the positive benefits of the activity[16]. As a whole, esports is commonly centered around particular game genres, such as Multiplayer Online Battle Arenas (e.g., League of Legends, Dota 2), First-Person Shooters (e.g., Counter-Strike: Global Offensive), Real-Time Strategy (e.g., StarCraft 2), Collectible Card Games (e.g., Hearthstone), or Sports Games (e.g., FIFA-series) [12].

Previous studies in games research [7] [16] focus on many positive effects that video games have on the typical video gamer. In terms of cognitive or visual game performance, action video games, including first-person shooters (fps such as overwatch, battlefield, and call of duty) are the most studied video game genre [14]. As the name suggests, these games use a first-person perspective and offer a more immersive experience for video game players. Such games can be played both online and offline. Often the objective of offline games is to progress from one point to another while completing various submissions without the game character dying.

Similarly in this type of FPS game scenario, a video game player must constantly kill an opponent's game character, but the main objective of a session varies between conquering a specific area and capturing the flag. However, esports are not generally perceived as 'electronic' versions of 'traditional' sports such as basketball, soccer, and track and field, although simulations of 'traditional' sports are also performed as esports [12].

1.2 Problem Statement

Esports is a rapidly growing industry; a lot of research has been conducted to address the different aspects of esports games regarding practices, importance, economically [2] [4] [5]. However, despite its continued growth, little attention has been given to the factors that affect esports players motivations and their behaviors symptoms. With the increasing consumption of esports games [7] [13] [15], there is need to discover the core factors that drive esports players to consume esports games. Hence, this research focuses on exploring various esports usage patterns, motivations, and behavioral symptoms within Pakistan [17] [18] [19].

1.3 Research Questions

Two research questions explain this particular research which is the following.

Question 1: What are the motivational factors of esports players in Pakistan?

Question 2: What are the addictive behavioral factors of esports players in Pakistan?

1.4 Research Objectives

The primary objectives of this study are listed below.

Objective 1: To explore the motivational factors of esports players in Pakistan.

Objective 2: To explore the addictive behavioral factors of esports players in Pakistan.

1.5 Scope of Study

The scope of this research is restricted to the following.

- In this study, the motives and addictive behaviors symptoms of esports players in Pakistan are identified to understand how esports games influence the players' need-satisfaction and subsequent game-related consumption behaviors.
- A survey through a questionnaire was conducted for this study.

- This study was targeting the audience of young players within the range of 15 to 30.
- The target population for this survey was esports players who play esports games.

1.6 Contribution of the Study

This study provides the following contributions.

- The first contribution of the study is done by exploring the motives and addictive behaviors of esports players in Pakistan. Factors influencing the consumption of esports games were identified. So, this information will help us to understand how esports players consume esports games. Furthermore, it is important to understand that esports games have a high potential for players in Pakistan and could create enormous opportunities for them.

- The second contribution of the study is done by exploring the addictive behaviors symptoms of esports players in Pakistan. The identified factors may help us to track and limit esports players' dependence on technology which leads them to addiction.

1.7 Thesis Outline

The thesis outline of this study is given in Figure 1.1, which highlights the topic discussed in each chapter. The scope of the study is to identify the motive and addictive behaviors and symptoms of esports players in Pakistan. To do so, this thesis is comprised of five chapters. The first chapter of the thesis is concerned with the introduction of esports and its importance, problem statement also describes in the first chapter which is the main objective and concern area of this research. Furthermore, chapter one also describes the research questions and their objectives, the scope of the study, and the contribution of the study. The purpose of this chapter is to set the foundation for the rest of the thesis.

Chapter two is “Literature Review” which discusses the existing studies related to esports. It discusses the relevant theories related to the consumption of esports games. This chapter also discusses the gap in existing studies. Subsequently, the third chapter of the thesis is “Research Methodology” which highlights the methodology used to explore the motives and addictive behaviors patterns of esports players. This chapter provides the roadmap to this study from the beginning to the endpoint.

The fourth chapter of the thesis is “Survey Results and Analysis” which provides the result we got by conducting the survey and analysis of those results. Similarly, chapter five of this thesis discusses the conclusions, limitations, and future work of the thesis.

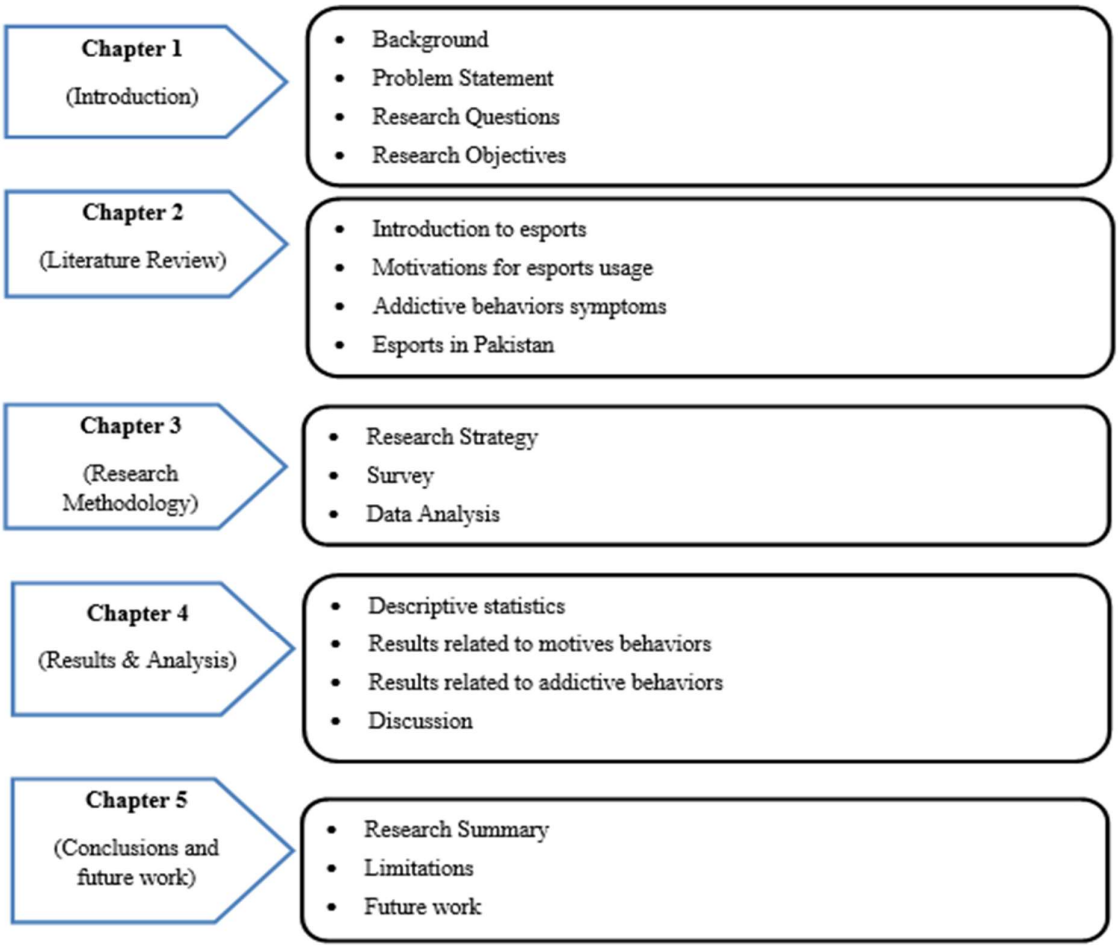

Figure 1.1: Thesis Outline

1.8 Summary

This chapter provides the introduction and background of esports phenomena. Furthermore, this chapter also describes the research questions, objectives, scope, and contribution of the study, Furthermore, this chapter defines a specific aim, which the thesis seeks to answer.

CHAPTER 2

LITERATURE REVIEW

The second chapter of the thesis explains the related work to the study. It explored the studies related to esports usage patterns, motivations for esports consumption, and behaviors and symptoms. This chapter also discusses studies conducted in Pakistan.

2.1 Esports

In the last several years, Electronic Sports (esports) have seen enormous growth in popularity, ranking among the most widely used types of online entertainment [1]. Esports, in its broadest sense, refers to a planned and competitive style of playing video games. Esports, which are continuing to gain ground and popularity in the gaming world, are beginning to establish themselves as one of the most important and well-liked aspects of video game communities, particularly among teenagers and newly-emerged adults.

A new esports study [2] presents a debate about the approach of esports. For example, one of the researchers defines esports as a field of sporting activity that develops and trains mental or physical skills in working with information and communication technologies. However, another researcher defines esports as sports whose main aspects are facilitated by electronic systems, player and team inputs, and esports system outputs through human-computer interfaces [12].

Despite this definitional disagreement, it is generally agreed that esports provides an online platform where competitors carry out their allocated sports-related activities to win the competition [20]. Esports game sub-types include first-person shooter games, multiplayer

online battle arena games, sports videogames, and real-time strategy games, revealing their broad potential among esports players.

2.2 Esports Motivations

Esports gaming motivations are behavior-specific factors that drive people to start and continue with gaming. Different motivations can lead to different cognitive, behavioral, and emotional outcomes [21]. Motivation is one of the elements determining human behaviour. Competition and social interaction are encouraged as well. People may behave a certain way for a number of reasons. Extrinsic motivation is when a person is motivated by factors outside of themselves, such as rewards, other people, or external situations. The underlying urge to improve something is often referred to as intrinsic motivation.

Yee's game motivation model laid a solid foundation for subsequent research on different game motivation styles [22]. Based on the profiles of 3,000 massively multiplayer online role-playing games (MMORPG) players, he extracted ten game themes, which he narrowed down to three main types. (1) achievement motives (including progress, mechanics, competition), (2) social motives (sociability, relationships, teamwork, etc.), (3) immersion motives (discovery, role-playing, adaptation, escapism), etc.

Moreover, previous research [23] focused on the relationship between gaming motivational styles and psychosocial outcomes and indeed found that different gaming motivations were associated with different outcomes. Some game themes have been consistently associated with gaming disorders such as climbing and flight motives, etc., and others as social motivation that can be viewed, at least to some extent, as conducive to a player's physical and mental health [24].

In an exploratory study [25], researchers examine not only the prevention/prohibiting factors but also the motivating elements in a single complete model. The authors assess whether some of the primary factors that influence video game motivation might have an impact on game addiction. The findings indicate that, among the evaluated motivational elements, the desire for escape and the need for interaction had the most beneficial impacts on video game addiction.

From a motivational point of view, it is reasonable to conclude that escapers use online games to ease their emotions because of their strong desire to escape when in fact they are not a serious problem. However, if the actual problem is so severe that you cannot solve it yourself, escapism can escalate into self-harm as punishment for incompetence [21]. In addition, some of the key theories that have been used by various researchers are discussed below.

2.2.1 Theory of Uses and Gratification

The Uses and Gratifications paradigm is a thorough theoretical framework that may be utilized to take reasons or gratifications for media consumption into account as indicators of media use. In the past, esports participation was studied using uses and gratifications [13] [26].

Studies on uses and gratifications [27] were done to better understand why people like watching other people play video games on websites like Twitch. The major outcome parameters of how many hours and streams a user watch on a given day was shown to be closely correlated with the U&G Theory, according to the results. The researcher did note that further study is required to fully comprehend the phenomenon of streaming video games and to identify gaps in player motivations across various game genres.

Another quantitative study using esports as a spectator sport is being undertaken by the researcher [28] adopting the Uses and Gratification Theory. They sent surveys to online esports viewers, and they got 888 valid replies. Participants were questioned on teamwork, game knowledge, player talent, social engagement, and other variables that may lead to regular esports consumption. The study results reveled that, escape from ordinary life, learning from esports, novelty, and pleasure of aggressiveness were positively and statistically strongly connected with the frequency of watching esports. The game's aesthetics (appealing to the eye, easier for non-technical viewers to enjoy), team rivalry (enticing the viewers), the player's capacity to acquire game knowledge, and factors that do not appear to be prominent in esports, such as drama occurring on the playing field, were discussed by the authors. They also discovered that most of the responders were guys under the age of 25. It is concluded that there are not many relevant studies that focus on the motivations of esports consumption.

2.2.2 Self-Determination Theory

An unpleasant video game addiction that is persistent and has enduring implications on both the body and the psyche is known as Internet Gaming Disorder (IGD). Applications of self-determination theory have shown two correlates of IGD: (1) ongoing dissatisfaction with core needs (such as competent, freedom, and similarity) and (2) growing extrinsic gaming incentives [29].

Similarly, research has been done in the context of internet gaming [30] disorder to examine the psychological processes and associated behaviors of esports aficionados from the viewpoint of the self-determination theory (SDT). The inferences made from the data analysis confirmed the SDT's value in interpreting pertinent information on need satisfaction, motivation, and related consumption behaviors.

2.2.3 Maslow Theory

People are driven by a desire to either fulfill five desires or preserve the circumstances that enable them to be fulfilled, following Maslow's theory of motivation. The advocate's physiological needs are biological necessities that are distinct from one another yet essential for progressing to the next level. Under the heading of esteem, two different sub-needs are divided. The aspirations to be powerful, affluent, and self-assured are the primary sub-needs from the perspective of a person. The second shows how individuals work to win others' respect, goodwill, and recognition.

Similarly, while excluding players' physical needs in the real world, the research used Maslow's theory of motivation [31] to evaluate the deficiency-motivated demands in the video game ACNH (Animal Crossing: New Horizons). The study's findings demonstrate that these criteria are met from both the viewpoint of the player (in the physical world) and the avatars (in the virtual world).

Esports fans are driven to engage in esports activities by competition, passing the time, and Schwabism (i.e., a feeling of superior knowledge), according to a recent study that is more following the goal of the current study [32]. Their findings imply that the reasons for watching media are similar to those for participating in esports games. Esports research that has already

been done has shown a strong correlation between motivators and actual behaviors, such as watching or taking part in esports games [33] [34]. Several relevant studies on esports motivation have been conducted, as shown in Table 2.1. Existing relevant studies similarly have four columns: the first lists the name of the author and the year the study was published; the second lists the study's background; the third lists its contribution; and the fourth lists its limitations.

Table 2.1: The Most Relevant Studies on Esports Motivations

Author/Year	Context	Contributions	Limitations
• Jacob Mummert, Lee Farquhar, and Ryan Rogers/2020 [35]	• Consumption of NBA 2K contents	• Esports motivations were highlighted and examined	• Only focus on one game, reducing generalizability • Motivations were observed based on previous studies
• Juho Hamari and Max Sjöblom/2017 [33]	• A perspective of esports players towards spectating esports games	• MSSC was employed to specifically measure the motivations	• The scale was not measuring the entire spectrum of motivations
• Amir Zaib Abbasi and Muhammad Asif/2020 [2]	• Aim to propose a model for predicting esports player videogame engagement	• The model delivers promising results by exploring and validating a model that gauges the esports player videogame engagement	• The construct validity, Internal validity, External validity, Reliability

2.3 Addictive Behaviors Symptoms

As individuals utilize technology more often to attain pleasurable outcomes, it leads to addiction [36]. It is also referred to as addictive behavior. It implies to addictions [37] characterized by obsessive actions. Most people engage in these behaviors despite not actually gaining from them because they are consistent and repetitive. They often negatively impact a person's physical and mental health, as well as their social and personal lives.

