EVERQUEST II: FOLLOW THE LEADER

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B.A., California State University, Sacramento, 2009

PROJECT

Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SOCIAL WORK

at

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

SPRING
2011
EVERQUEST II: FOLLOW THE LEADER

A Project

by

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Division of Social Work
Abstract

of

EVERQUEST II: FOLLOW THE LEADER

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Patricia Ann Boykin

The purpose of this exploratory study was to examine if the “EverQuest II” (EQII) (Sony Online Entertainment, 2004) players who spent the most time per week playing “EQII” also followed the same pattern as other addictive behaviors and experienced comorbid problems with substances or other behavioral addictions. The researcher posted on two forums catering to “EQII” players requesting survey participants. The researcher received 102 surveys with 93 valid responses. No significant relationship was found between the amount of time spent playing “EQII” and drinking alcohol, smoking tobacco, or gambling. A significant relationship was found between gaming addiction scores and age of participant with older participants more likely to have higher gaming addiction scores. Another significant relationship was found between gaming addiction and lying to friends or family about the amount of time spent on gaming.
The researcher also discussed the implications of the study and suggestions for future researchers.

_______________________, Committee Chair
Maura O’Keefe, Ph.D.

_______________________
Date
ACKNOWLEDGMENTS

I want to thank my sons for all of their help and patience while I accomplished what I thought was an unattainable goal and to my husband for always proving to me that impossible is just a word.
## TABLE OF CONTENTS

| Acknowledgments                                                                 | vi  |
| List of Tables                                                                   | ix  |
| List of Figures                                                                   | x   |

### Chapter

1. **THE PROBLEM**
   - Introduction                                                            1
   - Background of the Problem                                                 3
   - Statement of the Problem                                                  8
   - Purpose of the Study                                                      8
   - Theoretical Framework                                                     9
   - Definition of Terms                                                       11
   - Assumptions                                                              14
   - Justification                                                           14
   - Limitations                                                            14

2. **REVIEW OF THE LITERATURE**
   - Introduction                                                      16
   - Multiple Substance Use Including Tobacco                             16
   - Gambling                                                              23
   - Compulsive Shopping                                                   30
   - Compulsive Sexual Activity                                            32
   - Post-Traumatic Stress Disorder                                         35
   - Conclusion                                                          38

3. **METHODOLOGY**
   - Introduction                                                        40
   - Research Question                                                     40
   - Research Design                                                      40
LIST OF TABLES

1. Table 1 Demographic Information of Sample................................. 47
2. Table 2 Employment...................................................................... 49
3. Table 3 Participant Education Level............................................. 51
4. Table 4 Hours Spent Per Week Playing EQII & Other MMORPGs....... 53
5. Table 5 Deception, Complaints, & Preoccupation.......................... 54
6. Table 6 Alcohol, Tobacco, & Gambling Rates................................. 54
7. Table 7 Bivariate Correlations Between a Number of Key Variables..... 56
8. Table 8 Bivariate Correlations Between Age, & Gaming Addiction....... 57
9. Table 9 Mean Gaming Addiction Score by Ever Lied & Did Not Lie....... 58
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Figure 1 Age</td>
<td>48</td>
</tr>
<tr>
<td>2.</td>
<td>Figure 2 Marital Status</td>
<td>49</td>
</tr>
<tr>
<td>3.</td>
<td>Figure 3 Employment Status</td>
<td>50</td>
</tr>
<tr>
<td>4.</td>
<td>Figure 4 Employment Hours per Week</td>
<td>51</td>
</tr>
<tr>
<td>5.</td>
<td>Figure 5 Highest Education Level Achieved</td>
<td>52</td>
</tr>
</tbody>
</table>
Chapter 1
THE PROBLEM

Introduction

The first time I saw a Rime Icemare, I knew I had to have one. I watched as an NPC rode through the Kunzar Jungle. The horse left icy footprints in its wake and exhaled frost from its nostrils. I did not care how long it took to acquire this prize, because I was willing to put forth the effort.

The horse I worked so hard to acquire was a virtual one. It only lives for me when I pay $14.99 a month to log onto my “EQII” (2004) account. I will never ride this animal but my player character (PC) can. I spent approximately forty hours of my life working to acquire something I will never be able to touch.

MMORPGs call for the creation of a character in order to begin playing. The characters are customizable to a certain extent and this customization differs from game to game. “EQII” is considered a fantasy based MMORPG. In a game such as this, individuals can choose to play warriors, priests, scouts, or magicians, but as stated earlier, class creation is dependent on the type of MMORPG an individual is playing.

I was fascinated because unlike other games, the majority of characters in this type of game were real people and not just computer generated. MMORPGs consist of player created characters as well as non-player created characters (NPCs). NPCs are a part of the actual game mechanics and created by the game designers.

Once created, the PC can explore the online world. The graphics are breathtaking as leaves flutter on tree limbs, water shimmers in the sun, and daylight gives way to
moonlight. 3-D graphics allow PCs to interact with the environment and each other. MMORPGs are meant to be immersive for players, and game manufacturers accomplish this goal with vigor and creativity.

The majority of MMORPGs rely on some form of carnage in order for PCs to advance in level. PCs kill in-game monsters called mobs or in some cases, players kill each other in order to advance in level. Experience is also gained from completing tasks called quests. PCs receive experience, game items, and in-game money to complete quests and when killing mobs or other players. The more experience a PC gains the higher the level of their avatar. The higher the level of the PC equals the more items, money, and areas open to explore for the character.

In the fall of 2004, “EQII” released. I have played the game since that time. “EQII” released in November of 2004, and I started college in January of 2005. I have been in college for almost the entire time this game has been in existence. I only play during breaks and over the summer. It is appropriate that I end my momentous journey through college by focusing on this game.

The original plan for my thesis centered on investigating the addictive quality of MMORPGs. This idea occurred to me because every time I sat down at my computer, I felt what could only be described as a compulsion to play “EQII”. The act of sitting down at my computer triggered a desire to play. I, at first, wondered if I were the only person who felt this way. While working on my literature review, I came across enough research to assure me that this was far from true and that others experienced the same compulsion.
I decided to change my topic slightly. I wondered if MMORPG players also used substances or gambled. The prevalence of multiple addictions is high, and I questioned if this new genre followed the same trend. Controversy currently still exists over the legitimacy of applying the word addiction to behavioral problems such as spending too much time on the internet or playing video games and the current study explores that question but the focus of the study is on other areas. I wondered if excessive game play followed the same pattern as other addictive behaviors in that players of MMORPGs who played excessively also used other substances or exhibited other behavioral problems such as gambling.

**Background of the Problem**

The number of individuals who play video games has grown over the past decade. U.S. sales figures for video game software and hardware for 2000 were $6.6 billion (Gaither, 2002). At the same time, movie ticket sales in 2000 were $7.7 billion (Lyman, 2001). Total U.S. game sales for 2009 stood between $15.4 and $15.6 billion for software and hardware sales (Riley, 2011). The game industry has surpassed that of Hollywood as movie ticket sales for 2009 stood at only $10.6 billion (Cieply, 2009). The way individuals desire to be entertained has changed. MMORPGs differ from movies in that players are actively involved in the creation of their entertainment versus sitting passively and watching images unfold on the screen as is the case when watching a movie.

The popularity of MMORPGs is predicted to keep growing. Estimates place the worldwide revenue for MMORPGs in 2014 at $8 billion and this figure excludes other
video game software and hardware sales (Olausson, 2010). As technology advances, games become more immersive and transport players to other worlds more effectively so this estimate is not unreasonable.

MMORPGs supply additional elements that traditional video games lack. Since 2004, there have been 58 updates that added content to “EQII” (Station.com, n.d.). Six of these updates added large, new sections of the game to explore and offered multiple new quests to complete. Four of these updates also expanded the maximum character level by ten. Originally, the maximum level was 50 and this gradually increased. At the last major update in 2010, the maximum level was 90. The never-ending supply of new areas to explore, levels to achieve, and new quests to complete keep players engaged in the game. Hsu, Wen, and Wu (2009) discuss the role that discovering new areas of the game plays in the addictive potential of MMORPGs. By providing regular updates and level increases, MMORPGs fulfills this desire for players.

MMORPGs use intermittent rewards to keep players interested. Intermittent rewards are the most difficult to extinguish (Nichols, 2010). Ducheneaut, Yee, Nickell, and Moore (2006) propose that MMORPGs are so popular because of these types of rewards. PCs receive loot from mobs and these drops vary. PCs do not know what the mobs will drop until the encounter is successfully completed. The encounter completes when the PC kills the mob. The drops vary from merchant trash to exquisite chests. The lure of receiving an exquisite chest is strong as these offer fabled items and are difficult to acquire. Fabled items are among the most powerful items found in the game. The
unknown aspect of mob drops keep players in the game and killing mobs much like the next hand of cards potentially containing four aces keeps gamblers in the game.

The word game is misleading when it comes to MMORPGs because this leads one to envision children playing. Video games are not just for children and adolescents any longer. Adults make up a significant portion of MMORPG players. Caplan, Williams, and Yee (2009) surveyed 4,278 “EQII” players and found that the median age was 32.47 years of age with a standard deviation of 8.73. The stereotypical perception that only children play games is misleading. Additional studies found a mean age of 28.83 and an average age of 27 respectively for MMORPG players (Charlton & Danforth, 2007; Liu & Peng, 2009). Given the number of adults playing these types of games, attention needs to be paid toward the potential for addiction and the possibility of multiple addictions. During addiction screening, questions should be asked about the amount of time spent playing video games, especially MMORPGs as this is a valid concern when considering addictive behaviors. The inclusion of questions regarding gaming gives yet another tool to screen for addiction potential.

The age of gamers is of concern due to the prevalence of drug and alcohol use by those in this age cohort. The highest rate of alcohol use occurs between the ages of 25 and 44 (Falk, Yi, & Hiller-Sturmhofel, 2008). Fleming, Gmel, Bady, Yersin, Givel, Brown, and Daeppen (2007) found screening 18 to 30 year old males and females for drug use was advisable because of how often drug use occurred for this population. The general age range for MMORPG players falls within this perimeter so warrants further
investigation during addiction screening; individuals who fall under this age range should be questioned about the amount of time they spend gaming.

Males typically make up the majority of those who play games. Studies conducted on players of MMORPGs found a significant portion of the player based to be male. Yee (2006) surveyed 5,509 MMORPG players from multiple games and found that 85% were male and only 14.2% were female. Stetina, Kothgassner, Lehenbauer, and Kryspin-Exner (2011) found similar results that out of 469 players 87% were males. In a smaller study, Peters and Malesky (2008) studied 204 MMORPG players and found that 88% were male. The high incidence of male players in MMORPGs suggests that addiction screening for males would benefit from including questions regarding gaming. Females should not be excluded from questions about gaming behavior during addiction screening though due to making up at least 10% of the player base.

MMORPGs due to their immersive nature offer players additional ways to avoid examining the problems in their lives. Bakken, Wenzel, Gotestam, Johansson, and Oren (2009) propose that the internet offers addicted users an escape from problems. MMORPGs have the potential to offer users a new way to self-medicate.

Traditional addiction screening tools do not inquire about the amount of time spent gaming. The National Institute on Drug Abuse (NIDA) recommends the use of NIDA-Modified Alcohol, Smoking, and Substance Abuse Screening Test for medical and health professionals in order to screen for addiction (n.d.). The exclusion of behavioral addictions from this screening is of concern due to how often multiple addictions occur together. Individuals suffering from behavioral addictions will be missed and not receive
the treatment this population deserves in order to recover from their addiction. Also of concern, Grant, Brewer, and Potenza (2006) propose that it is important to understand co-occurring substance and behavioral disorders because this offers benefits both from a prevention and treatment perspective. The potential exists for the excessive gaming behavior to continue because it was not addressed and this potentially could lead to relapse in substance abuse as well.

Screening tools specifically developed for assessing multiple addictions fail to inquire about gaming behavior. The PROMIS Questionnaire screens for alcohol, shopping, food bingeing, compulsive helping (submissive and dominant), tobacco, gambling, food starving, recreational drugs, sex, work, relationships (dominant and submissive), caffeine, prescription drugs, and exercise (Christo, Jones, Haylett, Stephenson, Lefever, & Lefever, 2003). PROMIS screens for all of these problems and yet excludes excessive game play by individuals. This oversight is unfortunate and has the potential to discount people who are in need of assistance with excessive gaming behaviors.

Other screening tools used to question problems with impulse control also exclude gaming behavior. The Minnesota Impulsive Disorders Interview (MIDI) screens for pathological gambling, trichotillomania, kleptomania, pyromania, intermittent explosive disorder, compulsive buying and compulsive sexual behavior (Adam, Richoux, & Lejoyeux, 2008). Excessive game play is again excluded from this screening and this discounts individuals who may require help with this form of addiction.
As evidenced by the previous addiction screening tools, excessive game play is not included. The player base for MMORPGs is predicted to continue growing. If addiction screening tools exclude questions surrounding game play an area of problematic behavior may be overlooked and this has the potential to affect addiction treatment outcomes.

**Statement of the Problem**

Technological advances during the past decade have been astounding and this has transformed how individuals spend their leisure time. Ten years ago, MMORPGs were not a mainstream form of entertainment but that has changed. Consequently, little is known about this new genre, and the question still remains whether this new form of entertainment is addicting. Because this is still a relatively new phenomenon, current addiction screening tools exclude questions regarding the amount of time individuals spend playing MMORPGs or other video/console games. The exclusion of questions surrounding game play potentially bars individuals in need of assistance from receiving the help they need in this understudied area. Also, it must be noted that all areas of addiction need to be examined in order for treatment to be successful. By including online gaming on addiction screenings, this oversight is corrected.

**Purpose of the Study**

The purpose of this study is to explore the connection between excessive time spend playing MMORPGs and concurrent substance use and/or gambling. Specifically the study seeks to determine if those players who spend the most time playing “EQII” also exhibit either substance use or gambling behaviors.
Theoretical Framework

The theoretical perspective that most effectively describes MMORPGs is a behavioral based theory. Coady and Lehmann (2008) propose that the concept of learning is of the greatest importance when considering behavioral theory. It is therefore ironic that MMORPGs serve as the perfect example of the practical application of this concept, because the amount of knowledge this genre of game requires to play seems, at times, excessive. The game is updated monthly with changes and tweaks so this requires players to stay abreast of the latest news and continuously engage in learning.

In order to learn, socialization must occur. Kim and Baylor (2006) discuss the important role socialization plays in the process of learning and personality development. Players in “EQII” do not interact with only the game AI but also other players and this socialization advances learning in new players. New characters are able to interact with other players while in-game by either text or voice chat so through socialization learn from those who have greater knowledge about the game.

Social learning theory also plays a part in the success of MMORPGs. Social learning theory operates on the premise of learning through modeling. Coady and Lehmann (2008) propose that people watch the behavior of others, especially those of higher status, and then model this behavior with the expectation that this will result in similar rewards. In “EQII”, level 90 PCs are viewed with respect and admiration in-game due to their level. Lower-level players observe and interact with these higher-level players who have access to enhanced gear and special abilities not open to low-level
characters. Low-level characters see the gear and abilities and desire these items based on the perceived status of the higher-level players.

Goal setting is also important when examining social learning theory. Bandura (1979) stated that the majority of human behavior is goal orientated. By interacting with higher-level players, low-level players hear about accomplishments and see the rewards so therefore develop goals based on these observations of higher status players and the gear and abilities they possess.

It must be noted that in order for modeling behavior to occur several things must transpire. Grusec (1992) proposes that people notice the behavior, retain this knowledge, put it to practical use, and have the motivation to perform the action/s. The most important event is that the behavior must be noticed and this occurs because of the “power and attractiveness of the model” (Grusec, p. 781). High-end gear stands out from lower level items. Weapons glow like neon signs, and clothing color and design are intricate. High-end gear acts in a similar manner to that of the bright lights and colors associated with slot machines. People notice these items and desire to play or possess them.

“EQII” works on an operant reward system. Ashford, LeCroy, and Lortie (2006) discuss how behavior is manipulated, over the course of a lifetime, by both the positive and the negative consequences experienced by an individual. The game rewards success with money and loot and penalizes dying by suspending the amount of experience gained and requiring PCs to have their armor ‘repaired’ by an NPC for which a fee is charged that is level based.
MMORPG game mechanics operate on a ‘near miss’ mentality. Parke and Griffiths (2004) debate the merit of “intermediate reinforcers [acting] in the guise of ‘near misses’” (p. 407) when discussing gambling addiction. “EQII” operates in a similar manner. When completing a quest or killing a mob, PCs have no guarantee of receiving items or money where the reward outweighs the risk. Rarely, exquisite chests drop during regular game play. More often, these chests drop from mobs that are more difficult to kill usually in raids or occasionally groups. The possibility is always present because this occurs enough to keep the expectation alive so this keeps PCs involved in the game much like ‘near misses’ keep gamblers engaged.

MMORPGs operate on a behavioral theoretical perspective. Learning, socialization, modeling, and goal setting are important aspects of this genre of games. Intermittent rewards and ‘near misses’ keep players engaged and forever searching for that fabled drop. The combination of learning, socialization, modeling, goal setting, intermittent rewards, and ‘near misses’ keep players engaged in MMORPGs and offer evidence of the behavioral nature of this genre.

**Definition of Terms**

*Artificial Intelligence*

Elements of the game created by SOE such as NPCs. These elements interact with PCs in an intelligent manner

*Avatar*

Player created character
**Console games**

Used to describe games that are not played on a personal computer but on a separate game system, examples are PSP3, and XBox-360.