An excessive amount of use, the emergence of compulsions, withdrawal symptoms, and unfavorable social, psychological, and/or occupational effects in the user's offline life are all results of using the internet to control unpleasant emotions, getting attached to the social benefits it offers, and believing you have more control over people online than you do off. In another published study [25] about esports players, that is well known that players who participate in excessive game play (more than 10 hours per day) face the risk of becoming addicted to video games. The study also reveals that a high correlation between young gamers' addiction to video games and psychosocial problems such as gaming time (i.e., usage), life satisfaction, loneliness, social competence, and aggression has been found in the prior study.

Similarly, another study found that [17] playing esports made people more hostile towards others and encouraged risky behaviors that negatively impacted the health of young people. Another study of high school students found that 15% of participants used video games as an escape from external constraints, but two years later the same authors found that they used video games as an escape from a difficult home environment. The percentage of gamers who used video games as an escape was found to be lower [38]. Additionally, the paper also discussed that the initial high level of interest in new video games fades quickly, which could be evidence of the non-existence of tolerance.

Scientific research on the esports phenomenon has just recently started to develop, even though prior esports research [39] has mostly centered on business, media studies, and sociology paradigms [40]. Particular focus has been placed on how involvement in esports might result in problematic gaming. Given the recent exponential growth of esports, it is critical to take into account the risky behaviors connected to esports consumption.

The World Health Organization (WHO) and the American Psychiatric Association (APA) have recognized "Internet Gaming Disorder" [41] as part of a diagnosis under the 11th version of the International Classification of Diseases, raising health issues related to gaming [39]. Because esports and gaming are social activities, it may be difficult to identify the negative behaviors that go along with them.

Online video games are one of the most popular uses of computers and the Internet, especially among teenagers [36]. Massively multiplayer online role-playing games (MMORPGs) such as World of Warcraft (WoW) and PUBG are widely played by millions of players around the world. This can lead many people to play dangerous video games in a near-addictive manner due to various behaviors that can lead to technology and internet addiction.

Additionally, the study supports the relationship between esports player and their time spent playing esports games. Similarly, teenagers, who are often addicted to esports games, also support the association. However, due to a lack of information on the causal association between gaming addiction and these psychological traits, the authors refrained from reaching judgments about the direction of the correlations.

Esports might make youngsters feel more isolated since they reduce their possibilities for physical engagement and lower their self-esteem. According to the research, 85% [17] of internet gaming negatively affects children's health and promotes negative behavior. Playing electronic games increases bad attitudes and unpleasant sentiments toward their companions, which leads to a range of psychosocial problems or non-communicable diseases. Additionally, there is a strong correlation between addiction to electronic sports and sedentary behaviors that increase adolescent risks for depression, and anxiety-related problems.

It has been discovered that participating in esports and online competitive gaming is associated with bad lifestyle choices and other negative health effects, such as eye strain or weariness and hand, neck, or wrist discomfort [39]. However, no comparison was made between these physical measurements and individuals who did not play video games. Similarly, an increase in esports participation discourages leading to an active and healthy lifestyle and encourages longer stretches of inactivity in life.

2.3.1 Brown's Behavioral Addiction Model

One of the most widely used techniques for evaluating behavioral symptoms and signs was established by Brown [36]. Since Brown's strategy focuses on the psychological and behavioral signs of addiction, it is thought to be successful. Many people have examined technological addictions including Internet addiction, online game addiction, and computer addiction using Brown's behavioral addiction model [42].

Brown's model includes the following elements: tolerance (putting more effort into an activity to experience good pleasures), withdrawal (unpleasant emotions felt by a person when they are not doing the activity), conflict (interpersonal and with other activities), loss of control (failure to set action time limits), Salience (cognitive and behavioral - the activity continues to dominate the person's thoughts and behaviors) and euphoria (the activity continues to dominate the person's thoughts and actions) (feeling thrilled as a result of an action). Based on these factors, research was recently launched in Turkey to impartially assess the psychological factors that influence problem gaming with a sizable sample. The findings suggest that problem gaming is linked to psychological suffering. [34]. Similarly, research into the esports players has still another component that strengthens its position as a real variant, and it has to do with the technology component of esports. No question that using technologies, particularly digital and virtual ones, may lead to new experiences and behaviors [43]. Additionally, with the advent of online games, there is growing worried about gaming addiction and its effects on mental health.

2.3.2 Cognitive Behavioral Model

Cognitive Behavioral Model a type of psychotherapy, tries to alter disordered emotions, behavior, and ideas by challenging and eliminating false or illogical beliefs [44]. In recent years, a substantial amount of scientific research has sought to understand problematic online gaming. According to Caplan's research [45], problematic internet use encompasses a variety of cognitive and behavioral components that are linked to both undesired outcomes and psychological problems. The theory holds that PIU results in poor self-regulation, which affects cognitive and behavioral symptoms. The cognitive and behavioral components of this paradigm seemed to be essential for evaluating the negative impacts of online gaming.

2.3.3 The Personality Trait Model

A person's personality is made up of five characteristics, according to the "five-factor model of personality," a psychological theory [46]. Personality characteristics are identified as the cognitive, emotional, and behavioral inclinations that are often constant throughout an individual's life. The five primary personality traits are openness, conscientiousness, extroversion, agreeableness, and neuroticism. As it discussed earlier, esports gaming is increasingly more highly valued by both adults and teenagers as a kind of leisure time entertainment. This model was previously used [47] to investigate the relationship between Internet gaming disorder and personality traits. The results revealed Shyness has been connected to higher degrees of loneliness, anxiety, and neuroticism.

Several most relevant studies on esports addiction have been conducted, as shown in Table 2.2. Existing relevant studies similarly have four columns: the first lists the name of the author and the year the study was published; the second lists the study's background; the third lists its contribution; and the fourth lists its limitations.

Table 2.2: The Most Relevant Studies on Esports Addiction

Author/Year	Context	Contributions	Limitations
• Amna Rasheed, Sadaf Ahsan, and Sadaf Zaheer/2021 [18]	• A survey study to assess the impact of internet gaming disorder	• This research delivered durable and practical support for the predicting role of internet gaming disorder on self-appraisal	• Limited research on internet gaming disorder • No disorder symptoms were examined in the study
• Gary Chan, Yan Huo, /2022 [39]	• Towards esports gaming and lifestyle behaviors from SLR perspective.	• The study contributed by identifying the association between esports	• Excluding studies that did not specifically engage in esports

		and poor lifestyle outcomes.	participation as an esports player
• Jochen Peter, Patti M. Valkenburg, and Jeroen S. Lemmens/2009 [48]	• Development and validation of a game addiction scale for adolescents	• The scale provides a solid theory-based instrument to empirically measure game addiction among adolescents. .	• Only focus on adolescents. • No clear guidelines for proceeding with this work.

2.4 Existing Studies in Esports

The determinants of esports engagement have not been well studied empirically. Early esports research shows [49] that active participation in esports games requires a balance of peer pressure, competitiveness, challenge, escapism, and skill development [50]. In a collaborative space between video game developers, esports organizers, and fans, Pine and Gilmore (1998) created the 4Es of the experience economy [51]. According to researchers, education, escapism, aesthetics, and entertainment play important roles while consuming esports games.

In another study which was about to find out why people follow both esports and conventional sports, esports players were surveyed [35]. The findings showed that although variables affecting consumption were fairly similar, those affecting esports were enhanced to the point where they surpassed those affecting conventional sports in significance.

While the literature on motivations for sports consumption, in general, has been developed, the literature on motivations for esports consumption is less developed. However, there is some literature relevant to this study. Especially in the context of the current research. In line with the current study, recent years saw a sharp rise in esports, and competitions were conducted all over the world that focused on different game genres. Recently, a study [52] examined the motivational elements that could affect how often people watch esports on the internet.

Similarly, they used a modified Motivation Scale for Sport Consumption (MSSC) as part of their tool, along with a dependent variable to determine how often individuals watch esports. Online questionnaires were delivered by the researchers to well-known gaming and esports communities and websites including Facebook, Twitter, and Reddit.

Furthermore, their findings showed that the main factors for increasing the frequency of viewing esports online were novelty, the pleasure of athlete aggressiveness, learning from esports, and escaping from daily life. Finally, the researchers found that [53] while minor and insignificant, the perceived competence of the players and the frequency of viewing esports online were marginally favorable.

Moreover, concerning the consumption of excessive esports gaming, several studies have shown that esports games [54] are taking the place of other activities including studying, working, socializing, attending family events, and engaging in routine everyday activities like watching television and sports. Excessive gaming interferes with relationships at work, school, and real life. A small percentage of players have been identified in studies as withdrawing sleep, productivity at work and school, household duties, time with significant others, and other important commitments to play video games both offline and online [55]

2.5 Esports Usage Patterns

Video games are used as platforms for competition between two or more people in electronic sports, known as esports or esports games [38]. In a recently published article [56], the researcher identified the esports usage pattern followed by motives, similarly, in the same article, the researcher emphasizes, that there is currently a lack of literature that examines the relationship between watching esports and game consumption. Many different publications outline different aspects of motivation [52], such as why people choose to watch sports and eSports activities. These patterns vary according to observed esports and audience demographics (age, gender, etc.)[57], [58].

Since online gaming has spread to be a common pastime, and its professionalization has given rise to esports, a new fusion of sport and commerce. Subsequently, given its broad acceptance and tremendous economic worth, esports has a bright future. The researcher emphasizes more

study is required due to its innovative character to better understand and influence its future [59].

Similar to the previous study [38], another research revealed that no systematic study has looked at the particular effects on those who engage in online gaming competitions and esports. Most of the prior research on video games has mostly focused on the negative consequences of gaming without looking at the potential advantages of participating in esports. Moreover, with a unique and understudied population, esports gaming is an extremely competitive environment.

Additionally, in another study conducted during the covid-19, the researcher discovered the human connection with virtual media grew so close together that esports gaming becomes the area of the entertainment sector with the quickest growth has emerged [15]. Esports have influenced modern society by fostering social links in both the real and virtual worlds via gaming communities.

This research intends to further the study of esports from a philosophical point of view and to explain the nature of esports to offer a realistic appraisal of the reality of the esports phenomenon. The findings demonstrated that esports reflects the fundamental philosophical ideas of materialism, pragmatism, and existentialism as seen in the influence of a material substance on various spheres of human life and in the motivation of esports players.

In another study concerning the esports context, researchers reported that video games are a common and popular form of entertainment in modern culture, played in millions of homes around the world. The year 2020 was a record-breaking year for the video game industry. The video game industry is a continuously growing and adapting sector [60], with total video game revenue exceeding $43.4 billion, rising many times faster than the economy as a whole. The gaming market is expected to continue expanding, and virtual reality games could become the mainstay of the industry in the future.

2.6 Esports in Pakistan

Like any other nation, Pakistan has a significant online gaming industry. Every city has gaming venues that are bustling with players, open nonstop, and active. According to the website called Game Tracker, there are roughly 2000 Pakistanis in each online gaming database. More than 200 hundred gaming servers for various online games are located in Pakistan. The fact that 60% of Pakistan's population [17] is under 25 illustrates the significance of this demographic for the country's economic and social development.

A recent study conducted in Pakistan shows [18] that adults play video games more often than teens do, and similarly, males spent more time playing esports games than females do. Further, the study identified that males and females act differently when it comes to game use. Moreover, males reported more gaming issues than females, as revealed by the study. In addition to affecting their health, it increases their chance of developing non-communicable diseases. It is also well-recognized that excessive video game playing may lead to addiction [54].

Similarly, in contrast to any country, the youth have a direct impact on success, prosperity, and destiny. Young people have always loved playing video games on electronic gadgets in western civilization, and this century, this is also true in developing countries but due to the nature of esports games, it sometimes leads to addiction. Similarly, in Pakistan because of their growing dependency on screens, 84 percent of young people in Pakistan experience hopelessness [17]. The researcher called for further research to be conducted to ascertain the consequences of youth screen usage, inactivity, and health in Pakistan, which has the sixth-highest population in the world.

In relation to game addiction, a study revealed that hardcore gamers have committed suicide three times in Lahore, Pakistan, all within a few days of one another [61]. All three were young boys, between the ages of 16 and 20, and it seems that pubg addiction had a role in their deaths. All three people most likely encountered additional risk factors for psychological instability. The most severe negative effects of gaming are further discussed in this study. Furthermore, from the standpoint of the player, the gaming user base has always been positive, but parents and government authorities have often denounced and even demanded the removal of games in public.

Teenagers are getting increasingly interested in esports yet less interested in outside activities which have a negative impact on health. Consequently, in Pakistan esports has also a negative impact on Pakistani youth [17], causing the emergence of several non-communicable diseases, claims the research. Additionally, different studies discovered that adolescents who participate in esports on a regular basis can perform poorly in school [61] [38].

In another study, researchers observed that 18% of online game players [54] said that their issues with money, their health, their relationships, or their jobs were caused by playing games online. Multiple studies have also shown that playing more video games online encourages violent tendencies, worse mental and physical health, lesser success, and flimsy interpersonal and familial ties [17].

Similarly, in relation to addiction to esports games, another study conducted in Pakistan reveals also that, some of the parents discovered that the esports game was too addictive for their children, which had a negative impact on their academic achievement [62]. Additionally, the researcher also stated that some of the parents claimed that the game's emphasis on shooting and killing fostered violence and had a detrimental psychological impact on the wellbeing of young children. The researcher emphasizes that research [13] on the long-term use of games in relation to esports is much needed, as it is seriously lacking.

Furthermore, one of the most crucial factors for determining if an esports player has a gaming addiction is how much time they spend playing. Recently, 41 hours per week were found by a study published earlier [54] to be a criterion for addiction. As in any other nation, online gaming is also very popular in Pakistan. Every city has operational gaming areas, open 24 hours a day, and crowded with players. Every day there is an increase in popularity. Nearly 2000 Pakistanis, according to the website Game Tracker, play games at each online gaming database. For various online games, Pakistan has more than 200 hundred gaming servers.

2.7 Summary

This chapter discussed the existing studies related to esports games. Furthermore, it discussed how the usage of esports games affect the player's performance in term of motivations and behavioral symptoms. Theories of motivations and addictive are also discussed in this chapter.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter aims to explain how the study was carried out and why the approaches selected are suitable for it. The third chapter of the thesis discusses the approaches that were used to conduct the study. This chapter is divided into three different sections. Sections 3.1 discuss the research strategy that has been followed throughout the study for the conduction of research. Section 3.2 describes the survey methodology and survey steps. Furthermore, the guidelines for conducting the study are also discussed in this section. Section 3.3 discussed the data analysis.