**Drop**

Items dropped from mobs in the game

**Exquisite Chests**

These chests either drop from mobs that are extremely hard to kill or rarely from regular mobs and these contain fabled items.

**Fabled**

Used to describe items that are among the best the game offers. These items are very hard to acquire.

**Gamer**

A person who plays video games

**Gaming**

Term used to describe playing video games.

**Gear**

Clothes, weapons, and jewelry worn by players.

**Group**

Involves up to six people working together to accomplish a quest/task

**Loot**

Items dropped by game mobs. Also used to describe picking up the items dropped by mobs.
Massively multiplayer online role-playing game (MMORPG)

An online game in which people create characters in order to interact with the game environment and each other. People pay a monthly fee in addition to the original cost of the game.

Merchant Trash

Items that are useless except for the money received in-game from selling them to a merchant.

Mobs

Monsters that PCs fight in order to get loot and money.

Non-Player Characters (NPC)

Characters (Artificial intelligence) found in-game that are generated by the game.

Player character (PC)

A character created by MMORPG players in order to start playing the game.

Quest/s

Tasks that PCs complete in order to receive loot and money.

Raid

Involve 24 players collectively accomplishing a quest/task.

Sony Online Entertainment

Creator of “EQII”

Toon

Slang term for player created character:
Assumptions

Behavioral and substance addictions are one and the same and need to follow the identical mode of treatment.

Justification

According to the NASW Code of Ethics (2008) social workers are ethically obligated to continually increase their knowledge and skills and also contribute to further beneficial research in the field of social work. Evidence exists that 50,000 years ago Neanderthals used substances as a way to deal with their environment (Inaba & Cohen, 2007). As human kind advances so do the ways in which people escape from their current realities. Technological advances are growing at an astounding rate and social workers need to be aware of these trends as these provide new ways to escape reality. The study serves as a warning to practitioners treating substance abusing clients about the need to screen for behavioral problems, as these relate to on-line gaming, in addition to problematic substance use. Clients are better served and experience more positive outcomes during addiction treatment when all areas of concern are addressed.

Limitations

The current study is limited in several ways. The first limitation centers on sample size. Given the total number of EverQuest II players, the sample population is small. The collection method is another limitation. Individuals who chose to respond using SurveyMonkey may be different from those who chose not to respond via this collection method. The fact that the sample population was pulled solely from EverQuest II is another limitation as these results may not transfer to other MMORPGs.
The final limitation hinges on the researcher’s ability to question the survey population on illegal drug use or other addictive problems due to human subject protections.
Chapter 2

REVIEW OF THE LITERATURE

Introduction

The literature review is divided into five themes. The themes under examination will be substance use, gambling, uncontrollable sexual behavior, compulsive shopping, and Post Traumatic Stress Syndrome (PTSD). The items included in the topic of substance use comprise both legal and illicit drugs, alcohol, and tobacco. The combination of these topics offers proof of the commonality of substance and behavioral addictions. The importance of addressing each of these problem areas is imperative in obtaining a successful treatment outcome. Martin and Petry (2005) propose that in order for addiction treatment to be successful, both substance and behavioral problems must be addressed. By examining substance and behavioral realms, therapists ensure more positive outcomes for clients.

Multiple Substance Use Including Tobacco

People generally do not experience singular problems with either substances or impulsive behaviors. Individuals suffering from addiction disorders habitually abuse supplementary substances or exhibit problems with impulsive behaviors and those with impulsive behaviors frequently abuse substances. One explanation for this phenomenon is due to the similarity of substance abuse disorders and impulsive disorders. Martin and Petry (2005) propose that both drug use and impulse control disorders disrupt the drives humans have that insure their survival. The mechanism that controls these drives is called the reward/reinforcement pathway and this drive exists to ensure that human
beings eat, drink, reproduce, raise their children to adulthood, and know when to flee from harmful situations (Inaba & Cohen, 2007). Drug use and impulsive behaviors modify the functioning of this pathway and this changes how individuals react to stimuli in their environment. By changing how these important activities occur, drug use and compulsive behaviors pose problems for the functioning of human beings.

The role genetics play cannot be ignored when studying multiple substance use. Genetic components influence both the potential for a singular addiction as well as the potential for multiple, co-occurring addictions. Uhl (2004) studied the part that genes play in contributing toward multiple addictions potential. Findings support the “…polygenic inheritance for substance abuse vulnerability…and the idea that common allelic variants that are likely to contribute to vulnerability to abuse of several substances exist…” (Uhl, p. 145). Genes play a larger role when individuals are in the later stages of abuse. The genetic component of multiple addictions provides indisputable proof that multiple additions usually occur together.

Large-scale studies have shown the prevalence of multiple addictions. The use of multiple substances appears to be a common phenomenon. Martin (2008) discusses concurrent and simultaneous substance use. He defines concurrent use as imbibing two or more substances during a set period. Simultaneous use is defined as occurring when use of two or more substances occurs at the same time. Falk and colleagues (as quoted by Martin) analyzed information from 43,093 adults, 18 years of age and older from both military and civilians populations, and discovered that between 2001 and 2002 that 21.7% of adults used both alcohol and tobacco. The trend continues with the combined
use of marijuana and alcohol with 29% of people with alcohol use disorders using marijuana as well (Falk, Yi, & Hiller-Sturmhofel, 2008). Midanik et al (as quoted by Martin) found in 2000 that 7% of individuals over 18 taken from a national survey reported the use of this combination of substances. In general, people do not stick with one substance and frequently use multiple substances at the same time. As this evidence demonstrated, alcohol, marijuana and tobacco use frequently occurs in conjunction with one another.

Another large-scale study of opioid use produced similar results. Data taken from the Substance Abuse and Mental Health Services Administration’s 2006 National Survey on Drug Use and Health offered further proof regarding the regularity of multiple substance use. The self-reporting study is conducted annually. Back, Payne, Simpson, and Brady (2010) examined the responses of 55,279 individuals of which 26,746 were men and 28,533 women. Researchers desired to measure how male and female opioid misuse and dependence differed between the sexes. Differences were found to exist between genders with men exhibiting greater propensity toward lifetime and past year use. The opioids used by participants were hydrocodone (Vicodin, Lortab and Lorcet) at 70.7%, those with codeine (Darvocet, Darvon or Tylenol with codeine) at 67%, and oxycodone (Percocet, Percodan and Oxycontin) at 45.4%. The study also uncovered 86.4% of opioid users used alcohol in the past year and 60.7% used tobacco with no difference found in gender. Only 2% of participants in treatment, who found non-medical use of opioids acceptable, were being treated for an opioid addiction. The study found that the majority of these men and women also reported polysubstance use. The
large-scale scope of this research offers evidence of how often substances are abused together.

Further research using large populations in Europe found similar results. A large-scale study was conducted at a Swiss hospital that examined alcohol, drug, and tobacco consumption. Fleming, Gmel, Bady, Yersin, Givel, Brown, and Daeppen (2007) surveyed patients entering the emergency room at an academic teaching hospital. Out of the 14,763 admissions, researchers interviewed 8,599 people. The gender breakdown was 4,593 males and 4,006 females. The participants were questioned about their alcohol and drug use over the past 12 months and their tobacco use over the past 30 days. Trained researchers conducted face-to-face interviews (in French) of all participants. Women in the study exhibited a rate of 13.1% for at-risk drinking and 57.3% for low-risk drinking. Men demonstrated a rate of 32.8% for at-risk and 51.8% for low-risk drinking. Female at-risk drinkers consumed 12.2 drinks per week with male at-risk drinkers consuming 17.2 drinks per week. The at-risk drinking was measured using National Institute on Alcohol Abuse and Alcoholism criteria. The rate of tobacco use was elevated in those who were at-risk drinkers with rates of female smoking at 25.1% and male rates at 51.9%. For comparison, abstainer and low-risk drinkers experienced smoking rates of 25% for females and 32.7% for males. Marijuana use was also elevated when comparing at-risk with low-risk and abstainers. The rates of at-risk female drinkers for marijuana use were 17.4% with 25.1% for males. The rates for low-risk and abstinent drinkers for marijuana use was 3.2% for females and 7.4% for males. The study offers compelling proof that at-risk drinkers experience far greater rates of co-occurring substance use.
Another large-scale study that focused on cocaine use also supported the prevalence of using multiple substances. Kranzler et al. (2008) conducted a study of 1,393 cocaine users with an average age of 39.2. The participants completed the Semi-Structured Assessment of Drug Dependence and Alcoholism, and parts of the Addiction Severity Index were also used. The participants were group into six clusters: heavy, cocaine use predominant (24.1%), heavy, mixed drug injection (21.8%), heavy cocaine use later onset (25.1%), moderate cocaine and opioid use (18.5%), low cocaine and opioid use (7.5%), and opioid abuse (3%). The results showed that nearly 90% of these individuals qualified as cocaine dependent. Also noted was that dependence on nicotine closely followed with two-thirds of participants qualifying for this diagnosis. Alcohol and opioid use occurred in 45% of these individuals. Marijuana dependence stood at slightly over one-quarter. Given the sample size, the previous evidence provides valuable proof regarding how often multiple substances are used at the same time.

A study about tobacco use found results that again offered evidence of multiple substance use. The use of tobacco is closely associated with substance abuse and dependence. Sintov, Kendler, Walsh, Patterson, and Prescott (2009) analyzed data collected for the Irish Affected Sib Pair Study of Alcohol Dependence. Participants were from Ireland and Northern Ireland and this data was collected from 1998 to 2002. The study examined siblings that suffered from alcohol dependence. Trained interviewers questioned 855 participants at treatment facilities, in their homes, and 4% were interviewed over the phone. Each participant met the criteria for substance dependence as established by the DSM-IV. Participants included in the study all attended substance
abuse treatment facilities. The study found those individuals who were dependent on tobacco faced a twofold increase for being dependent on marijuana and sedatives as well as facing a fourfold increase for being dependent on stimulants. The study offered strong evidence supporting the occurrence of multiple substance abuses.

Smaller studies have offered additional proof. Christo, Jones, Haylett, Stephenson, Lefever, and Lefever (2003) conducted a study of 497 individuals who were admitted to PROMIS Recovery Centre from 1995 to 1999. The primary diagnoses were alcohol use (34%), drug use (22%), bulimia (9%), alcohol and drug use (8%), overeating (6%), other behaviors (5%), unspecified eating disorder (4%), anorexia (3%), alcohol and eating disorder (3%), drug use and eating disorder (2%), gambling (1%), alcohol use and other behaviors (1%). The “other behaviors” were classified as compulsive shopping, exercise and relationship problems. Participants were asked to complete numerous questionnaires: the Shorter PROMIS Questionnaire, CAGE, Short Michigan Alcohol Screening Test, Severity of Alcohol Dependency Questionnaire, Severity of Opiate Dependency Questionnaire, Severity of Dependence Scale, Bulimic Investigatory Test, Eating Disorder Inventory, and the South Oaks Gambling Screen. The purpose of the study was to verify the reliability of the Shorter PROMIS Questionnaire but this study found other items of interest. The survey information showed that both one third of individuals who drank used drugs, and also, one third of those who used drugs drank with a large portion of these individuals also exhibiting problems with behavioral addictions such as gambling or excessive sexual activity. The evidence offered by this study shows
alcohol use, drug use, gambling and excessive sexual activity occur together even though this was not the original purpose of the study.

Studies over the use of marijuana and tobacco found results that bolstered the evidence surrounding the use of multiple substances. Individuals also mixed marijuana and tobacco together and then smoke this combination. Ream, Benoit, Johnson, and Dunlap (2008) studied the effect of combining these two substances. The study was conducted in New York and targeted youths between the ages of 14 and 35. Ethnographers interviewed 481 marijuana users of which 57% were male and 43% female. The researchers found that the practice of removing tobacco from cigars and replacing this with marijuana is common with urban youth in America. The cigar is then shared among a group and sometimes this is followed by smoking another type of tobacco product such as cigarettes. Valgent et al (as quoted by Ream, Benoit, Johnson, & Dunlap) suggested that this occurs because the effects of each substance are enhanced when used in conjunction. Balerio et al and Cohen et al (as quoted by Ream, Benoit, Johnson, & Dunlap) offered evidence that marijuana also helps with the reduction of the withdrawal symptoms from tobacco. Urban youths obviously discovered the benefits of using these two substances together. The researchers concluded based on the evidence from this study that the combination of tobacco and marijuana contributes to marijuana dependence. The study shows that not only are tobacco and marijuana used together but also that the effects of each are enhanced and this exacerbates the dependency potential.

Researchers also studied personality traits and uncovered further evidence that the use of multiple substances is common. Chassin, Flora, and King (2004) studied a group
of children in which at least one biological parent suffered from alcoholism. The purpose of the study was to track alcohol and drug use from early adolescence to adulthood. The study consisted of three measurement dates. Researchers started tracking the children when they ranged in age from 10.5 to 15.5 (454 individuals). The next measurement took place during the 18-23 (407 individuals) age brackets with the final measurement occurring at 22-30 (415 individuals) years of age. The children were placed into several categories that consisted of light drinking/rare drug use (24.1%), moderate drinking/experimental drug use (44.6%), and heavy drinking/heavy drug use (20%). The adolescents placed in the heavy drinking and heavy drug use group were the most likely out of the participants to have a dependence diagnosis during the final measuring period as well exhibit comorbid tendencies with 80% of them diagnosed as dependent on alcohol, illegal drugs or both. It must also be noted that the moderate drinking/experimental drug use group also showed a propensity toward alcohol dependence. Substance abuse not only occurs with multiple substances but also with gamblers.

**Gambling**

The idea that there is a link between behavioral and substance abuse addictions is not a new concept. Behavioral and substance abuse disorders have been strongly linked through research (Grant, Brewer, & Potenza, 2006). Kalivas and Volkow as well as Bergh, Eklund, Sodersten, and Nordin (as quoted by Grant, Brewer, & Potenza) discuss how dopamine systems exert influence over rewarding and reinforcing behavior that occur in substance abuse disorders and behavior addictions. Serotonin is also implicated
in impulse control disorders (Grant, Brewer, & Potenza; Potenza). The researchers go on to discuss that there is a strong link between gambling, specifically pathological gambling, and substance use. Again, the similarity between these two disorders highlight why multiple addictions are so common.

A large-scale Canadian study offered further proof. The Canadian survey highlighted the need to understand how often compulsive behaviors occur with substance abuse. Rush, Bassani, Urbanoski, and Castel (2008) analyzed data from the 2002 Canadian Community Health Survey. The survey targeted all adults over 15 years of age who were not institutionalized. The survey sample was 36,984 individuals. The survey was administered by face-to-face interview to 86% of the participants. The Canadian Problem Gambling Index was used to measure the severity and prevalence of pathological gambling. Researchers were studying how mental health disorders and substance use disorders influenced problem gambling. The study demonstrated that moderate risk/problem gambling increased as rates of substance consumption increased: abstainers (1%), nonproblem users (1.5%), problem users (4.1%), and substance dependent (9.1%). Researchers found that as the severity of addiction increased so did the association strength and that for those who were substance dependent there was a threefold increase when compared to the rest of the population. The results from this large-scale survey highlight the importance of acknowledging how often multiple abuses occur together.

Similar studies in the United States mirrored the results of this study. Other researchers found evidence supporting the association between substance abuse and
gambling as well. Desai, Desai, and Potenza (2007) conducted a study on information gathered from the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions. The survey was conducted using non-institutionalized individuals 18 years of age and older. The study placed an age requirement of 40 years of age and older on those chosen for this study and resulted in 25,485 respondents. The participants were placed into three categories: nongamblers, recreational gamblers, and pathological gamblers. The rates of occurrence in the study for the three categories in the age bracket of 40-64 years of age were nongamblers (68.5%), recreational (30.8%), and pathological (.5%) for those over 65 years of age nongamblers (71.1%), recreational (28.7%) and pathological (.3%). The results again showed that younger recreational gamblers were more likely than those who do not gamble to be dependent on tobacco, and they were 1.71 times more likely to be substance dependent. The same held true with older recreational gamblers except that they were 3.4 times more likely to be substance dependent as well as dependent on tobacco. The study again proved that behavioral and compulsive use disorders frequently occur together.

An additional Canadian study highlighted how often gambling and substance use takes place. The Canadian study demonstrated the relationship between gambling and substance abuse. Ferris and Wynne discussed (as quoted by Martins, Ghandour, Lee, & Storr, 2010) the Canadian Problem Gambling Research Index (CPGI). The CPGI was given to the heads of household via random direct dialing. The CPGI contains information from seven Canadian studies but this study combined information from four only: the Alberta Study, the British Columbia Survey, the Ontario Survey and the
Newfoundland and Labrador Survey. Martins, Ghandour, Lee, and Storr were only interested in those who had gambled during the past year and this totaled 9,481. The participants were placed in three groups: younger than mid-thirties, mid-thirties to mid-sixties and mid-sixties and older. The participants engaged in electronic and non-electronic types of gambling. Researchers found that 6% of all study participants admitted to gambling while under the influence of either alcohol or drugs (this information was missing from 4% of all participant responses). The breakdown of those who gambled while under the influence of a substance followed this pattern: problem gamblers (35.71%), moderate risk gamblers (18.28%), low risk (13.88%), and nonproblem gamblers (3.9%). The following rates are for those participants who had an alcohol or drug problem and who gambled while under the influence: problem gamblers (25.51%), moderate risk (10.25%), low risk (7.4%), and nonproblem (5.14%). This study offered further proof regarding the co-occurrence of substance and behavioral problems.