3.1 Methodology

This section aims to explain how the study will be carried out and why the approaches selected are suitable for it. A research methodology is defined as a systematic way of solving a problem. The process by which researchers work to describe, explain, and predict phenomena is called research methodology. It is also defined as the study of how to obtain knowledge and the study of how research should be done [63]. However, conducting case studies or experiments for these purposes is different from doing survey research.

From an objective point of view, research can be classified as, exploratory, descriptive, and explanatory. This study falls under the exploratory classification.

3.1.1 Exploratory Research

According to its definition, exploratory research is "performed to examine a subject in which little is known or to explore the possibility of performing a specific research project (feasibility study/pilot study)". Exploratory research is carried out to get a deeper understanding of the issue, but it does not provide definitive findings. It is also known as the grounded theory approach or interpretive research because it is used to answer questions such as what, why, and how [64].

The basic goal of an exploratory survey is to collect a wide range of responses from individuals with different points of view in an informally organized manner to act as the basis for developing a more comprehensive survey [65]. This is also called a preliminary investigation and is used to clarify the exact nature of the problem. Exploratory research can add important, insightful, and high-quality information to your research that may be relevant to your research. Exploratory research is cost-effective, highly interactive, and open-ended research. It is usually flexible and diffuse [63] [66]. Figure 3.1 shows the research methodology of the study.

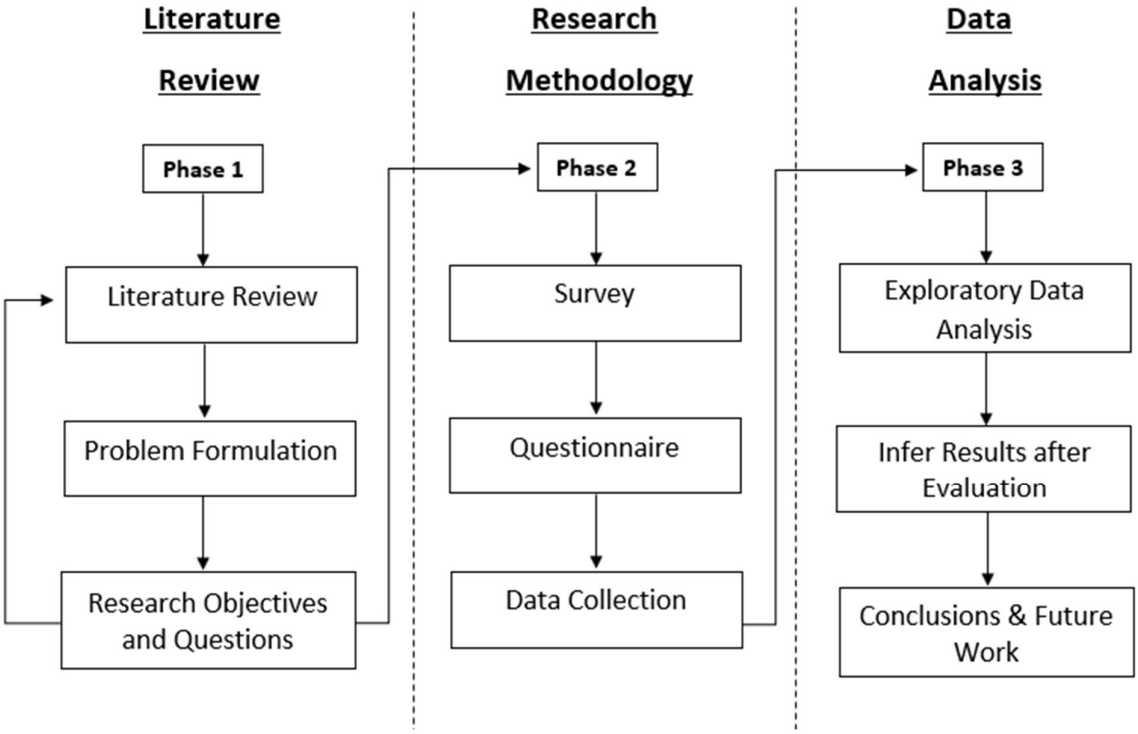

Figure 3.1: Research Methodology

Since the purpose of this study is to explore the motives and addictive behaviors of esports players, this study will be exploratory, and the data has been collected through a questionnaire.

3.2 Survey

A survey is a data collection and analysis approach in which respondents answer questions or answer pre-formed statements [69]. Survey-based research can be used to characterize the knowledge, attitudes, and behaviors of large groups of people by examining their subsets of them. For this reason, research is widely used by software and systems development organizations to provide insight into complex problems, aid problem-solving, and support effective decision-making.

In surveys, it is possible to employ large population samples to collect data. They are useful for gathering demographic data on the sample's composition. Comprehensive types and quantities of variables may be studied [63], surveys can be created and repeated with a little expense, and generalizations can be established very easily. Guidelines provided by Kasunic [66] which were published by “Software Engineering Institute (SEI)” were followed for conducting the survey. For conducting the survey his work was used as it is among the most common and most used in the software engineering field. The key steps to conducting the survey are shown in Figure 3.2 [69].

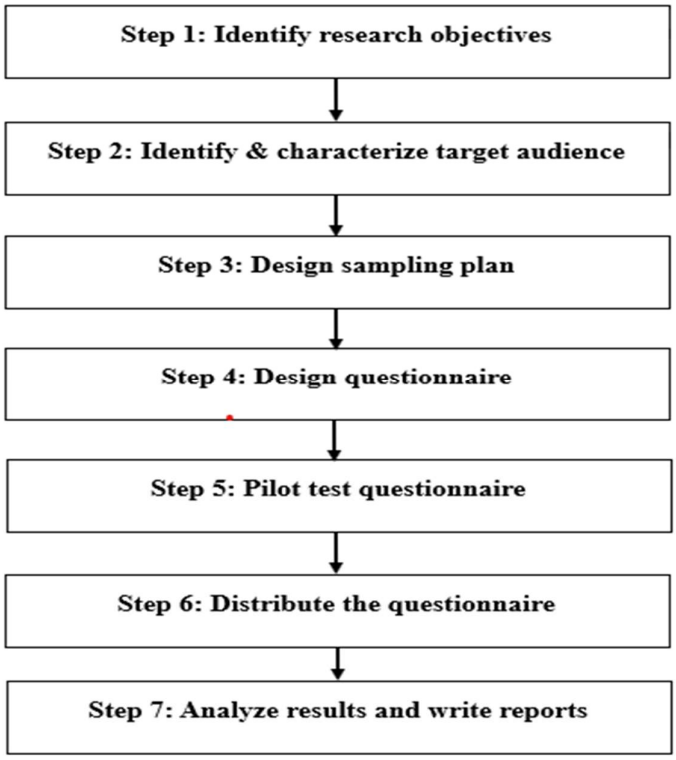

Figure 3.2: The Key Steps to Conduct Survey

3.2.1 Research Objectives of the study

The purpose of this study is to explore the motives and addictive behavioral symptoms of esports players in Pakistan. Before conducting the survey, the goals and survey questions were determined. Following are the two-research objective of the study.

Objective 1: The first objective of this study is to explore the motivational factors of esports players in Pakistan.

Objective 2: The second objective of this study is to explore the addictive behavioral factors of esports players in Pakistan.

3.2.2 Identification of Target Audience

The target audience for this study is esports players that engage in esports gaming. Further the extant of this research has primarily focused on school, college, and university students. The emphasis was placed on certain questions that were taken from Mark Kasunic's [69] work in order to identify the right target audience. Students who had the necessary and appropriate qualifications are illustrated in Table 3.1, as these were the target audiences chosen for the survey in this study. Furthermore, in the study, about 75% of respondents were one who possessed a bachelor's or master's degree level qualification. Similarly, around 19% were the ones who possessed a college-level degree, while 6% of the respondents were possesses school-level qualifications.

Table 3. 1 Statistics of Survey Respondents

Respondents	**Number of Respondents**
School	26
College	80
University	314
Total	**420**

Table 3.1 shows the number of respondents along with their qualification level. A total of 431 respondents were reached in the survey. Similarly, about 11 participants failed to submit the questionnaire. The final sample size was 420. Male respondents (69.52%, n=292) are greater than female respondents (30.47%, n=128) with a mean age of 1.80.

3.2.3 Design Sampling Plan

A population is an entire group that you want to draw a conclusion about. While sampling is the process of selecting a portion of the whole population that has the characteristics of the population. The estimated population of the study is ten million extracted from existing literature [9]. Based on these statistics sample size was calculated with a confidence level of

95%. Essentially, the confidence level indicates how confident you are that the bounds of error will not exceed what is foreseen in the accuracy specification [69].

Hence the final sample size for the study was calculated at 385. The survey was delivered/emailed to the students of the school, college, and university levels, who were consuming esports games. Typically, a total of 431 questionnaires were distributed through a purposeful and convenient sampling technique and about 420 responses were collected in total. After checking, the missing values, the valid responses were 420 with a response rate of 98%. Each volunteer in the study was asked to complete a questionnaire further to evaluate their responses.

This study used two non-probability sampling techniques, as it is intended to examine the real-life phenomena. These are discussed below.

- Convenience sampling tends to be a popular sampling technique among students because it is an inexpensive and easy option compared to other sampling techniques [70]. Therefore, in this study, we used a convenient sampling technique that is often lightweight and readily available.

- Snowball is a non-random sampling technique that uses a few cases to help encourage others to participate in the study, thereby increasing the sample size. This approach is more applicable in small populations that are difficult to reach due to their closed nature.

3.2.4 Questionnaire Development

A questionnaire is a method for gathering information from a sample of individuals about their feelings, opinions, experiences, inferences, and attitudes [67]. The questionnaire is a widely used, short, and well-organized set of questions prepared to gather precise data to fulfill a specific need for research information about a relevant issue from respondents often from a similar interest area. It is used to collect data in written or printed form on certain topics, such as a list of questions to be addressed to one or more people.

The questionnaire which is used for the survey was borrowed from existing studies. The motivations for consuming esports games are essential in understanding why different individuals act differently when doing so. To explore the motives of esports players the Videogaming Motives Questionnaire (VMQ) was used in this study [71]. Similarly, for exploring the addictive behaviors of esports players the game addiction questionnaire [48] was used for this study.

Three major sections made up the questionnaire used for this study. The respondents' names, gender, age, and education level of students that they perused were collected in the first section of the questionnaire. The second section of the questionnaire asks questions to determine how frequently respondents play esports games. Similarly, the third section of the questionnaire contains questions asked about the behavioral patterns for consuming esports games.

To do so, this study used a five-point Likert scale of 1 to 5 with 5 being Strongly Agree, 4 Neutral, 3 Disagree, 2 being Neutral and 1 being Strongly Disagree. The number of possibility points beyond 5 or 7 does not consistently affect scale reliability [72], but it does increase scale sensitivity, according to a review of the research.

3.2.5 Pilot Test

A pilot test was also conducted for questionnaire development to modify and exclude information until the final questionnaire was completed. This was done to further improve the questionnaire and validation in terms of wording and statements. The questionnaire was then forwarded to the 13 peoples of the target audience. All participants responded accordingly. In response, to the pilot test most of the respondents said they do not face any issue while filling the questionnaire. They understand each and every question while trying to answers them accordingly. Some respondents had difficulty understanding some terminology provided in the cover letter of questionnaire, and a few expressed worries over the questionnaire's descriptions. The questionnaire was revised and adjusted in accordance with their feedback and recommendations. The questions were revised and modified for their easy interpretation and to decrease the ambiguity of the survey. The final version of the questionnaire is attached in Appendix A.

3.2.6 Distribution and Collection of Questionnaires

After completing the pilot test, a survey was sent to the target group. A survey invitation email and questionnaire were included in the survey package. An online survey was used in this study to gather data from the respondents, and the questionnaires were shared with the target audiences. It was made sure that this questionnaire was sent only to the desired targeted audience. The questionnaire is attached in Appendix A.

3.3 Data Analysis

Data analysis is a process used among researchers to collect data and make conclusions [73]. A variety of approaches are used in data analysis to help divide a large amount of data into manageable chunks and then turn those chunks into understandable forms. In general, data analysis is the systematic, sequential examination of a dataset using a range of statistical tests and techniques. The systematic use of instruments (statistical tests/procedures) is what is meant by data analysis [74], to put it another way. In this study, SPSS was used for data analysis.

3.3.1 Factor Analysis

The approach of factor analysis is used mostly in the behavioral and social sciences to create scales for a variety of unobservable phenomena, including behaviors, personality, intellect, and other comparable aspects. The fundamental causes of the correlations between the variables may be understood using this method. Factor analysis consists of two components: exploratory and confirmatory [67].

3.3.2 Exploratory Phase

Exploratory factor analysis is used to look into the dimensionality of a measuring instrument by determining how few interpretable factors are needed to account for correlations among a set of variables [75]. Exploratory factor analysis (EFA), also known as exploratory data analysis (EDA), is a widely used, complex, multi-step statistical method in the social sciences. The researcher may gather data for this kind of study and investigate or look for a factor structure or theory that might explain the relationships between the indicators. The goal of this method

of data analysis is to maximize insight into a data collection, reveal underlying structure, extract key variables, and identify outliers and anomalies. For exploratory factor analysis [67], there are two primary factor analysis methods which are the following.

- Principal Components Factoring (PCF): In PCF, factors are retrieved based on the presumption that all of the variable's communalities are equal to one. In other words, it is assumed that there is no defect or unique variance.

- Principal Axis Factoring (PAF): In PAF, the communalities are estimated first, then the factor solution is estimated. Estimating the communalities and the factor solution is done iteratively.

3.3.3 Confirmatory Phase

The subset of structural equation modeling known as confirmatory factor analysis (CFA) solely considers measurement models. It evaluates the relationships between latent variables or factors and observable measures or indicators (such as test items, test outcomes, and behavioral observation ratings) [76]. Confirmatory factor analysis (CFA), a statistical technique, is used to verify the component structure of a set of observed data. CFA may be used by the researcher to test the hypothesis that there is a link between the variables that can be seen and the latent ideas that underlie them [67].

3.4 Summary

This chapter described the research design used for data collection and data analysis with methodology and techniques to achieve our research objectives. This chapter has reported the implementation of survey methodology and its steps are discussed in detail. The result and analysis of the survey are discussed in chapter 4.

CHAPTER 4

RESULTS AND ANALYSIS

This chapter discussed the results of the survey. In this chapter results related to motives behaviors are discussed in section 4.4. Similarly, the results related to the symptoms of addictive behaviors are discussed in section 4.5. Section 4.5 discusses the finding of this study. Finally, in the last section of this chapter, threats to validity are discussed.

4.1 Survey Conduction

The survey was carried out in line with Mark's survey guidelines [69]. This study specifically focuses on the motives and addictive behaviors of esports players in Pakistan. The target populations of the study were esports players who were consuming esports games. Hence, the questionnaire was sent to the target audience. The questionnaire is comprised of three sections. The purpose of section one was to collect the respondent's personal information like age, and gender. The second section of the questionnaire comprised questions related to motives and behaviors. The third section of the questionnaire comprised of questions that were related to addictive behaviors.