Slightly smaller studies showcase similar results. Gamblers frequently drink. Desai, Maciejewski, Pantalon, and Potenza (2006) studied data from the Gambling Impact and Behavior Study. The survey was conducted via telephone and at gambling venues. Data from the telephone survey was used in this study and resulted in 1,471 total participants. Data from the gambling venues was excluded because the two samples were not able to be compared and the questions differed between the two. The telephone survey used random-digit-dialing, was weighted to represent the 18 and over U.S. population, and included only those who reported gambling at least once during the past year. The purpose of the study was to find out how alcohol and gender affects health,
gambling attitudes, and behavior in recreational gamblers. The study also uncovered evidence that participants use substances in addition to gambling. The results highlighted the fact that 33.9% of female gamblers and 53.6% of male gamblers could be categorized as moderate-to-high frequency drinkers. This study highlights that males are more at risk for multiple abuses. This is a concern because males are far more likely to play MMORPGs than females (Peters & Malesky, 2008). The propensity of males toward multiple addictions is of concern to clinicians.

Other studies have shown how substance abuse changes gambling behavior. Substance abusing gamblers exhibit gambling behavior that differs from other recreational gamblers. Liu, Maciejewski, and Potenza (2009) conducted a study with information gathered from the Gambling Impact and Behavior Study (GIBS) in order to understand the relationship between recreational gambling and substance abuse/dependence. Researchers completed 2,417 interviews and found 1,390 past-year recreational gamblers of which 142 individuals also abused substances. The substance abusing gamblers were more likely to be male and on average younger. They exhibited overall heavier gambling than their non-substance abusing counterparts did. The research again points out how often gambling and substance abuse occurs together.

Studies featuring marijuana and gambling offer further proof about gambling and substance use. Researchers discovered an interesting link between marijuana use and pathological gambling. Toneatto and Brennan (2002) conducted a survey of 580 individuals seeking residential addiction treatment. The South Oaks Gambling Screen was applied. The study found that 10.5% fell in the range for pathological gambling. Of
these, 11.5% were male and 7.5% were women. The surprising aspect of this study resulted from the prevalence of marijuana use. Of the pathological gamblers, 24% used marijuana. Inaba and Cohen (2007) discuss how THC, which is the active ingredient in marijuana, activates the amygdale and this makes even mundane experiences seem new. It is not surprising that so many gamblers also used marijuana based on this enhancing effect because this has the potential to make even losing seem interesting again. This sensation has the potential to intensify the “chasing” component of gambling in which gamblers lose repeatedly and yet do not stop gambling because these individuals feel the need to “get even” by the mistaken belief that if they keep gambling they will eventually recover their losses (Breen & Zuckerman, 1999). The study highlights the need for examining behavioral and substance use among individuals.

Smaller studies have offered further supporting evidence. The combination of gambling and substance use has been proven numerous times. Hodgins and el-Guebaly (2010) studied 101 pathological gamblers, with females accounting for 36% of the study participants, who had recently stopped gambling. Researchers recruited participants by using media announcements. The study subjects were interviewed at 3 months (N=72), 6 months (N=71), 12 months (N=80), and five years (N=52). In the study, 62% of participants qualified for current alcohol abuse or dependence over the course of the study. The rate of lifetime abuse or dependence on alcohol for the study participants stood at 79%. Sixteen percent of the participants qualified for drug dependence or abuse over the course of the study with a lifetime rate of 55%. The participants used marijuana, cocaine, benzodiazepines, hallucinogens, and amphetamines with the majority of
participants reporting use of multiple substances. The study results provided evidence that pathological gamblers with substance abuse or dependence were less likely to have a three-month period of abstinence from gambling. The study not only demonstrates that behavioral and compulsive use disorders occur together but also that people who face more than one addiction also are less likely to remain abstinent.

Even studies featuring populations fewer than 100 have shown that gambling and substance use occur together. Pathological gambling and substance use share many characteristics. Petry (2001) conducted an experiment using pathological gamblers that focused on delayed rewards. The experiment used 60 pathological gamblers and 26 control subjects. The gamblers were recruited using an advertisement offering free and confidential gambling treatment and met the DSM-IV criteria for pathological gambling. The control group was recruited using an advertisement for a personality study. Both groups completed the Addiction Severity Index, South Oaks Gambling Screen and Eysenck Impulsivity Questionnaire. The experiment consisted of offering less hypothetical money sooner or waiting longer for more hypothetical money. It must be noted that 35% of the pathological gamblers experienced issues with substance abuse. Alcohol was by far the most common with 71% of the participants abusing this substance. Marijuana stood at 62% and cocaine 33%. The results demonstrated that pathological gamblers with substance use disorders were the group most likely to bypass waiting for the reward and chose instant gratification. In analyzing this information, Petry proposes that both pathological gamblers and those with a substance abuse
disorder share the inability to control impulses. The link is clear between substance abuse disorders and compulsive use disorders.

**Compulsive Shopping**

Gambling is not the only behavior which co-occurs with substance use. Few individuals are immune from the need to shop for goods or services. Issues arise when these needs morph into a compulsive behavior. Black (2001) estimates the prevalence of those suffering from compulsive buying at between 2% to 8% of the population with a female majority. Black proposes that compulsive shopping is similar to gambling in terms of cognition and behavior and that compulsive shopping may just symbolize a feminine approach to a compulsive behavior and goes on to discuss that these individuals frequently suffer from mood and anxiety disorders. The tie between mood, anxiety, and impulsive use behaviors is again exhibited.

Other research offers slightly different figures on the rate of occurrence for compulsive shopping as well as the gender breakdown. Koran, Faber, Aboujaoude, Large, and Serpe (2006) interviewed 2,513 adults in the United States about their shopping habits. The Compulsive Buying Scale was used to measure compulsive shopping behavior. Of the participants, 5.8% (gender-adjusted prevalence) met the criteria for compulsive buying and this broke down by gender with males at 5.5% and females at 6%. The rate of individuals suffering from behavioral problems highlights the need for clinicians to examine a wide range of activities and substance use in order to effectively screen for addiction problems.
Smaller studies that did not include substance abuse still tied together gambling, shopping and sex. A study focusing on pathological gambling, compulsive shopping, and compulsive sexual behavior was undertaken by researchers. Grant and Kim (2003) studied 96 pathological gamblers. Individuals were recruited using either media advertisements or were referred to outpatient treatment facilities. All met the criteria for pathological gambling using the DSM-IV. The participants completed the following questionnaires: Minnesota Impulsive Disorders Interview, Yale-Brown Obsessive-Compulsive Scale Modified for Pathological Gambling, and the Gambling Symptom Assessment Scale. Out of the 44 females and 52 males, 22.9% were diagnosed with a comorbid impulse control disorder with the majority of these being either a compulsive sexual behavior or compulsive buying. The relationship between these behaviors was again established. Substance abuse rates were not studied with these participants.

Small-scale studies comparing German and American women highlighted the co-occurrence of shopping and substance use. Mueller, Mitchell, Mertens, Mueller, Silbermann, Burgard, and de Zwaan (2007) conducted research on compulsive shopping in a sample of women from Germany (N=38) and the United Stated (N=39). The rate of a lifetime substance use disorder stood at 36.4% for these women. The rate of a lifetime a substance use disorder was higher in American women than in the German sample. The study was small but again highlighted the co-occurrence of substance and behavioral problems.
Compulsive Sexual Activity

The co-occurrence of substance abuse happens not only with compulsive shopping but also with sexual activity. Kaplan and Krueger (2010) discuss the fact that currently there is no concrete term or a specific diagnosis for excessive sexual activity. They apply the label of hypersexuality to this condition. Kaplan and Krueger go on to discuss evidence from other studies which points out that hypersexuality is linked to substance abuse. Beck et al. (as quoted by Kaplan & Krueger) found that out of 36 participants who exhibited compulsive sexual behavior, 64% of these individuals had a history of a substance abuse disorder. Kafka and Prentky (as quoted by Kaplan & Krueger) found that out of 26 individuals with paraphilia related disorders 46.2% also had a substance use disorder. As a result of their research, Kaplan and Krueger propose that in order to treat hypersexuality other areas need to be addressed specifically affective, and psychiatric disorders as well as substance abuse disorders.

Other studies of sexual habits focused on ritualization and reinforcement. A study performed by Schneider, Sealy, Montgomery, and Irons (2005) examined the roles that ritualization and reinforcement play in individuals with multiple addictions. Researchers studied individuals that exhibited the following patterns: those who isolate as a pattern of their sex and drug use, women who experienced either childhood trauma or domestic violence and attempt to control these with addictive rituals, and homosexual individuals who have multiple partners to uphold a high level of intensity in sexual relationships. The researchers stress the important of “…the thoughts and behaviors that precede the actual use of drugs or sex…” (p. 125) and the part this plays in ritualization which is used
to keep reality at bay, as well as how desire acts as a reinforcer because before this emotion is even satisfied, it sets off pleasurable physiological reactions in the body. The concept of ritualization and reinforcement are two important concepts since they both play a role in addiction (Matto, 2004; Wong, Sheppard, Dallery, Bedient, Robles, Svikis, & Silverman, 2003). Schneider, Sealy, Montgomery, and Irons concluded that in order to prevent relapse, the focus should be on the process of addiction versus any one individual addiction. Their findings highlight the importance of acknowledging how often multiple addictions occur in individuals because in order to prevent continued relapse all addictions need to be addressed at the time of treatment.

A study focusing on paraphilias and paraphilia-related disorders examined the co-occurrence of these activities with substance abuse. Kafka and Hennen (2002) interviewed individuals experiencing paraphilias (PA) and paraphilia-related disorders (PRD). They defined the most common PAs as “exhibitionism, voyeurism, pedophilia, sexual masochism and sadism, fetishism, transvestic fetishism, frotteurism and telephone scatologia” (p. 350). The most common PRDs were “compulsive masturbation, pornography dependence, protracted promiscuity, telephone sex dependence, and severe sexual desire incompatibility” (p. 350). The purpose of the study was to look for the prevalence of Axis I disorders in those afflicted with PAs or PRDs and to assess for other mood, impulse, and substance disorders. Researchers interviewed 120 outpatient males who were seeking treatment for either PAs or PRDs. The participants typically were white, married, college educated, around 37 years old, and earned a mean income of $58,200. They reported contact with the criminal justice system at a rate of 51.6% but
this contact was not always associated with sexual behaviors though 41% of the arrests were for sexually inappropriate activities. The rate of lifetime substance abuse stood at 48% with alcohol being the most common at 30%. Marijuana was used by 18.3% of the participants and 19.1% reported polysubstance abuse. The study offers further evidence regarding co-occurring substance and behavioral problems.

Another study that again featured pathological gamblers also found evidence supporting the occurrence of substance use, compulsive shopping, and sexual disorders. Kausch (2003) reviewed medical charts at Brecksville Veterans Administration Medical Center. The majority of charts were for men in their 40s and 50s and totaled 113. Of note, the facility caters to those individuals who typically score very high on measures of pathological gambling and where the severity of their gambling disorders is elevated. The study uncovered that 66.4% of participants had a lifetime history of substance abuse or dependence. The participants who had a history of only using alcohol stood at 46.3%, but most of those who abused alcohol in the past also abused drugs with 53.7% reporting the use of both. Lifetime substance abuse or dependence was reported at 51.3%. Marijuana was the most commonly abused drug over the participant’s lifetime with 72.7% of participants abusing this substance followed by cocaine at 45.5%. The study also found that of the participants who answered questions regarding compulsive sexual behaviors and compulsive shopping that 30.9% and 52.5% respectively believed that they suffered from these issues. The link is again made between substance and behavioral problems.
A smaller study highlighted the occurrence of compulsive behaviors and substance use. Raymond, Coleman, and Miner (2003) conducted a study that focused on psychiatric disorders in individuals with compulsive sexual behavior. Researchers were not looking for substance abuse rates but found evidence of this occurring in the sample. The participants were recruited through newspaper advertisements and all met the criteria for compulsive sexual behavior. The two most common compulsive sexual behaviors found were multiple relationships and compulsive masturbation. Twenty-two men and two women met this criterion. Out of these individuals, 29% currently met the criteria for a substance abuse disorder and 71% met this requirement at some point during their life. The participants used alcohol (21%), marijuana (8%) and cocaine (4%). The sample size is small but still establishes the connection between substance abuse and compulsive behavior.

**Post-Traumatic Stress Disorder**

Substance use occurs not only in gamblers, compulsive shoppers, and those with compulsive sexual practices, but also in those with PTSD. PTSD is classified as an anxiety disorder in the DSM-IV-TR (2000) and not a mood or compulsive use disorder but the relationship between substance use and this disorder supports the idea that abuse of one substance rarely exists without additional substance or behavioral problems. Chilcoat and Menard (as quoted by Dass-Brailsford & Myrick, 2010) reviewed multiple studies which focused on the epidemiology of substance abuse and PTSD and found that when comparing those individuals with a history of PTSD to those without, those
suffering from PTSD had a higher rate of substance dependence. Dass-Brailsford and Myrick concluded that PTSD and substance dependence frequently co-occur.

A study of those who lived near ground zero highlighted the relationship between trauma and substance use. Researchers studied the population of New York City after the September 11th attack. Vlahov et al. (2004) conducted interviews between October 15 and November 16, 2001 and again between March 25 and June 25, 2002. The study focused on 1,570 individuals who were 18 years of age and older that lived closest to the World Trade Center. The participants were questioned about cigarette smoking, alcohol consumption and marijuana smoking. The study found a 9.9% increase in smoking, 17.5% increase in alcohol use and a 2.7% increase in marijuana use in the six months following the attacks. The study did not specifically test for PTSD but the trauma following September 11th is well known especially for those closest to the violence. The study offers evidence that substance abuse is tied to trauma much like substance abuse is tied to gambling and both sexual and shopping behaviors.

A study that examined HMO participants offered further proof of the co-occurrence of PTSD and substance use. Breslau, Davis, and Schultz (2003) reviewed 1,200 patient files from a large HMO and interviewed 1,007 participants. The participants were interviewed in 1989, 1992, 1994, and 1999 to 2001. Complete data sets were available for 899 individuals. The sample consisted of 37% males and 63% females. Forty percent of the participants had been exposed to traumatic events in the past with 23.6% qualifying for a diagnosis of PTSD. Nicotine dependence occurred in 19.9% of participants during the baseline measurement. Alcohol abuse/dependence
occurred in 21.4% at baseline, and drug abuse/dependence in 11.8% at baseline. The 10-year mark found the risk for tobacco dependence increased significantly in those diagnosed with PTSD. The risk for alcohol abuse/dependence was not significant in the male segment but the risk increased in the female segment of this population. Males and females diagnosed with PTSD also experienced an increased risk for other drug abuse/dependence. The study provided evidence of the increased risk for tobacco dependence, female alcohol abuse/dependence, and other drug abuse/dependence in those with PTSD.

Further research on addiction and psychiatric visits also supports PTSD and substance use. A study by Driessen et al. (2008) found that PTSD was higher in those with drug dependence versus alcohol dependence. Researchers studied 459 individuals at 14 addiction treatment centers. The participants were administered the International Diagnostic Checklists for the DSM-IV and the Posttraumatic Diagnostic Scale to test for PTSD and the study found that 25.3% tested positive for this disorder. Participants were tested for substance abuse using both the International Diagnostic Checklists and the European version of the Addiction Severity Index with rates of 39.7% for alcohol dependence and 33.6% for drug dependence with 26.8% of participants testing positive for both. Researchers found that those with PTSD experienced unfavorable treatment outcomes. The study demonstrates PTSD and substance abuse occur together but also that those with both face less positive treatment outcomes.

Smaller studies offer further proof about the co-occurrence of PTSD and substance use. Brown, Stout, and Mueller (1999) studied 51 women and 44 men in
substance abuse treatment at an inpatient center who were between 18 and 55 years of age. The study compared use rates of addiction and psychiatric treatments during a six-month period between those with PTSD and those without this diagnosis. The study found additional information about substance use rates. In the sample, 41% met the criteria for a DSM-IV diagnosis of alcohol dependence. The rate of substance dependence stood at 28% of the sample with 31% dependent on both drugs and alcohol. The average length of time the sample participants abused substances was 14 years. The study found high rates of substance dependence and PTSD comorbidity. The evidence gathered from this study demonstrates a link between compulsive use disorders.

Another even smaller study also highlights PTSD and substance use co-occurrence. Studies have also been conducted focusing on substance use that occurs after a traumatic event. McGovern, Lambert-Harris, Acquilano, Xie, Alterman, and Weiss (2009) studied 11 individuals attending intensive outpatient treatment programs for substance abuse. The survey population consisted 91% female and 9% male participants. These individuals were screened for PTSD using the PTSD Checklist and all tested positive. The most common traumatic experience was childhood sexual abuse and this occurred with 81.8% of those surveyed. Researchers found that 63.3% of participants started abusing substances after the traumatic event occurred. The number of participants was small but there still is a link between substance abuse and PTSD.

**Conclusion**

Ample evidence exists highlighting both the link between substance and behavioral addictions as well as the frequency in which these co-occur. The search for
ways in which to cope with a harsh environment is ever evolving in humankind. As technology advances, so will the methods individuals use to escape. Clinicians need to not only be aware of these new methods of escape but also realize that when one method is discovered there may be other methods lurking that need attention as well.
Chapter 3

METHODOLOGY

Introduction

This chapter discusses the following items: the research question, study design, participants, instruments used, procedures to gather and analyze data, and the protection of human subjects.