This study planned to send the questionnaire to the persons individually or in a group through social media (WhatsApp and messenger). More than 430+ questionnaires were distributed among the respondents, and only 420 responses were received. Thus, for data analysis 420 responses were used.

4.2 Descriptive Statistics of Respondents

In the first section of the questionnaire, respondents were asked demographic questions like name, gender, and age. Furthermore, the respondents were then asked about their qualifications. Through survey found that about 75% of the respondents belonged to the university level, similarly 19% of the respondents were students at the College level, and 6% of the respondents were students at the school level. Similarly, male participants were 292, and female participants were 128 who were consuming esports games. Table 4.1 provides an analysis of the respondents' descriptive information.

Table 4.1: Demographic Profiles of Survey Respondents

Demographics	**Survey Respondents**	**Percent %**
Gender		
Male	292	69.52 %
Female	128	30.47 %
Age category (years)		
15-20	157	37.4 %
21-25	189	45.0 %
26-30	74	17.6 %
Total	**420**	**100%**

Furthermore, statistics related to top esports games are presented in Table 4.2. While identifying which esports games are the favorite of the respondents, they were given four choices namely; (1) pubg (2) FIFA (3) Call of duty (4) Dota, in contrast to the question which was: which game do you play most. Survey respondents were given the chance to fill in their own answers if they were unable to find their favorite esports game on the list. Table 4.2 presents the results related to the top esports games played by esports players.

Table 4.2: Survey Results of Top Esports Games

Serial	Esports Titles	Percent %
1	Pubg	31 %
2	Fifa	15 %
3	Dota	14 %
4	Call of Duty	11 %
5	Free Fire	5 %
6	Candy Crush	3 %
7	Others	21 %
Total		**100%**

4.3 Result Analysis Related to Motive Behaviors

This section presents the results related to the motives behaviors of esports players. Due to the exploratory nature of the study, factor analysis was performed. In order to answer the first research question which was asked for motivations of esports players in Pakistan? Factor analysis was carried out for this purpose, while the principal component factor (PCF) is the exaction approach and similarly varimax rotation was used. For the analysis of data, SPSS was used. Similarly, for the questionnaire, the Videogaming Motives Questionnaire (VMQ) was used [71].

The questionnaire had 54 questions and out of 54 only 26 items were selected which had scored above 0.5 and the rest of the 28 items were removed because they had low factor loading. The 26 items met the criteria requirements as a consequence, and six factors have identified that account for a total of 62.073% variance among the variables, as indicated in Table 4.3.

The high means for the components suggest that respondents had favorable feelings of the assessment items. Low-scoring factors (those with Eigen values less than 1) are often disregarded when selecting and combining high-scoring variables since they do not necessarily contribute to explaining the variation in variables.

Furthermore, Kaiser's criterion technique was used to choose the factors (components) that would be used in the factor analysis. Only variables with an Eigen value of 1.0 or above were retained for analysis. Using Cronbach's Alpha, the PCA components' dependability was evaluated. For Cronbach's Alpha values, a cutoff threshold of 0.5 to 0.7 is often employed, and a low Alpha score may be caused by a small number of items or weak interdependence between items in the study [77].

For factor extraction, this study evaluated a Cronbach's Alpha score of 0.7 and above to be acceptable against each factor. Furthermore, the reliability statistics for the instrument which is used to explore the motive behaviors has Cronbach’s Alpha value of .956.

Table 4.3: Total Variance Explained for Motive Behaviors

Component	Initial Eigenvalues			Sums of Squared Loadings for Extraction			Sums of Rotations for Squared Loading		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	8.244	31.708	31.708	8.244	31.708	31.708	3.776	14.523	14.523
2	2.594	9.976	41.684	2.594	9.976	41.684	3.084	11.860	26.384
3	1.858	7.148	48.833	1.858	7.148	48.833	2.438	9.379	35.762
4	1.304	5.014	53.846	1.304	5.014	53.846	2.438	9.377	45.140
5	1.101	4.234	58.080	1.101	4.234	58.080	2.217	8.525	53.665
6	1.038	3.993	62.073	1.038	3.993	62.073	2.186	8.408	62.073
7	.746	2.869	64.942						
8	.691	2.658	67.599						
9	.670	2.578	70.177						
10	.659	2.534	72.711						

The Kaiser-Meyer-Orlin (KMO) explains there are some correlations among variables. The index value of KMO shows in Table 4.4 which is 0.924. The BTS, or Bartlett's Test of Sphericity, was 4419.459 ($p < .001$), demonstrating that the variables in the correlation matrix have substantial correlations; therefore, it was consequently declared to be acceptable for the EFA.

Table 4.4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Test for Adequate Sampling		.924
Bartlett's Sphericity Test	Approx. Chi-Square	4419.459
	Df	325
		.000

4.3.1 Components Related to Motive Behaviors

This section discussed six motives factors of esports players for the consumption of esports games. These are briefly discussed below. Furthermore, these factors related to esports consumption are shown in Table 4.5.

- Six items loaded into Factor one labeled Violence as the factor indicating that respondent likes violence esports games. Some of these games include Pubg, Call of Duty, and Dota. With a mean of 3.416, this factor was accountable for 31.708 of the total variances. Its Cronbach's Alpha is .867. Furthermore, the respondents strongly agreed that they liked violence esports games as their main motive as shown in Table 4.6.

- Factor two labeled as Entertainment contained five items and accounted for 9.976 % of the total variance with a mean of 4.246. With regard to internal consistency, the second factor had a .815 Alpha value. This factor implies that the respondents likely play esports games for entertainment purposes. Depending on the individual, esports enjoyment might vary greatly. In this survey, however, every respondent said that playing esports gave them joy. The majority of respondents find playing esports to be enjoyable and engaging, regardless of whether they actively looked for matches to watch or just turned the game on and let it

play in the background. According to the majority of respondents, esports players prefer to have fun when playing esports games.

- Similarly, Factor three was labelled as Coupling, as the items focused on collaboration among teams. This factor indicates that respondents like playing in the group within the same team to interact with each other or to compete against teams. As per statistics shown in Table 4.8 reveals that most of the respondents strongly agreed that coupling in esports games has a potential way to increase their experience. For Cronbach's Alpha, the internal consistency of this factor is .772. This factor had accounted for a total variance of 7.148 with a mean of 3.808.

- Another motive factor to play esports games was identified in this study. It was labeled Fantasy as the items enable users to do actions that they would not often be able to, such as flying and driving racing cars. It basically gives players the ability to roam free in the virtual world. This factor four indicates that, esports players like such games that do some fantasy stuff that they cannot do in real life. This factor has a.740 Cronbach's Alpha. This factor accounted for a total variance of 5.014 with a mean of 4.052.

- Similarly, with three items and a mean score of 3.910, factor 5 was labeled as Psychological Benefits and it accounted for 4.234% of the total variance. This factor had an internal consistency of .740. This factor indicates that the respondents play esports games for the psychological advantages they experience, such as happiness, stress relief, and avoiding loneliness, among other things.

- Lastly, Factor 6 was labeled Skill Enhancement, as it is used to develop player skill development. Most of the respondents strongly agreed that playing esports games allows them to develop their problem-solving skills as well as to increase their confidence level. This factor has a .817 Cronbach's Alpha value. Moreover, this factor contains only 3 items with a 3.993 total variance and a mean of 4.017. All of these factors mentioned above had Cronbach alpha values ranging between 0.732 and 0.867.

Table 4.5: Factor Analysis of Motives Behaviors

Factors	Loading	SD
Violence (α --- .867, M --- 3.416)		
I like violence in video games, the more violence the better	.817	1.475
Killing in the game, I feel powerful	.791	1.461
Shooting someone in the head in a game is deeply satisfied	.757	1.405
I enjoy the violet fights in video game	.752	1.403
I enjoy destroying things in the game	.699	1.288
It helps me channel my aggressivity	.568	1.411
Variance (Eigenvalue)	**31.708 (8.244)**	
Entertainments (α --- .815, M --- 4.246)		
I enjoy gaming	.731	1.041
It is entertaining	.712	.979
I have fun	.693	.999
Games entertain me	.690	1.001
It relaxes me	.612	1.186
Variance (Eigenvalue)	**9.976 (2.594)**	
Coupling (α --- .772, M --- 3.808)		
I enjoy playing in a group	.725	1.268
Thus, I fit in a group I like	.695	1.246
I like playing with people online or in the same room	.680	1.303
It helps me forget my daily problem	.612	1.331
Variance (Eigenvalue)	**7.148 (1.858)**	
Fantasy (α --- .740, M --- 4.052)		
I like to defeat other players	.724	1.015
I like to win	.687	.878
I enjoy competing with others	.609	.996
I like to prove I am better than other players	.570	1.178

I like to create my own world	.525	1.189
Variance (Eigenvalue)	**5.014 (1.304)**	
Psychological Benefits (α --- .732, M --- 3.910)		
I feel immersed in a fictitious/fiction world	.720	1.212
Games stimulate my emotions	.704	1.206
Games increase my adrenaline levels	.664	1.187
Variance (Eigenvalue)	**4.234 (1.101)**	
Skill Enhancement (α --- .817, M --- 4.017)		
Games improve my abilities	.809	1.211
Games sharpen my senses	.774	1.119
Games make me smarter	.678	1.203
Variance (Eigenvalue)	**3.993 (1.038)**	

4.3.2 Rotated Component Matrix Analysis

Since unrotated factors are unclear, factors are rotated for better understanding. The primary purpose of the rotation matrix is used to create the ideal fundamental structure that maximizes the number of high loadings on each variable while attempting to make each variable depend on as few elements as feasible [78].

In order to make interpretation simpler, the rotation structure aims to have each component define a unique cluster of connected variables. Table 4.6 displays the motives behaviors using a rotational component matrix.

Table 4.6: Rotated Component Matrixes of Motives

Items	Component					
	1	2	3	4	5	6
A1: I like violence in video games, the more violent the better.	.817					
A2: Killing in the game I feel powerful.	.791					
A3: Shooting someone in the head in a game is deeply satisfying.	.757					
A4: I enjoy the violent fights in a video games.	.752					
A5: I enjoy destroying things in the game.	.699					
A6: It helps me channel my aggressivity	.568					
B1: I enjoy gaming.		.731				
B2: It is entertaining.		.712				
B3: I have fun.		.693				
B4: Games entertain me.		.690				
B5: It relaxes me.		.612				
C1: I enjoy playing in group.			.725			
C2: Thus, I fit in a group I like			.695			
C3: I like playing with people online or in the same room.			.680			
C4: It helps me forget my daily problems.			.612			
D1: I like to defeat other players.				.724		
D2: I like to win.				.687		
D3: I enjoy competing with others.				.609		
D4: I like to prove I am better than other players.				.570		
D5: I like to create my own world				.525		
E1: I feel immersed in a fantastic/fictitious world					.720	
E2: Games stimulate my emotions.					.704	
E3: Games increase my adrenalin levels					.664	
F1: Games improve my abilities.						.809
F2: Games sharpen my senses.						.774
F3: Games make me smarter.						.678

4.3.3 Eigen Value and Scree Plot of Motive Behaviors

The sum of the squares of the factor loadings in each column represents an Eigenvalue. In other words, the degree of variation in the original variables that are connected to that factor is represented by the Eigenvalue [67]. This study explored six eigenvalues related to the motive's behavior of esports players. Only values greater than one is shown in Table 4.7, the rest of the values were not included in this study due to low eigenvalue.

Table 4.7: Eigenvalues of Motive Behaviors

Extraction: Principal component factoring	
Component	Eigenvalue
1	8.244
2	2.594
3	1.858
4	1.304
5	1.101
6	1.038

The basic purpose of the scree plot is for determining the number of singular values that are useful and informative [67]. In the present study, six motives were identified. Figure 4.1 shows the scree plot of motives behaviors along with their eigenvalue.

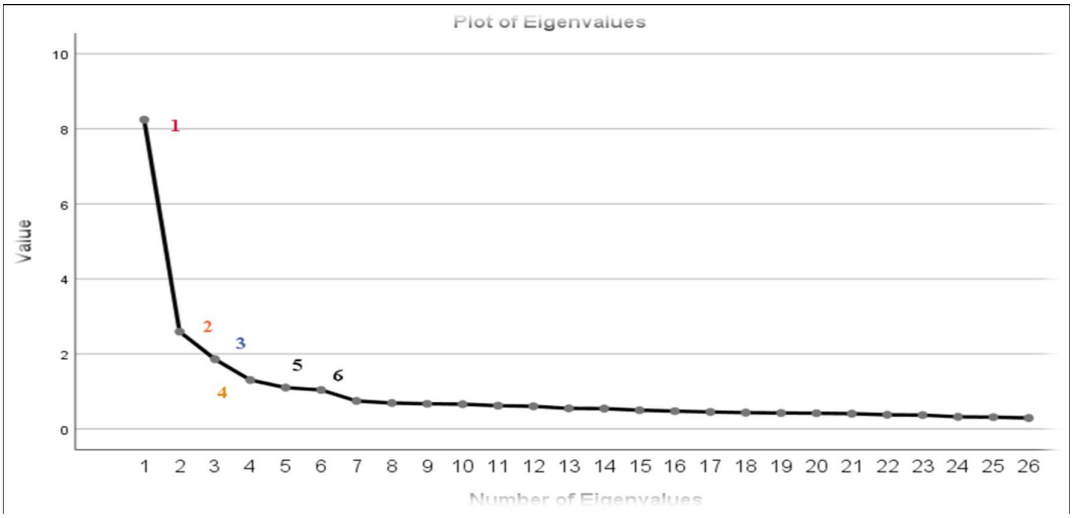

Figure 4.1: The Scree Plot of Motive Behaviors

4.3.4 Survey Results Related to Motive Behaviors

This section presents statistics of esports players related to motive behaviors for game consumption. For this purpose, the SPSS tool was used for analysis. The five-point Likert scale ranging from 1-5 (that was discussed earlier in chapter 3) was used for this purpose; Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1. This section of the questionnaire includes questions regarding motives behaviors for esports games consumptions.

Table 4.8: Violence Statistics

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	49	11.7 %
Disagree	95	22.6 %
Neutral	77	18.3 %
Agree	70	16.7 %
Strongly Agree	129	30.7 %
Total	420	100.0 %

To explore the motive behaviors of esports players, the questions which were asked from the respondents resulted against the first question which was “I like violence games”. The first factor of motive behavior which was named Violence shows that 30.7% of the respondents strongly agreed that they enjoy violence esports games, while 16.7% agreed and 11.7% strongly disagree that they did not like violence games.

Table 4.9: Entertainments Motive

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	13	3.1 %
Disagree	17	4.0 %
Neutral	56	13.3 %
Agree	89	21.2 %
Strongly Agree	245	58.3 %
Total	420	100.0 %

Similarly, the second question which was asked about entertainment was “I enjoy gaming”, survey respondents gave the answers to the second factor which was named Entertainments. The result against this factor shows that 58.3% of the respondents strongly agreed that they enjoy playing esports games, while 21.2% agreed; similarly, about 4% of respondents disagreed with this question.

Table 4.10: Results About Coupling

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	23	5.5 %
Disagree	52	12.4 %
Neutral	81	19.3 %
Agree	76	18.1 %
Strongly Agree	188	44.8 %
Total	420	100.0 %

The result against the third factor which was named Coupling; shows that 44.8% of the respondents strongly agreed that they like to play esports games in a group or as a team, while 12.5% disagreed, they do not like to play games in a group, similarly 19.3% respondent are neutrals.

Table 4.11: Survey Responses About Fantasy

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	10	2.4 %
Disagree	22	5.2 %
Neutral	67	16.0 %
Agree	128	30.5 %
Strongly Agree	193	46.0 %
Total	420	100.0 %

Similarly, the result against the third factor which was named Fantasy revealed that 46% of the respondents strongly agreed that they like fantasy stuff like they are able to do things that cannot do in real life such as drive a car, or fly the airplane, while 30% agreed, and about 5% of respondent have disagreed.

Table 4.12: Survey Responses About Psychological Benefits

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	15	3.6 %
Disagree	43	10.2 %
Neutral	109	26.0 %
Agree	50	11.9 %
Strongly Agree	203	48.3 %
Total	420	100.0 %

When asked questions respondents related to the psychological benefits of the consumption of esports gaming. The result against this factor shows that 48.3% of the respondents strongly agreed that playing esports games gave them relieve stress and relaxation, while 10.2% strongly disagreed; similarly, 3.6% are neutrals.

Table 4.13: Survey Responses About Skill Enhancement

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	18	4.3 %
Disagree	34	8.1 %
Neutral	89	21.2 %
Agree	59	14.0 %
Strongly Agree	220	52.4 %
Total	420	100.0 %

Lastly, when asked questions respondents regarding skill Enhancement. The result against this factor showed that 52.4% strongly agreed with its strength in their skills and abilities, while 8.1% responded disagreed; similarly, 14% agreed. The complete results related to the motives behaviors of esports players against each question are discussed in Appendix B.

4.4 Results Analysis Related to Addictive Behaviors

This section presents the results related to the addictive behaviors of esports players. In order to answer the second research question which was asked what are the addictive behavioral symptoms of esports players in Pakistan. For this purpose, another factor analysis was carried out to answer the second research question, meanwhile, the principal component factor (PCF) is the exaction approach, and varimax rotation is the factor rotation technique used in the execution of factor analysis. The questionnaire which had 21 items was borrowed from existing literature [48] (see Appendix A). Out of 21 items 17 items were selected which had scored above 0.5 and the rest of the four items were removed because of low factor loading.

As a result, four factors were identified and 17 items fulfilled the retention requirements. Similarly, four questions with factor loadings less than 0.5 were eliminated, namely: "Have others unsuccessfully tried to reduce your game use," "Have you become angry when you are unable to play," "Have you neglected other important activities (school, work, sports)," and "Have you been unable to reduce your game time". After eliminating those four questions, again factor analysis was carried out and four factors emerged with a total variance of 64.520% shown in Table 4.14. All of the factors had high Cronbach alpha values, ranging from 0.750 to 0.879.

Furthermore, the Kaiser's criterion technique was used as it explains some correlations among variables. For eigenvalue, only factors with an eigenvalue of 1.0 or above were retained for analysis. Using Cronbach's Alpha, the PCA components' dependability was evaluated. For Cronbach's Alpha values, a cutoff threshold of 0.5 to 0.7 is often employed [77], and a low Alpha score may be caused by a small number of items or weak interdependence between items in the study. The reliability statistics of the instrument has Cronbach’s Alpha value of .901.

Table 4.14: Total Variance Explained for Addictive Behaviors

Component	Initial Eigenvalues			Sums of Squared Loadings for Extraction			Sums of Rotations for Squared Loading		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	6.166	36.270	36.270	6.166	36.270	36.270	3.781	22.239	22.239
2	2.470	14.526	50.796	2.470	14.526	50.796	2.618	15.399	37.638
3	1.320	7.766	58.562	1.320	7.766	58.562	2.496	14.682	52.320
4	1.013	5.958	64.520	1.013	5.958	64.520	2.074	12.200	64.520
5	.726	4.273	68.794						
6	.626	3.681	72.475						
7	.616	3.624	76.099						
8	.514	3.025	79.124						
9	.504	2.966	82.090						
10	.493	2.903	84.993						
11	.458	2.693	87.685						
12	.453	2.666	90.351						
13	.392	2.309	92.660						
14	.339	1.996	94.656						
15	.328	1.931	96.586						
16	.309	1.819	98.406						
17	.271	1.594	100.00						

4.4.1 Components Related to Addictive Behaviors

This section discussed four addictive behavior factors of esports players for the consumption of esports games. These are discussed below.

- Six items are loaded into factor 1 which is labeled as Salience, which includes activities that take precedence over all other activities in a person's life and have a significant impact on their thoughts (obsessed), emotions (cravings), and actions (excessive use) [36]. The total variance of this factor was accounted for 36.27%. Similarly, Cronbach's Alpha value for this factor is.879, as shown in Table 4.15.

- Factor 2 contains four items that are labeled as ‘Withdrawal’ and it accounted for 14.52% of the overall variance. All of the items under this factor are related to the unpleasant feelings a person has while unable to conduct the activity [36]. Most of the respondents agreed that they felt bad when they were unable to play esports games. Some of them neglected their school work just because they were playing esports games. This factor has an internal consistency of.828.

- Similarly, factor 3 is labeled as ‘Mood Modification’ and it has only four items with a total variance of 7.76%. This factor refers to when the player consumes esports games just to relieve stress and relaxation. Moreover, as per statistics shown in Table 4.21, most of the respondents strongly agreed that they spent a large amount of time playing esports games. Previously known as euphoria [48], this phrase described a high or buzz that resulted from an activity. This factor has a .786 Cronbach's Alpha value.

- Lastly, Factor 4 included three items that accounted for 5.95% of the variance total and had a Cronbach's Alpha of .750. It is labeled as a Loss of Control. It refers to playing excessive esports games. As per statistics shown in Table 4.22, most of the respondents strongly agreed that they spent much amount of time on esports games. Sometimes they cannot control their game timing, moreover, they think about games all the time.

Salience (M = 3.29), Withdrawal (M = 3.08), Mood Modification (M = 4.30), and Loss of Control (M = 3.96) all have high mean values. The factors with the lowest means were Salience and Withdrawal. Relapse, tolerance, and problems, the other three addictive symptoms, were not seen among the responders in this study.

Table 4.15: Factor Analysis of Addictive Behaviors

Factors	Loading	SD
Salience (α --- .879, M --- 3.29)		
Did you spend increasing amounts of time on games	.808	1.254
Did you spend much free time on games	.794	1.172
Did you play longer than intended	.761	1.169
Did you think about playing a game all day long	.696	1.086
Have you felt addicted to a game	.689	1.112
Have you failed when trying to reduce game time	.672	1.149
Variance (Eigenvalue)	**36.270 (6.166)**	
Withdrawal (α --- .828, M --- 3.08)		
Have you neglected other (family, friends) because you were playing games	.784	1.127
Did you have fights with others (family, friends) over your time spent on games	.777	1.193
Have you become stressed when unable to play	.737	1.084
Have you felt bad where you were unable to play	.643	1.164
Variance (Eigenvalue)	**14.526 (2.470)**	
Mood Modification (α --- .786, M --- 4.30)		
Have you played games to release stress	.799	.999
Have you played game to feel better	.764	.979
Were you unable to starts once you started playing	.743	1.041
Did you play games to forget about real life	.723	1.001
Variance (Eigenvalue)	**7.766 (1.320)**	
Loss of Control (α --- .750, M --- 3.96)		
Did you feel bad after playing for a long time	.817	1.203
Has your time on games caused sleep deprivation	.798	1.119
Have you lied about time spent on games.	.691	1.216
Variance (Eigenvalue)	**5.958 (1.013)**	

4.4.2 Rotated Component Matrix Analysis

Similarly, for Behaviors Symptoms, Table 4.16 displays the rotated items using a rotational component matrix.

Table 4.16: The Rotational Component Matrix for Addictive Behaviors

Items	Component			
	1	2	3	4
A1: Did you spend increasing amounts of time on games?	.808			
A2: Did you spend much free time on games?	.794			
A3: Did you play longer than you intended?	.761			
A4: Did you think about playing a game all day long?	.696			
A5: Have you felt addicted to a game?	.689			
A6: Have you failed when trying to reduce your game time?	.672			
B1: Have you neglected others (e.g., family, friends) because you were playing games?		.784		
B2: Did you have fights with others (e.g., family, Friends) over your time spent on games?		.777		
B3: Have you become stressed when unable to play?		.737		
B4: Have you felt bad when you were unable to play?		.643		
C1: Have you played games to release stress?			.799	
C2: Have you played games to feel better?			.764	
C3: Were you unable to stop once you started playing?			.743	
C4: Did you play games to forget about real life?			.723	
D1: Did you feel bad after playing for a long time?				.817
D2: Has your time on games caused sleep deprivation?				.798
D3: Have you lied about time spent on games?				.691

4.4.3 KMO and Bartlett's Test

The Kaiser-Meyer-Orlin (KMO) and Bartlett's Test (BTS) explain there are some correlations among variables. The index value of KMO shown in Table 4.17 is 0.901. There were strong correlations among the variables in the correlation matrix, as shown by Bartlett's Test of Sphericity (BTS), which was 3092.632 ($p < .001$).

Table 4.17: KMO and Bartlett's Test

Measure of Sampling Adequacy by Kaiser-Meyer-Olkin		.901
Bartlett's Sphericity Test	Approx. Chi-Square	3092.632
	Df	136
	Sig.	.000

4.4.4 Eigen Value and Scree Plot of Addictive Behaviors

This study explored four eigen values related to the addictive behaviors of esports players. Only values greater than one was accepted, the rest were not included in the study due to low eigen value. Table 4.18 shows the eigen value of all identified factors.

Table 4.18: Eigenvalues of Additive Behaviors

Extraction: Principal component factoring	
Component	**Eigenvalue**
1	6.166
2	2.470
3	1.320
4	1.013

Furthermore, in addition to this Figure, 4.2 shows the scree plot of eigen value that is greater than one with respect to addictive behaviors.

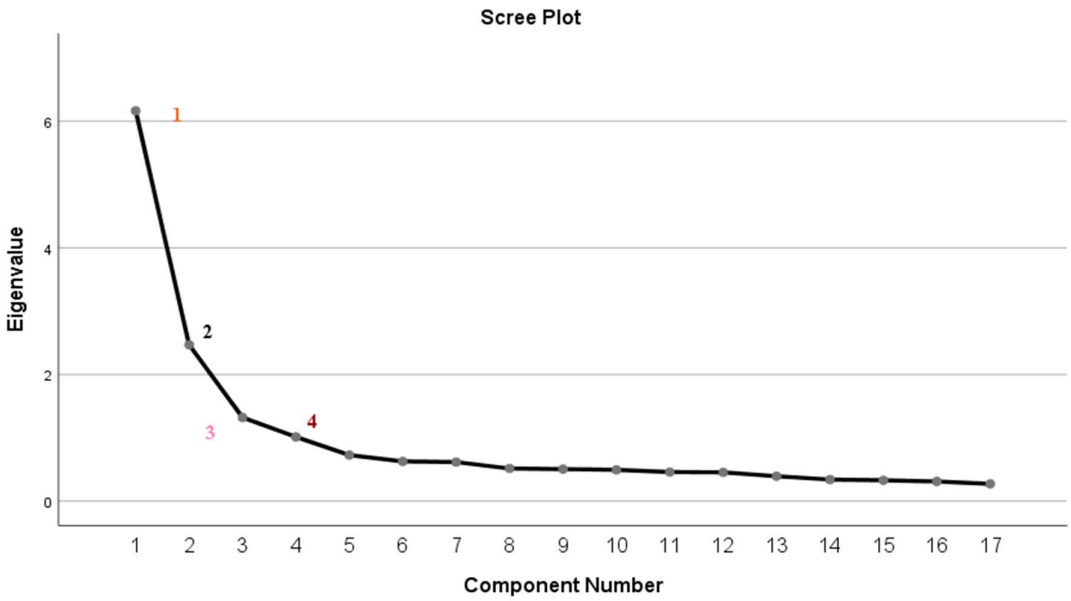

Figure 4.2: The Scree Plot of Addictive Behaviors

4.4.5 Survey Results Related to Addictive Behaviors

This section presents statistics of esports players related to addictive behaviors for esports game consumption. For this purpose, the SPSS tool was used for analysis. The five-point Likert scale ranging from 1-5 (that was discussed earlier in chapter 3) was used for this purpose; Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1. This section of the questionnaire includes questions regarding addictive behaviors for esports games.

Table 4.19: Statistics Related to Salience

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	28	6.7 %
Disagree	85	20.2 %
Neutral	103	24.5 %
Agree	155	36.9 %
Strongly Agree	49	11.7 %
Total	420	100.0 %

To explore the additive behaviors of esports players, the questions which were asked from the respondents resulted against the first question which was “Did you spend increasing amounts of time on games”. Results against this factor which is named as Salience showed that 36.9% of the respondents agreed that they spent excessive time on esports games, while 20.2% disagreed and 24.5% of respondents were neutrals.

Table 4.20: Survey Responses About Withdrawal Symptoms

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	38	9.0 %
Disagree	109	26.0 %
Neutral	109	26.0 %
Agree	128	30.5 %
Strongly Agree	36	8.6 %
Total	420	100.0 %

Similarly, respondents gave the answers to the question when asked by “have they neglected other important activities while playing games”. The result against this factor shows that about 31% of the respondents agreed that they tried to ignore their family and social circles because they were busy playing esports games, while 20.6% disagreed, similarly 26.0% of respondents were neutrals.

Table 4.21: Survey Responses About Mood Modification

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	12	2.9 %
Disagree	13	3.1 %
Neutral	53	12.6 %
Agree	95	22.6 %
Strongly Agree	247	58.8 %
Total	420	100.0 %

The third question on addictive behavior asked respondents that “have they played games to release stress”. This factor was labeled mood modification and results against this factor shows that 59% of respondents strongly agreed that they play games for relaxation and stress relief, while 3.1% of respondent disagreed, similarly 12.6% of respondent were neutrals.

Table 4.22: Survey Responses About Loss of Control

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	18	4.3 %
Disagree	34	8.1 %
Neutral	89	21.2 %
Agree	59	14.0 %
Strongly Agree	220	52.4 %
Total	420	100.0 %

Finally, the last factor of addictive behavior is identified as Loss of Control. Result against this factor show that 52.4% of respondents strongly agreed that they felt bad after spending a huge amount of time on esports games, while 8.1% disagreed they did not feel bad, similarly 21.2% of respondent were neutral. The complete results related to the addictive behaviors of esports players against each question are discussed in Appendix C.