Research Question

The purpose of the study was to provide descriptive information regarding players of MMORPGs. Players answered questions from the following areas: the year of game initiation, number of hours spent playing “EQII” and other MMORPGs, preoccupation with the game, attempts to cut down play time, whether players have lied to friends and family about the amount of time spent playing, age, gender, employment, education level, and marital status.

The specific question the researcher seeks to answer from the data gathered was whether the players of MMORPGs, who spent the most time playing “EQII”, are at risk for other possible addictions such as gambling, drinking alcohol, and/or smoking tobacco.

Research Design

The research design was exploratory and quantitative in nature. Exploratory studies are used when little is known about the research topic (Royse, 2008). During the literature review, the researcher did not find any other studies concerning this area of inquiry. The researcher wants to examine if excessive gaming has similar co-morbid tendencies in the same manner that gambling and drinking or drinking and smoking have
with each other. Researchers have proven that the distinction between substance and behavioral addictions is negligible and that individuals frequently abuse more than one substance as well as suffer from behavioral addictions in addition to substance addictions (Martin & Petry, 2005; Uhl, 2004; Martin, 2008; Back, Payne, Simpson & Brady, 2010; Fleming, Gmel, Bady, Yersin, Givel, Brown, & Daeppen, 2007). The researcher is looking for similar findings with excessive, on-line game playing. The strengths of the study stems from the ability of exploratory studies to generate additional research questions as well as lead the way for additional, further research into this area (Royce). The weakness in the study is from the tentative and small scale nature of the inquiry (Royce). The variables of interest could be expressed numerically so the study was quantitative (Mann, 2004). As stated, the study is exploratory and quantitative in nature.

**Study Participants**

The participants for this study were individuals who play EverQuest II (EQ II), a game developed by Sony Online Entertainment (SOE). Participants were recruited via two online forums catering to “EQII” players. All participants met the requirement of playing EQ II. The participants were recruited from the following North American game servers: Befallen, Blackburrow, Butcherblock, Crushbone, Everfrost, Guk, Kithicor, Mistmoore, Nagafen, Najena, Nektulos, Oasis, Permafrost and Unrest. The researcher has no way of knowing from which servers the participants were recruited since she did not collect that information in order to maintain anonymity.

Purposive sampling was used to choose subjects and this resulted in 102 total responses with 93 usable surveys. Purposive sampling consists of an expert deliberately
selecting cases that fit with the purposed research and is frequently used with exploratory research (Neuman, 2007). The researcher needed a specific population and the most effective way to find “EQII” players was from forums catering to “EQII” players so the most accurate description of the sampling method is purposive. The researcher had no way of ascertaining if snowball sampling was also used due to the anonymous nature of the data gathering procedure. Snowball sampling occurs when one person is sampled and leads others to the survey (Neuman). All research participants were anonymous so the researcher had no way of knowing if this occurred.

Instrumentation

The design used for this research utilized closed-ended questions for the majority of the survey with two open-ended questions included for clarification. The benefit of using this question type is that there is no room for interpretation (Royce, 2008). The researcher knew exactly what the survey participants meant when they answered the questions. The open ended questions inquired about other MMORPGs played and industry in which the participants were employed so little interpretation is necessary for these questions. The questions pertained to the number of MMORPGs played, the amount of time spent each week playing as well as questions regarding gambling, use of tobacco and alcohol while playing, participants’ social contact outside of gaming, and demographic information. Several questions were adapted from the Internet Addiction Test (n.d.), and Khazaal et al. (2008).
Data Gathering Procedures

The data gathering procedure began when the researcher posted a request for volunteers on two online forums created to discuss and provide information to “EQII” players. The researcher supplied the web address for the survey which was available through SurveyMonkey. The researcher checked both forums multiple times a day and answered questions from potential survey participants as needed. The researcher did not make note of the player characters interacted with while searching for volunteers so no records of these items was kept by the researcher.

Data Analysis

Descriptive statistics were used for data analysis in the study. Statistics of this type are used to describe numerical data (Neuman, 2007). The researcher utilized frequency measures, bivariate tests using Spearman’s Rho, Pearson’s R, and t-tests in order to analyze the data collected from survey responses.

The researcher created two scales to measure gaming addiction and substance addition. The Gaming Addiction Scale used the following categories: hours spent playing “EQII”, hours spent playing other MMORPGs, do players think about “EQII” when not playing, have they attempted to cut down, have their family complained about the amount of time they spend playing “EQII”, have players said just a few minutes when asked to stop playing, and do players feel that their lives would be boring or joyless if they stopped playing. The Substance Abuse Addiction scale used the following items: gambling, smoking, drinking, and drinking while playing “EQII”.

Protection of Human Subjects

The risk for discomfort was minimal to participants. The survey group was not an “at risk” group, and the questions pertaining to substance use were minimal. The questions asked were questions that might be asked of players to each other while playing “EQII” or in a chat room. The participants were instructed to answer only questions that they felt comfortable answering. If any question brought up concerns for the participants, two websites/contact numbers were provided by the researcher. One was a National 24 hour toll-free crisis hotline, (1-800-273-8255) which put participants in contact with their local crisis center that could tell them where to seek help in their area. Mental Health America was another resource for information about local programs and services including affordable counseling services. Their website is http://www.mentalhealthamerica.net/farcry/go/searchMHA. The previous information allows respondents to access information for counseling locally.

The researcher considers this study to be of “minimal risk” because of the slight potential for stress or feelings of guilt due to the nature of several questions. The participants were not an “at risk” group, and the survey was anonymous. The participants were informed on the consent form that he or she may skip questions they did not wish to answer and were given resources if they experienced stress or guilt after completing the survey. The participants were also informed on the consent form that the researcher was not gathering email addresses or IP addresses so participant responses were anonymous.

Informed consent was obtained before the participants started the survey. The first page of the survey on SurveyMonkey included the consent form. Participants were
not be able to proceed to subsequent pages without agreeing to participate in the research and by stating that they were 18 years of age or older.

The rights to privacy and safety of participants were protected due to the anonymous nature of the data gathering tool used by the research. Informed consent was obtained before the participant started the survey. The consent was recorded using a time and date stamp. The research database is only accessible to the researcher via unique username and password. SurveyMonkey has signed a confidentiality agreement preventing it from improperly accessing or disclosing the information contained in the research database.

**Conclusion**

Chapter 3 supplies detailed information regarding the mechanics of this project. The discussion centered on the following information: specific research question and other areas of inquiry, study design, population, instruments, procedures followed when gathering and analyzing data, and the protection of human subjects. The subsequent chapter will supply specific information regarding data analysis.
Chapter 4
DATA ANALYSIS

Introduction

This chapter provides results from the data analysis. The study examined demographic information and this included the following items: gender, age, and marital status. The researcher examined the following descriptive information: employment and hours spent in paid employment per week, educational level achieved, the amount of time participants spent playing “EQII” each week and other MMORPGs, rate of lying by “EQII” players to family/friends when questioned over the amount of time participants spent playing “EQII”, family/friends complaining over the amount of time participants spent playing, the percentage of players who said “just a few minutes more” when asked to stop playing and the rates of alcohol, tobacco and gambling among players.

The study was exploratory in nature so no hypothesis was proffered, however, the researcher examined the relationship between a number of variables and sought to answer the question of “whether the players of MMORPGs, who spent the most time playing “EQII”, are at risk for other possible addictions such as gambling, drinking alcohol, and/or smoking tobacco”.

Demographic Information

Males made up the majority of the survey sample at 72.8%. The researcher found 81.5% of respondents were 24 years of age or older with 18.5% in the 18-23 age bracket and 59.8% were married or engaged.
Table 1
**Demographic Information of Sample**

<table>
<thead>
<tr>
<th>Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>67</td>
<td>72.8</td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>27.2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-23</td>
<td>17</td>
<td>18.5</td>
</tr>
<tr>
<td>24-29</td>
<td>21</td>
<td>22.8</td>
</tr>
<tr>
<td>30-35</td>
<td>19</td>
<td>20.7</td>
</tr>
<tr>
<td>36-40</td>
<td>14</td>
<td>15.2</td>
</tr>
<tr>
<td>41-45</td>
<td>15</td>
<td>16.3</td>
</tr>
<tr>
<td>46+</td>
<td>6</td>
<td>6.5</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>31</td>
<td>33.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>6.5</td>
</tr>
<tr>
<td>Engaged</td>
<td>14</td>
<td>15.2</td>
</tr>
<tr>
<td>Married</td>
<td>41</td>
<td>44.6</td>
</tr>
</tbody>
</table>
Figure 1
Age
The current study found that 72.5% of respondents were employed with 73.1% of these individuals working 40 hours or more per week.