4.5 Discussion

Today's youth spend a lot of time on esports games, and this phenomenon is apparent among Pakistani youth as well. Esports is a kind of new media that has been growing quickly on the internet in recent years, mostly due to the popularity of online games [12]. The present study aimed to explore the motives and addictive behaviors of esports players in Pakistan. To do so, two research questions were addressed to achieve the study objective. The first research question was what are the motivational factors of esports players in Pakistan? was addressed by performing the factor analysis method.

As a result, factor analyses yielded five motives for esports games consumption: Violence, Entertainment, Coupling, Fantasy, Psychological benefits, and Skill enhancement with a total variance of 62.073%. In the present study, respondents had shown massive amounts of interest in playing violence esports games.

Surprisingly, despite its potential role in the development of aggressive preferences and violent behavior, this motive has been largely unstudied. This motive is strongly associated with the use of shooters in games and is negatively associated with non-violent, more peaceful video games such as casual games. reported to be related. Similarly, this motive is reported to be strongly associated with an attachment to action shooter series [71] [79].

In addition, to the present study around 31% of the respondent agreed that they like violence esports games. This motive also showed that even brief exposure to violent video games can temporarily increase aggressive behavior in all types of gamers. This is similar to previous research [80] [81] showing that habitually aggressive players may be particularly vulnerable to the aggressive-promoting effects of repeated exposure to violent games.

One of the main reasons why players around the world enjoy esports games is the entertainment they provide to them. There are many aspects to enjoying esports games. One of those aspects is gratitude. This is because it means that players are interested in the game as well as the outcome. As a result, this motivation factor was strongly associated with playing esports games with both male and female players.

Entertainment is the most common reason someone participates in eSports games. In the present study, results revealed about 59% of the respondents strongly agreed that playing esports games is for entertainment purposes only. Table 4.9 shows the results related to this motive. Further, concerning the present study, similarly recent studies [49], [82] revealed that esports players consume esports games just for entertainment purposes only.

Coupling refers to playing esports games together via teams or playing in a group. This motive allows esports players to get together and interact with each other. Close coupling in video games has the ability manner to increase the player experience while consuming esports games. As per statistics shown in Table 4.10, revealed that around 49% of the respondents partially

agreed that they play esports games in the group. It allows them to interact with each other while playing games offline or on online platforms. In relation to the current study recently published article [83] revealed that players who consume esports games together have the potential to increase their self-esteem.

The fantasy motive is defined by playing for immersion in the gaming world and the story's in-game characters [71]. In the gaming motivation study, this motive has been given several names including engagement, presence, narrative, story, or exploration. [84]. In the current study, fantasy was significantly associated with the use of game genres in which stories are typically told through campaigns such as action-adventure games, shooters, and strategy games. Moreover, the survey results also revealed that 46% of the respondents like fantasy stuff that they are unable to do in real life such as driving a car or shooting.

Previous studies have reported similar results [85], with fantasy strongly associated with the use and preference for shooters, role-playing games, action-adventure games, and franchises in such genres [86]. Furthermore, the present study showed that fantasy is a very important motivating factor in young adults, consistent with several recent studies [71].

The Psychological Benefit based motive refers to dealing with mental disorders like anxiety, and depression and relieving stress. As per statistics shown in Table 4.12, revealed that about 49% of the respondents strongly agreed that playing esports games allows them to distract from pain and psychological trauma.

Playing esports games, regardless of the game type, can help improve your decision-making skills. As for the current study, previous studies have found similar results regarding psychological benefits [87]. In a similar manner, video games often help you calm and enjoy yourself, especially after a long, stressful day. As per recently published articles [71], this is in addition to insuring pleasure and excitement while consuming esports games [88].

The motivation for enhancing cognitive activity when playing video games is known as the cognitive development motive. This motivation was associated with action-adventure and shooter games in the current research. Shooters and real-time strategy genres have been strongly linked to skill development, according to previous studies [71] [86]. As a result, individuals

with higher levels of this motivation may be more attracted to games where skill and skill enhancement are key components of the gaming experience.

Similarly, in order to answer the second research question which was what are addictive behavioral factors of esports players in Pakistan? was addressed by performing the factor analysis method. As a result, four addictive behavior factors were identified namely Silence, Withdrawal, Mood modification, and Loss of Control with a total variance of 64.520%**.**

In the present study, the main addictive indicator was identified as Salience. As it indicates that spending too much time on esports games is often a sign of addiction. Similarly, about 37% of survey respondents in this study have all acknowledged that they spent a lot of time on playing esports games as shown in Table 4.19. This is similar to studies [18], [48] that have reported respondents spending a lot of time on esports games which often leads to addiction [71]. Aside from the identified motivations, this may also be due to the fact that respondents are almost always connected to the internet, giving them 24/7 access to esports games. Just like mobile phones, it is remarkable how esports games have become a part of young people's lives. Esports players have previously stated in studies that they could not survive without their smartphones [36] [89]. Similarly, respondents to this survey confessed that they would be lost without playing esports games.

Withdrawal refers to the unpleasant emotions and/or physical effects that occur when play is suddenly reduced or stopped [48]. Withdrawal symptoms consist primarily of irritability and irritability but may also include physiological symptoms. In the present study Table, 4.20 shows that about 31% of the respondents expressed that they have withdrawal, craving, and anxiety symptoms when they are unable to play esports games. Additionally, earlier studies have shown a strong correlation between withdrawal symptoms and the negative emotional and/or physical consequences that follow the temporary suspension or sudden reduction of a particular activity [36] [90]. It is concluded that most of the respondents in the present study have all agreed that they have withdrawal symptoms.

Similarly, the third factor was identified as mood modification. It describes a way to change your mood, such as becoming intoxicated or being very depressed [48]. Similarly, in the present study, about 59% of the respondents as shown in Table 4.21 strongly agreed that they have the

symptoms of mood modification. It is playing games to evoke motivational feelings often used as a way to deal with other elements of a player's life. Previous research has shown [91] that the term mood-altering effect of play usually involves increasing the number of plays, which often leads to tolerance.

In relation to the present study, a previous study identified that about 12% of their respondents indicate that have video game addiction which might involve altering one's mood [92]. The study also reported that most esports players only consume esports games just to have some fun and spent time, playing socially, or to prevent depression and escape related problems. Finally, the last addictive behavioral symptom was identified as Loss of Control. It is a phenomenon that occurs while playing an online video game [93].

Similarly, another significant factor found is Loss of Control, which is the inability to control the amount of time spent playing esports games. For instance, staying up late playing esports games might result in extreme fatigue and make it difficult to perform in the academic context.

In this study, about 53% of survey respondents as per statistics shown in Table 4.22, strongly agreed that they have spent a huge amount of time on esports games which is often a sign of addiction. According to a similar study [94], playing video games excessively may have a variety of harmful psychological and/or physical effects since some esports players have psychosocial issues when participating in esports games. It is well-accepted that esports players who play for too long (more than 10 hours per day) increase their chances of developing a video game addiction [25].

The study finding indicates that the majority of survey respondents see esports as a legitimate sport. Esports is a good way for the player to relax and have fun and some players play esports games because they want to better their gaming skills. The players who consume esports games may have both positive and negative advantages. Positively, esports players play games for different reasons. Some play for entertainment or competition, while others game as a way to cope with stress or anxiety. On the other side, playing video games too much may lead to mental health issues including sleep difficulties, mood disorders, and poor performance at work as discussed earlier.

4.6 Summary

This chapter discussed the results of the survey. This chapter also discusses the identified factors related to the motive and addictive behaviors of esports players.

CHAPTER 5

CONCLUSIONS AND FUTURE WORK

This chapter explained the conclusion of the study found. In this chapter, research questions are briefly discussed. Similarly, the study limitations and future work are also discussed in this chapter.

5.1 Research Summary

The purpose of this study was to the explore motive and addictive behaviors of esports players in Pakistan. As the importance of esports games continuously grows, it has become one of the most significant research areas recently. It consists of a number of organized esports game competitions in which individuals or teams play by a set of established rules.

This study has two main research questions.

1. What are the motivational factors of esports players in Pakistan?
2. What are the addictive behavioral factors of esports players in Pakistan?

The first research question was answered by exploring the motives behaviors of esports players. To do this a survey was conducted and a total of 420 responses were finalized in this study. Factor analysis was carried out on survey data. As a result, the study identified six motives of esports players for games consumptions. It includes Violence, Entertainments, Coupling, Fantasy, Psychological Benefits, and Skill Enhancement.

The second research question was answered by exploring the addictive behaviors symptoms of esports players. To do this a survey was conducted and a total of 420 responses were finalized in this study. Factor analysis was carried out on survey data. As a result, the study identified four addictive behaviors symptoms of esports players for games consumptions. It includes Salience, Withdrawal, Mood Modification, and Loss of Control.

5.2 Limitation of Research

This study has several limitations that need to be considered. In general, surveys using online surveys have two typical limitations. Data are self-reported and respondents are self-selected. Without sufficient engagement, data quality can suffer from unconscious reactions. This study tried to solve this problem by selecting respondents as close to the sample as possible.

Second, the study only surveyed esports players from Pakistan. However, esports games are played all over the world. As only Pakistani players were surveyed, the results were limited to a selected group of respondents, excluding players from other countries who may have different motivations and behavioral symptoms. Further due to the use of convenience and snowball sampling, the current findings are limited in their generalizability to all populations

5.3 Future Work

It would be interesting to examine a few games within a particular esports genre to see if the relationship between motives and consumption is consistent across genres or whether it is game-specific (such as Call of Duty, Counter-Strike: Global Offensive, and FIFA). This could also make it easier to detect any potential demographic influences on these findings.

5.4 Research Significance

The present study was exploratory in this domain. Esports is a developing phenomenon both internationally and in Pakistan. The current study adds to the knowledge of esports gaming by uncovering the motives and addictive behaviors of esports players. This study will assist us in understanding the many risks faced by esports players, as well as their underlying causes and effects on their lives. This research forms the basis for the next researchers in this field area by

allowing theoretical foundations. This study also opens new perspectives on gaming addiction criteria in Pakistan.

REFERENCES

[1] T. Cranmer, Eleanor, han, Dai-In, van Gisbergen, marnix and Jung, "Matrix: Structuring The Esports Research Agenda," *Computers in Human Behavior Published by Elsevier*, vol. 6641, pp. 0–24, 2020.

[2] A. Z. Abbasi, M. Asif, L. D. Hollebeek, J. U. Islam, D. H. Ting, and U. Rehman, "The Effects of Consumer Esports Videogame Engagement on Consumption Behaviors," *Journal of Product and Brand Management*, vol. 30, no. 8, pp. 1194–1211, 2021.

[3] J. Macey, B. Abarbanel, and J. Hamari, "What Predicts Esports Betting? A Study on Consumption of Videogames," *New Media Soc*, vol. 23, no. 6, pp. 1481–1505, 2021.

[4] F. Bányai, M. D. Griffiths, O. Király, and Z. Demetrovics, "The Psychology of Esports: A Systematic Literature Review," *J Gambl Stud*, vol. 35, no. 2, pp. 351–365, 2019.

[5] Dr. Mark Griffiths, "The Psychosocial Impact of Professional Gambling, Professional Video Gaming & Esports," *Casino & Gaming International*, pp. 1–5, 2017.

[6] J. Helminen, "Effects of Failure and Avatar Death Faculty of Information Technology and Communication Sciences," Master's Programme in Internet and Game Studies, Tampere University, 2020.

[7] M. A. Mamun and M. D. Griffiths, "The Psychosocial Impact of Extreme Gaming on Indian pubg gamers: The Case of PUBG (PlayerUnknown's Battlegrounds)," *Int J Ment Health Addict*, vol. 19, no. 6, pp. 2170–2174, 2021.

[8] M. Waris Nawaz, T. Nadeem, S. Liaqat Rao, T. Fatima, and S. Shoaib, "Impact of PUBG Game Addiction on Social Isolation and Narcissistic Tendencies among Gamers," *Asian Journal of Social Sciences and Management Studies*, vol. 7, no. 3, pp. 166–172, 2020.

[9] D. Times, "Pakistani Esports Economic Forum." [Online]. Available: https://dailytimes.com.pk/pakistani-esports-market-gains-promising-momentum/Last access 05/12/2022

[10] N. Desk, "Top Five Most Popular Esports Games in Pakistan." [Online]. Available: https://www.globalvillagespace.com/top-five-most-popular-e-sport-video-games-in-pakistan/Last access 05/12/2022

[11] Steam charts, "An Ongoing Analysis of Steam's Concurrent Players." [Online]. Available: https://steamcharts.com/Last access 15-2-2022

[12] J. Hamari and M. Sjöblom, “What is Esports and Why Do People Watch it,” *Internet Research Studies by Emerald*, vol. 27, no. 2, pp. 211–232, 2017.

[13] J. Macey, V. Tyrväinen, H. Pirkkalainen, and J. Hamari, “Does Esports Spectating Influence Game Consumption,” *Behaviour and Information Technology*, vol. 1, pp. 1–17, 2020.

[14] F. M. Nuyens, D. J. Kuss, O. Lopez-Fernandez, and M. D. Griffiths, “The Empirical Analysis of Non-problematic Video Gaming and Cognitive Skills: A Systematic Review,” *Int J Ment Health Addict*, vol. 17, no. 2, pp. 389–414, Apr. 2019.

[15] R. Widyaningsih *et al.*, “Esport and Philosophy Behind: A Literature Review,” *Ann Trop Med Public Health*, vol. 24, no. 03, 2021.

[16] J. K. A. R. M. C. E. and J. V. Amanda Lenhar, “Teens, Video Games, and Civics Teens Gaming Experiences are Diversed,” Washington USA, 2008.

[17] S. Anwar, S. Noor, and M. Asrar-ul-Haq, “Health Risk Behaviors among University Students: The Role of Outdoor Sports and Electronic Sports,” *Journal of Humanities and Applied Social Sciences*, 2021.

[18] A. Rasheed, S. Ahsan, and S. Zaheer, “Impact of Internet Gaming Disorder on Self-appraisal among University students: Moderating Role of Gender,” *Pakistan Journal of Psychological Research*, vol. 36, no. 3, pp. 451–471, 2021.

[19] A. A. Al-qahtani, A. A. S. Alenzi, and A. S. Ali, “Letter to The Editor Playerunknown Battlegrounds: Yet another Internet Gaming Addiction,” *Letter to Department of Medicine, Aga Khan University, Karachi-Pakistan*, vol. 32, pp. 145–146, 2020.

[20] T. L. Taylor, “Raising the Stakes: E-sports and the Professionalization of Computer Gaming,” *Am J Play*, vol. 1, pp. 111–114, 2012.

[21] L. Wang *et al.*, “Gaming Motivation and Negative Psychosocial Outcomes in Male Adolescents: An Individual-Centered 1-Year Longitudinal Study,” *Front Psychol*, vol. 12, Dec. 2021.

[22] Nick Yee, “Motivation for Playing Online Games,” *Cyber psychology and Behavior*, vol. 9, 2006.

[23] S. T. T’ng and K. Pau, “Identification of Avatar Mediates the Associations Between Motivations of Gaming and Internet Gaming Disorder Among the Malaysian Youth,” *Int J Ment Health Addict*, vol. 19, no. 4, pp. 1346–1361, Aug. 2021.

[24] L. Bowditch, J. Chapman, and A. Naweed, “Do Coping Strategies Moderate the Relationship Between Escapism and Negative Gaming Outcomes in World of Warcraft (MMORPG) players,” *Comput Human Behav*, vol. 86, pp. 69–76, Sep. 2018.

[25] S. Sepehr and M. Head, “Online Video Game Addiction: A Review and an Information Systems Research Agenda,” *19th Americas Conference on Information Systems*, vol. 4, pp. 2590–2600, 2013.

[26] K. A. Haberlin and D. J. Atkin, “Mobile Gaming and Internet Addiction: When is Playing no longer just fun and games?,” *Comput Human Behav*, vol. 126, no. August 2021, p. 106989, 2022.

[27] M. Sjöblom and J. Hamari, “Why do people watch others play video games? An empirical study on the motivations of Twitch users,” *Comput Human Behav*, vol. 75, pp. 985–996, 2017.

[28] Z. Chang, “What’s The Hype About Esports,” Master Thesis, Department of Business Administration, Technology and Social Sciences, Swedish University, 2019.

[29] D. J. Mills and J. J. Allen, “Self-Determination Theory, Internet Gaming Disorder, and The Mediating Role of Self-Control,” *Comput Human Behav*, vol. 105, p. 106209, 2020.

[30] T. Weiss, “Fulfilling the Needs of eSports Consumers : A Uses and Gratifications Perspective,” *Proceedings of the 24th Bled eConference “eFuture:*, pp. 572–580, 2011.

[31] B. S. Benti and G. Stadtmann, “Animal Crossing: New Horizons meets ‘Maslow’s pyramid,’” *Hum Behav Emerg Technol*, vol. 3, no. 5, pp. 1172–1179, 2021.

[32] K. A. Brown, A. C. Billings, B. Murphy, and L. Puesan, “Intersections of Fandom in the Age of Interactive Media: Esports Fandom as a Predictor of Traditional Sport Fandom,” *Communication and Sport*, vol. 6, no. 4, pp. 418–435, 2018.

[33] J. Hamari and M. Sjöblom, “What is eSports and why do people watch it?,” *Internet Research by Emerald*, vol. 27, no. 2, pp. 211–232, 2017.

[34] M. Xiao, “Factors Influencing Esports Viewership: An Approach Factors Influencing esports Viewership: An approach based on the theory of reasoned action,” *Communication and Sport*, no. January, pp. 1–31, 2019.

[35] R. Rogers, L. Farquhar, and J. Mummert, “motivational differences among viewers of traditional sports, esports, and nba 2K league,” *Communication and Sport*, no. November 2019, pp. 1–20, 2020.

[36] V. Balakrishnan and A. Shamim, “Malaysian Facebookers: Motives Addictive Behaviours Unraveled,” *Comput Human Behav*, vol. 29, no. 4, pp. 1342–1349, 2013.

[37] Addictive Behaviors Types, “American Addiction Institute,” USA, 2023.

[38] R. A. Tejeiro Salguero and R. M. Bersabé Morán, “Measuring Problem Videogame Playing in Adolescents,” *Research Report by University of Malaga, Spain*, vol. 97, no. 12, pp. 1601–1606, 2002.

[39] G. Chan, Y. Huo, S. Kelly, J. Leung, and C. Tisdale, “The Impact of Esports and Online Video Gaming on Lifestyle Behaviours in Youth: A Systematic Review,” *Comput Human Behav*, vol. 126, no. July 2021, p. 106974, 2022.

[40] T. Chung, S. Sum, M. Chan, E. Lai, and N. Cheng, “Will esports result in a higher prevalence of problematic gaming? A review of the global situation,” *J Behav Addict*, vol. 8, no. 3, pp. 384–394, 2019.

[41] I. Ayenigbara, “Gaming Disorder and Effects of Gaming on Health: An Overview,” *J Addict Med Ther Sci*, pp. 001–003, Oct. 2018.

[42] M. Griffiths, “A ‘Components’ Model of Addiction within a Biopsychosocial Framework,” *International Gaming Research Unit*, vol. 10, no. August, pp. 191–197, 2005.

[43] D. Ekdahl, “The Embodiment of Esports Crossing the Gap between Physical and Virtual,” *Department of Sports Science and Clinical Biomechanics*, pp. 34–181, 2021.

[44] Psychology Today, “Cognitive Behavioral Therapy,” *Ussex Publishers*, 2023.

[45] M. C. Haagsma, S. E. Caplan, O. Peters, and M. E. Pieterse, “A cognitive-behavioral model of problematic online gaming in adolescents,” *Comput Human Behav*, vol. 29, no. 1, pp. 202–209, Jan. 2013.

[46] James W. Grice, “The Big Five Model of Personality Traits,” *The Editors of Encyclopaedia Britannica*, 2023.

[47] K. W. Müller, M. E. Beutel, B. Egloff, and K. Wölfling, “Investigating risk factors for internet gaming disorder: A comparison of patients with addictive gaming, pathological gamblers and healthy controls regarding the big five personality traits,” *Eur Addict Res*, vol. 20, no. 3, pp. 129–136, 2014.

[48] J. S. Lemmens, P. M. Valkenburg, and J. Peter, “Development and Validation of a Game Addiction Scale for Adolescents,” *Media Psychol*, vol. 12, no. 1, pp. 77–95, 2009.

[49] D. Lee and L. J. Schoenstedt, “Comparison of Esports and Traditional Sports Consumption Motives,” *International Council for Health, Physical Education, Recreation, Sport and Dance, Journal of Research*, vol. 6, no. 2, pp. 39–44, 2011.

[50] T. Weiss and S. Schiele, “Virtual Worlds in Competitive Contexts: Analyzing Esports Consumer Needs,” *Institute of Information Management, University of St. Gallen*, vol. 23, pp. 307–316, 2013.

[51] Y. Seo, “Electronic Sports: A New marketing Landscape of the Experience Economy,” *Journal of Marketing Management*, vol. 29, no. 13–14, pp. 1542–1560, 2013.

[52] Anders Hval Olsen, “The Evolution of Esports,” Master in Science, Coventry university, London, 2014.

[53] D. Anderson, K. Sweeney, E. Pasquini, B. Estes, and R. Zapalac, “An Exploration of Esports Consumer Consumption Patterns, Fandom, and Motives,” *International Journal of eSports Research*, vol. 1, no. 1, pp. 1–18, 2021.

[54] A. Khan and R. Muqtadir, “Problematic Online Gaming in Pakistan,” *International Journal of Science and Research*, vol. 3, no. 6, pp. 2522–2525, 2014.

[55] S. M. Grüsser, R. Thalemann, and M. D. Griffiths, “Excessive Computer Game Playing: Evidence for Addiction and Aggression,” *Cyberpsychology and Behavior*, vol. 10, no. 2, pp. 290–292, Apr. 2007.

[56] J. Macey, V. Tyrväinen, H. Pirkkalainen, and J. Hamari, “Does esports spectating influence game consumption?,” *Behaviour and Information Technology*, vol. 0, no. 0, pp. 1–17, 2020.

[57] M. Rockel, “Esports Spectator Motivation: A data-driven approach to League of Legends Franchising,” Fhwien der , Austria, 2020.

[58] R. Rogers, L. Farquhar, and J. Mummert, “Motivational Differences Among Viewers of Traditional Sports, Esports, and NBA 2K League,” *Communication and Sport*, no. November 2019, pp. 1–20, 2020.

[59] X. Ke, C. Wagner, and H. S. Du, “Calling for Information Systems Research on Esports: An Overview Study,” *Communications of the Association for Information Systems*, vol. 50, pp. 261–285, 2022.

[60] F. Melodia, N. Canale, and M. D. Griffiths, “The Role of Avoidance Coping and Escape Motives in Problematic Online Gaming: A Systematic Literature Review,” *Int J Ment Health Addict*, vol. 20, no. 2, pp. 996–1022, Apr. 2022.

[61] M. A. Mamun, I. Ullah, N. Usman, and M. D. Griffiths, “PUBG-related Suicides during the COVID-19 Pandemic: Three cases from Pakistan,” *Perspectives in Psychiatric Care*. 2020.

[62] B. R. Jain, “Negative Consequences of Pubg Games.” Gaming Institute Forum, pp. 1–5, 2019.

[63] Chinelo lgwenagu, *Fundamentals of Research Methodology and Data Collection*, 2nd ed. Nsukka: LAP Lambert Academic, 2016.

[64] S. Goundar, *Chapter 3-Research Methodology and Research Method*. 2012.

[65] A. Pinsonneault and K. L. Kraemer, “Survey Research Methodology in Management Information Systems: An Assessment,” *Journal of Management Information Systems*, vol. 10, no. 2, pp. 75–105, 1993.

[66] A. B. Shaker, “Challenges and Solution for Sustainable Software Development,” Master Thesis, National University of Modern Languages, Islamabad, 2021.

[67] Ehsan Saghaei Dehkordi, “A Model for Successful Presence of Iranian SMEs in international markets,” *University of Lulea Technology*, pp. 1–123, 2008.

[68] J. W. Creswell and J. David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*.

[69] M. Kasunic, *Designing An Effective Survey*. USA: Software Engineering Institute, 2005.

[70] H. Taherdoost, “Sampling Methods in Research Methodology; How to Choose a Sampling Tech-nique for Research,” *International Journal of Academic Research in Management*, pp. 5–11, 2016.

[71] F. J. López-Fernández, L. Mezquita, M. D. Griffiths, G. Ortet, and M. I. Ibáñez, “The Development and Validation of The Videogaming Motives Questionnaire (VMQ),” *PLoS One*, vol. 15, no. 10 October 2020, pp. 1–20, 2020.

[72] R. A. Cummins and E. Gullone, “Why We Should Not Use 5-point Likert Scales: The Case for Subjective Quality of Life Measurement,” *Proceedings, Second International Conference on Quality of Life in Cities*, pp. 74–93, 2000.

[73] Question Pro, “Data Analysis in Research: Why Data, Types of Data, Data Analysis in Qualitative and Quantitative research,” 2020, Accessed: Dec. 06, 2022. [Online]. Available: https://www.questionpro.com/blog/data-analysis-in-research/Last Access 06/12/2022

[74] W. M. Bannon, “The 7 steps of Data Analysis: a Manual Book for Conducting a Quantitative Research study,” *Library of Congress Cataloging*, p. 353, 2013.

[75] L. K. Muthén and B. O. Muthén, “Exploratory Factor Analysis , Confirmatory Factor Analysis, And Structural Equation Modeling For Continuous,” *Mplus Short Courses*, pp. 1–136, 2008.

[76] Timothy A. Brown and Michael T. Moore, “Running Head: Confirmatory Factor Analysis,” *Center for Anxiety & Related Disorders, Department of Psychology Boston University*, p. 32, 2012.

[77] C. G. Iwu, I. O. Ezeuduji, I. C. Iwu, K. Ikebuaku, and R. K. Tengeh, “Achieving Quality Education by Understanding Teacher job Satisfaction Determinants,” *Soc Sci*, vol. 7, no. 2, 2018.

[78] A. G. Yong and S. Pearce, “A Beginner’s guide to Factor Analysis: Focusing on Exploratory Factor Analysis,” *University of Ottawa*, vol. 9, no. 2, pp. 79–94, 2013.

[79] J. Hilgard, C. R. Engelhardt, and B. D. Bartholow, “Individual differences in Motives, Preferences, and Pathology in Videogames: The Gaming Attitudes, Motives, and Experiences Scales,” *Front Psychol*, vol. 4, no. SEP, 2013.

[80] A. K. Przybylski and N. Weinstein, “Violent video game engagement is not associated with adolescents’ aggressive behaviour: Evidence from a registered report,” *R Soc Open Sci*, vol. 6, no. 2, Feb. 2019.

[81] Craig A. Anderson and Karen E. Dill, “Violent Video Games Can Increase Aggression,” *American Psychological Association*, pp. 1–3, 2022, Accessed: Dec. 06, 2022. [Online]. Available: https://www.apa.org/news/press/releases/2000/04/video-games/Last Access 06/12/2022

[82] Bernard Mac Donagh, “Games for Entertainment,” *Game Design and Development*, pp. 1–8, 2021.

[83] A. Beznosyk, P. Quax, W. Lamotte, and K. Coninx, “The Effect of Closely-Coupled Interaction on Player Experience in Casual Games,” 2012. [Online]. Available: www.soe.com

[84] R. M. Ryan, C. S. Rigby, and A. Przybylski, “The Motivational Pull of Video Games: A Self-Determination Theory Approach,” *Motiv Emot*, vol. 30, no. 4, pp. 347–363, Dec. 2006.

[85] M. D. D. G. Griffiths, “A Cross-Genre Study of Online gaming: Player Demographics, Motivation for Play, and Social Interactions among Players,” *International Journal of Cyber Behavior*, vol. 2, no. 1, pp. 13–29.

[86] N. R. Kim *et al.*, “Characteristics and Psychiatric Symptoms of Internet Gaming Disorder among Adults Using Self-Reported DSM-5 Criteria,” *Psychiatry Investig*, vol. 13, no. 1, pp. 58–66, Jan. 2016.

[87] Dan Brennan, “Are There Mental Health Benefits of Video Games.” Accessed: Dec. 06, 2022. [Online]. Available: https://www.webmd.com/mental-health/mental-health-benefits-of-video-games/Last Access 06/12/2022

[88] Juliet Wright, “Top Psychological Benefits of Esports Gaming,” 2020. Accessed: Dec. 06, 2022. [Online]. Available: https://www.elmens.com/tech/games/top-psychological-benefits-of-online-gaming/Last Access 06/12/2022

[89] Mizuko ITO, “Personal Portable Pedestrian: Lessons from Japanese Mobile Phone Use,” *The Asia-Pacific Journal*, vol. 3, pp. 1–7, 2005.

[90] M. Griffiths, “A ‘Components’ Model of Addiction Within Biopsychosocial Framework,” *International Gaming Research Unit*, vol. 10, pp. 191–197, 2005.

[91] D. C. Hull, G. A. Williams, and M. D. Griffiths, “Video Game Characteristics, Happiness and Flow as Predictors of Addiction Among Video Game Players: A Pilot Study,” *Journal of Behavioral Addiction*, 2013.

[92] J. Oggins and J. Sammis, “Notions of Video Game Addiction and Their Relation to Self-Reported Addiction Among Players of World of Warcraft,” *Int J Ment Health Addict*, vol. 10, no. 2, pp. 210–230, Apr. 2012.

[93] Axelle Moreaua and Emeline Chauchard, “Rage in Video Gaming, Characteristics of Loss of Control among Gamers,” *A Qualitative Study*, pp. 1–22, 2022.

[94] V. Starcevic, D. Berle, and C. Cavallini, “Problem Videogame Use and Dimensions of Psychopathology,” *Int J Ment Health Addict*, pp. 20–28, 2010.

[95] A. I. Wang, “The Wear Out Effect of a Game-Based Student Response System,” *Comput Educ*, vol. 82, pp. 217–227, 2015.

APPENDIX A

Survey Questionnaire

A Survey About Esports Games

Purpose: Dear Participant, I am an MS Software Engineering student at the National University of Model Languages Islamabad (NUML), Islamabad, Pakistan. My research work is about the involvement of Pakistani youth in esports games. If you play esports games then you are requested to fill out this questionnaire according to your personal beliefs, perception, and experiences.

All of your information will be treated with confidentiality and used just for research purposes. Please do not hesitate to get in touch with me if you have any questions regarding this survey or if you are interested in finding out the findings (after the study is over). (minhajmini24@gmail.com). The link to Survey is https://forms.gle/34JHoK4aYnKgLV7U7.

I appreciate your effort, many thanks!

Section 1: Respondent Information:	
Name: _____	**Age:** _____
Gender: _____	**Qualification:** _____

Section 2: Motive Items

Please indicate how often you play the esports games:

SD: Strongly Agree; D: Disagree; N: Neutral; A: Agree; SA; Strongly Agree;

Serial	Questions	SD	D	N	A	SA
1	I enjoy gaming					
2	Game entertains me					
3	It is entertaining					
4	I have fun					
5	I Like them much					
6	It relaxes me					
7	It helps me get rid of stress					
8	I make new friends					
9	It allows me to meet other people					
10	I keep in touch with my friends by gaming					
11	I enjoy playing in group					
12	I like playing with people online or same room					
13	Thus, I fit in a group, I like					
14	Other players appreciate me in the game					
15	I have honors because of my success in the game					
16	The others like me if I play					
17	It helps me forget my daily problem					
18	It allows me to escape from the real world					
19	Gaming allows me to feel better when I am frustrated					

20	Gaming helps me to improve my mood					
21	It helps me release negative energy					
22	Thus, I do not feel excluded					
23	When I am angry or upset with someone, through gaming, I avoid arguing with such persons.					
24	I enjoy the violent fights in video games					
25	I like in video games, the more violence the better.					
26	Shooting someone in the head is deeply satisfying					
27	I enjoy destroy things in the games					
28	Killing in the game I feel powerful					
39	It allows me to do things that I cannot do in real life					
30	It helps me channel my aggressivity					
31	Games increase my adrenaline level					
32	I like feeling my self-part of story					
33	I enjoy putting myself into a new character's shoes in each game.					
34	I feel someone important in the game					
35	I like to explore the world to find out new things					
36	Games stimulate my emotions					
37	Games are exciting					
38	I enjoy customizing things in the game					
39	I like making things in video games such as houses or other constructions					
40	I like to create my own world					
41	In the game, I like to use different elements tocreate new things					

42	I like designing or customizing the appearance ofmy character					
43	I like to defeat other players					
44	I like to win					
45	I like to prove; I am better than other players					
46	I like to provoke other players					
47	I feel myself powerful in the game					
48	I enjoy competing with others					
59	Games imply a mental challenge					
50	Games make me smarter					
51	Games make me thing					
52	Games sharpen my senses					
53	Games trigger me					
54	Games improve my abilities					

Section 3: Addictive Items

Serial	Questions	SD	D	N	A	SA
55	Did you think about playing a game all day long?					
56	Did you spend much free times on games					
57	Have you felt addicted to a game					
58	Did you play longer than you intended?					
59	Did you spend increasing amount of time on games?					
60	Were you unable to stop once you started playing?					
61	Did you play games to forget about real life					

62	Have you played game to release stress					
63	Have you played games to feel better?					
64	Were you unable to reduce your game time?					
65	Have other unsuccessfully tried to reduce your game use?					
66	Have you failed when trying to reduce your gamestiming?					
67	Have you felt bad when you were unable to play?					
68	Have you become angry when unable to play?					
69	Have you become stressed when unable to play?					
70	Did you have fights with other family, friends overyour time spent on games?					
71	Have you neglected other family, friends because you were playing games?					
72	Have you lied about time spend on games?					
73	Has your time on games cause sleep deprivation					
74	Have you neglected other important work to play games?					
75	Did you feel bad after playing for a long time?					

APPENDIX B

Results Regarding Motive Behaviors of Esports Players

Table B.1: Survey Result Against Question 'Killing in the game feels powerful'

Five-Point Likert Scale	Frequency	Percent %
Strongly Agree	55	13.1 %
Disagree	78	18.6 %
Neutral	61	14.5 %
Agree	74	17.6 %
Strongly Agree	152	36.2 %
Total	420	100.0 %

When participants were asked about whether killing in the game do they feel powerful? The result against this question showed that 36.2 % strongly agreed 17.6% agreed that 'I like killing in the game, while 18.6% disagreed those they do not like killing in the game.

Table B.2: Survey Result Against Question 'Shooting someone in the head in a game is deeply' satisfying

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	50	11.9 %
Disagree	71	16.9 %
Neutral	68	16.2 %
Agree	91	21.7 %
Strongly Agree	140	33.3 %
Total	420	100.0%

Similarly, when asked from the respondent in the ability to answer do they like shooting someone in the head during the game for satisfaction. The result against this question showed that 33.3% strongly agreed, while 16.2% were neutral similarly 11.9% strongly disagreed that they do not like to kill someone in the head for self-satisfaction.

Table B.3: Survey Result Against Question 'I like violence in video games, the more violent the better

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	72	17.1 %
Disagree	94	22.4 %
Neutral	84	20.0 %
Agree	48	11.4 %
Strongly Agree	122	29.0 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was do they like extremely violence games? The result against this question shows that 29% strongly agreed that they like violence games the more violence the more interest will be taken in playing games, while 22.4% disagreed, similarly 20% of respondents were neutrals.

Table B.4: Survey Result Against Question 'It helps me channel my aggressivity'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	21	5.0 %
Disagree	60	14.3 %
Neutral	117	27.9 %
Agree	40	9.5 %
Strongly Agree	182	43.3 %
Total	420	100.0 %

In addition to this, when the respondent was asked to provide an answer to the question which was whether games help to increase their confidence level. The result against this question showed that 43.3% strongly agreed that they help them to channel their aggressivity, while 27.9% neutral, similarly 5% of respondents were strongly disagreed.

Table B.5: Survey Result Against Question 'It is entertaining'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	9	2.1 %
Disagree	14	3.3 %
Neutral	60	14.3 %
Agree	92	21.9 %
Strongly Agree	245	58.3 %
Total	420	100.0 %

Furthermore, when the respondent was asked to provide an answer to the question which was whether games are entertaining? The result against 2nd question showed that 58.3% strongly agreed that it is entertaining, while 21.9% agreed, similarly about 14.3% of respondents were neutrals.

Table B.6: Survey Result Against Question 'I have fun

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	12	2.9 %
Disagree	13	3.1 %
Neutral	53	12.6 %
Agree	95	22.6 %
Strongly Agree	247	58.8 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was do they have fun while playing games? The result against this question showed that 58.8% strongly agreed that it is having fun while playing games, while 22.6% agreed; similarly, about 12.3% of respondents were neutrals.

Table B.7: Survey Result Against Question 'Games entertain me'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	12	2.9 %
Disagree	12	2.9 %
Neutral	58	13.8 %
Agree	94	22.4 %
Strongly Agree	244	58.1 %
Total	420	100.0 %

Similarly, when the respondent was asked to provide an answer to the question which was whether games are entertaining or not? The result against this question showed that 58.1% strongly agreed that games are entertaining, while 22.4% agreed; similarly, about 12.8% of respondents were neutrals.

Table B.8: Survey Result Against Question 'It relaxes me

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	15	3.6 %
Disagree	36	8.6 %
Neutral	91	21.7 %
Agree	58	13.8 %
Strongly Agree	220	52.4 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was whether games provide relaxation to them? The result against this question showed that 52.4% of the respondents strongly agreed, while 13.8% agreed; similarly, about 21.7% of respondents were neutrals.

Table B.9: Survey Result Against Question 'Thus, I fit in a group I like'

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	17	4.0 %
Disagree	49	11.7 %
Neutral	128	30.5 %
Agree	35	8.3 %
Strongly Agree	191	45.5 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was do they participate in a group as per their interest? The result against this question shows that 44.5% strongly agreed that they like to play games as per their interest, while 11.7% disagreed, similarly 11.7% of respondents are neutrals

Table B.10: Survey Result Against Question 'I like playing with people online or in the same room

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	21	5.0 %
Disagree	64	15.2 %
Neutral	81	19.3 %
Agree	56	13.3 %
Strongly Agree	198	47.1 %
Total	420	100.0 %

Furthermore, when the respondent was asked to provide an answer to the question which was do they like to play online games with other teams? The result against this question shows that 47.1% strongly agreed that they like to play games with other teams, while 15.2% disagreed, that they do not like to play online games with the same teams, similarly 19.3% of respondent are neutrals.

Table B.11: Survey Result Against Question 'It helps me forget my daily problems

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	25	6.0 %
Disagree	67	16.0 %
Neutral	79	18.8 %
Agree	57	13.6 %
Strongly Disagree	192	45.7 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was do games help to forget their real-life problem? The result against this question shows that 45.7% strongly agreed that games help to forget problems for a while, while 16% disagreed, that they do not like to help out to solve problems, similarly 18.8% of respondents are neutrals.

Table B.12: Survey Result Against Question 'I like to win'

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	6	1.4 %
Disagree	16	3.8 %
Neutral	59	14.0 %
Agree	189	45.0 %
Strongly Agree	150	35.7 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was do they like to win? The result against this question showed that 45% agreed that they like to win while 35.7% strongly agreed; similarly, about 14% neutrals.

Table B.13: Survey Result Against Question 'I enjoy competing with others

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	5	1.2 %
Disagree	25	6.0 %
Neutral	67	16.0 %
Agree	100	23.8 %
Strongly Agree	223	53.1 %
Total	420	100.0 %

Similarly, when the respondent was asked to provide an answer to the question which was whether do they enjoy competing with other players or teams while playing games? The result against this question showed that 53.1% strongly agreed that they like to compete with other teams or players, while 23.8% agreed; similarly, 16% are neutrals.

Table B.14: Survey Result Related to 'I like to prove I am better than other players'

Five-Point Liker Scale	Frequency	Percent %
Strongly Disagree	21	5.0 %
Disagree	34	8.1 %
Neutral	94	22.4 %
Agree	101	24.0 %
Strongly Agree	170	40.5 %
Total	420	100.0 %

In order to answer the question, when respondent was asked to provide an answer to the question which was whether do they enjoy competing with other players or teams while playing games. The result against this question showed that 40.5% strongly agreed while 24% agreed; similarly, 16% are neutrals.

Table B.15: Survey Result Against Question 'Games stimulate my emotions

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	14	3.3 %
Disagree	41	9.8 %
Neutral	112	26.7 %
Agree	44	10.5 %
Strongly Agree	209	49.8 %
Total	420	100.0 %

Similarly, when the respondent was asked to provide an answer to the question which was whether games induce their emotions? The result against this question showed that 49.8% strongly agreed, while 26.7% neutral to this answer; similarly, 3.3% are strongly disagreed the games did not stimulate or induce their emotions.

Table B.16: Survey Results Related to 'Games increase my adrenalin levels'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	13	3.1 %
Disagree	38	9.0 %
Neutral	131	31.2 %
Agree	42	10.0 %
Strongly Agree	196	46.7 %
Total	420	100.0 %

Similar to this, when the responder was asked to answer the question, which was whether games increase their adrenalin levels. Adrenaline is a hormone that helps you react very quickly if you are faced with an exciting, stressful situation. The result against this question showed that 46.7% strongly agreed, while 31.2% responded neutrally; similarly, 3.1% strongly disagreed with the games.

Table B.17: Survey Result Against Question 'I like to create my own world'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	13	3.1 %
Disagree	48	11.4 %
Neutral	84	20.0 %
Agree	75	17.9 %
Strongly Agree	200	47.6 %
Total	420	100.0 %

Furthermore, when the respondent was asked to provide an answer to the question which was whether do they like to create their own fantasy world in the game. The result against this question showed that 47.6% strongly agreed that they like to create their own words, while 17.9% agreed; similarly, 20% are neutrals.

Table B.18: Survey Results Related to 'Games sharpen my senses'

Five-Pont Likert Scale	Frequency	Percent %
Strongly Disagree	11	2.6 %
Disagree	32	7.6 %
Neutral	73	17.4 %
Agree	69	16.4 %
Strongly Agree	235	56.0 %
Total	420	100.0 %

Similarly, when the respondent was asked to provide an answer to the question which was do games have a positive impact on their senses? The result against this question showed that 56% strongly agreed that games increase their sharpen senses while playing, while 16.4% responded agreed; similarly, 7.6% strongly disagreed.

Table B.19: Survey Result Against Question 'Games make me smarter'

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	19	4.5 %
Disagree	35	8.3 %
Neutral	81	19.3 %
Agree	62	14.8 %
Strongly Agree	223	53.1 %
Total	420	100.0 %

Lastly, when the respondent was asked to provide an answer to the question which was do games make them smarter to make the right decision? The result against this question showed that 53.1% strongly agreed, while 14.8% responded agreed to this question; similarly, 8.3% disagreed.

APPENDIX C

Testing Results regarding Addictive behaviors

Table C.1: Survey Result Against Question 'Fights with family, friends over time spent on games

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	44	10.5 %
Disagree	103	24.5 %
Neutral	94	22.4 %
Agree	132	31.4 %
Strongly Agree	47	11.2 %
Total	420	100.0 %

When the respondent was asked to provide an answer to the question which was did they get into any fights with their family, or friends members because of their time spend on games? The result against this question shows that 31.4% of respondents agreed that they had fights with family and social members because of their time spent on games, while 24.5% disagreed, similarly 22.4% of respondents were neutrals.

Table C.2: Survey Result Against Question 'Have you become stressed when unable to play

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	28	6.7 %
Disagree	91	21.7 %
Neutral	114	27.1 %
Agree	148	35.2 %
Strongly Agree	39	9.3 %
Total	420	100.0 %

Furthermore, when the respondent was asked to provide an answer to the question which was have, they got stressed when they were unable to play the games? The result against this question shows that 35.2% of respondents agreed that they feel stressed when they did not play the game for a single day, while 21.7% disagreed, similarly 27.7% of respondents were neutrals, who did not specify themselves whether they were stressed or not.

Table C.3: Survey Result Against Question 'Have you felt bad when you were unable to play

Five-Point Likert Scale	Frequency	Percent %
Strongly Disagree	40	9.5 %
Disagree	120	28.6 %
Neutral	95	22.6 %
Agree	124	29.5 %
Strongly Agree	41	9.8 %
Total	420	100.0 %

Lastly, when the respondent was asked to provide an answer to the question which had, they felt bad when they were unable to play the game for a whole day. The result against this question shows that 29.5% of respondents agreed that they feel depressed when they are unable to play the game, while 28.6% disagreed that they do not care if they did not play a game for a whole day, similarly 22.6% of respondents were neutrals.