Table 2

Employment

<table>
<thead>
<tr>
<th>Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>66</td>
<td>72.5</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>27.5</td>
</tr>
<tr>
<td>Employment hours per week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time (&lt;40/per week)</td>
<td>18</td>
<td>26.9</td>
</tr>
<tr>
<td>Full Time (40 hours/week)</td>
<td>40</td>
<td>59.7</td>
</tr>
<tr>
<td>More than full time (&gt;40/per week)</td>
<td>9</td>
<td>13.4</td>
</tr>
</tbody>
</table>
Figure 3
Employment Status

- Yes: 80.00%
- No: 20.00%
The number of respondents currently attending college stands at 14.1% of survey participants. Participants completed a two-year college degree or higher at a rate of 44.5% and 7.6% of those surveyed completed a trade or technical school.

Table 3

<table>
<thead>
<tr>
<th>Education level</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not graduate high school</td>
<td>2</td>
<td>02.2</td>
</tr>
<tr>
<td>High school diploma/GED</td>
<td>12</td>
<td>13.0</td>
</tr>
<tr>
<td>Trade/technical school</td>
<td>7</td>
<td>07.6</td>
</tr>
<tr>
<td>Some college</td>
<td>17</td>
<td>18.5</td>
</tr>
<tr>
<td>Currently attending college</td>
<td>13</td>
<td>14.1</td>
</tr>
<tr>
<td>2 year degree (AA/AS)</td>
<td>12</td>
<td>13.0</td>
</tr>
<tr>
<td>4 year degree (BA/BS)</td>
<td>20</td>
<td>21.7</td>
</tr>
<tr>
<td>Masters (MA/MS)</td>
<td>9</td>
<td>09.8</td>
</tr>
</tbody>
</table>
The researcher found that 38.8% of respondents played for 21 hours or more per week. Of that group, 12.9% played “EQII” more than 36 hours a week. The highest frequency of weekly game play was between 16-20 hours each week with 30.1% of respondents spending this amount of time playing “EQII” each week.

Players not only spend time each week with “EQII” but with other MMORPGs. The majority of individuals, 44.2%, stated that they spent 6 hours or more a week playing another MMORPG and this figure breaks down to 29% of players spent between 6 and 15 hours, and 15.2% spent over 16 hours each week playing other MMORPGs with 39.8% of individuals playing other MMORPGs for 5 hours or less per week.
Table 4

*Hours Spent Per Week Playing EQII & Other MMORPGs*

<table>
<thead>
<tr>
<th>Hours/week play time</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EverQuest II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40+</td>
<td>8</td>
<td>8.6%</td>
</tr>
<tr>
<td>36-40</td>
<td>4</td>
<td>4.3%</td>
</tr>
<tr>
<td>30-35</td>
<td>10</td>
<td>10.8%</td>
</tr>
<tr>
<td>21-29</td>
<td>14</td>
<td>15.1%</td>
</tr>
<tr>
<td>16-20</td>
<td>28</td>
<td>30.1%</td>
</tr>
<tr>
<td>6-15</td>
<td>18</td>
<td>19.4%</td>
</tr>
<tr>
<td>-5</td>
<td>11</td>
<td>11.8%</td>
</tr>
<tr>
<td><strong>Other MMORPGs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40+</td>
<td>2</td>
<td>2.2%</td>
</tr>
<tr>
<td>36-40</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>30-35</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td>21-29</td>
<td>2</td>
<td>2.2%</td>
</tr>
<tr>
<td>16-20</td>
<td>9</td>
<td>9.7%</td>
</tr>
<tr>
<td>6-15</td>
<td>27</td>
<td>29.0%</td>
</tr>
<tr>
<td>-5</td>
<td>37</td>
<td>39.8%</td>
</tr>
</tbody>
</table>

A number of individuals lie to their family and friends regarding the amount of time spent playing “EQII”. “EQII” players lied to family and friends at a rate of 75.3% while 48.4% of player’s family or friends complained about the amount of time the individual spends playing MMORPGs. Players have said “just a few minutes more” when asked to stop playing at a rate of 60.2% and 78.5% of players think about the “EQII” when they are not playing.
Table 5
Deception, Complaints, & Preoccupation

<table>
<thead>
<tr>
<th>Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lied Over Time Spent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>70</td>
<td>75.3%</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>24.7%</td>
</tr>
<tr>
<td>Complaints Over Time Spent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>44</td>
<td>48.4%</td>
</tr>
<tr>
<td>No</td>
<td>47</td>
<td>51.6%</td>
</tr>
<tr>
<td>Think about Game When Not Playing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73</td>
<td>78.5%</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

Survey participants drank alcohol at a rate of 92.4%, smoked tobacco at a rate of 34.8%, and gambled at a rate of 60.9% of the population surveyed.

Table 6
Alcohol, Tobacco, & Gambling Rates

<table>
<thead>
<tr>
<th>Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>85</td>
<td>84.2%</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>06.9%</td>
</tr>
<tr>
<td>Tobacco Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>34.8%</td>
</tr>
<tr>
<td>No</td>
<td>60</td>
<td>65.2%</td>
</tr>
<tr>
<td>Gambling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>56</td>
<td>60.9%</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>39.1%</td>
</tr>
</tbody>
</table>
**Statistical Analysis**

The researcher ran non-parametric, bivariate tests using Spearman’s Rho to determine if there were significant correlations between a number of key variables. As presented in Table 7, findings indicated significant relationships between the following variables: smoking and drinking alcohol while playing “EQII” and found significance at .321; p=.002, more hours spent playing and thinking about the game when not playing and found significance at .295; p=.004, and the amount of hours spent playing “EQII” each week and the amount of time spent playing other MMORPGs and found significance at -.240; p=.021.
In order to answer the research question “Are the players of MMORPGs, who spend more time playing “EQII”, at risk for other possible addictions such as gambling, drinking alcohol, and/or smoking tobacco?” a Pearson bivariate correlation was conducted using the total gaming addiction score and the substance addiction score. Results indicated no significant association between gaming addiction and substance addiction. Thus, the researcher did not find supporting evidence for her research.
question. The amount of time players spent playing “EQII” was not associated with drinking, gambling, or smoking for study participants.

To determine if there were significant gender differences in gaming addiction and substance addiction, t-tests were conducted. No significant gender differences were found on either gaming addiction or substance addiction. T-tests were also run to determine if there were significant differences on employment status (coded employed or not employed) and both gaming addiction and substance addiction. No significant employment differences were found for either addiction.

To determine if age was associated with either addiction, bivariate correlations were conducted between age and gaming addiction, and age and substance addiction. As presented in Table 8, results revealed a significant association between age and gaming addiction (r=-.244; p=.021) with older individuals more likely to have a gaming addiction compared to younger individuals. No significant association was found between age and substance addiction.

Table 8
Bivariate Correlation Between Age, & Gaming Addiction

<table>
<thead>
<tr>
<th>Spearman's rho</th>
<th>Age</th>
<th>Gaming Addiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Correlation Coefficient</td>
<td>Age</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>-.244*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.021</td>
</tr>
<tr>
<td>N</td>
<td>92</td>
<td>89</td>
</tr>
<tr>
<td>Gaming addiction</td>
<td>Correlation Coefficient</td>
<td>Gaming addiction</td>
</tr>
<tr>
<td></td>
<td>-.244*</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.021</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>89</td>
<td>90</td>
</tr>
</tbody>
</table>
The final area of inquiry focused on examination of the gaming addiction potential for those who lied about the amount of time they spend playing “EQII” and those who did not (coded ‘ever lied” and “did not lie”), a t-test was conducted. Significant differences on total gaming addiction scores emerged for those who lied versus those who never lied (t=-3.25; p=.002) with those who reported never lying about the amount of time spent on gaming obtaining a score of 7.85, while those who stated they had lied obtaining a mean score of 9.53.

Table 9
Mean Gaming Addiction Score by Ever Lied & Did Not Lie

<table>
<thead>
<tr>
<th>Ever lied</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaming</td>
<td>1.00</td>
<td>40</td>
<td>7.8500</td>
<td>2.47604</td>
</tr>
<tr>
<td>addiction</td>
<td>2.00</td>
<td>49</td>
<td>9.5306</td>
<td>2.39010</td>
</tr>
</tbody>
</table>

**Conclusion**

This chapter provided descriptive information regarding the study participants and conducted a number of statistical tests to examine relationships among variables. The researcher found evidence of associations between a number of variables including drinking and smoking; hours spent playing and thinking about “EQII” when not playing; and hours spend playing “EQII” and hours spent playing other MMORPGs. The researcher also found a relationship between age and addiction. Importantly, the amount of time players spent playing “EQII” was not associated with players’ drinking, gambling, or smoking.
Chapter 5

CONCLUSIONS

Conclusions

The value of this exploratory study is that other researchers have not examined the co-morbid occurrence of substance abuse or gambling with individuals who play MMORPGs excessively. While the researcher did not find support for the research question that there would be a significant relationship between substance abuse or gambling and hours spent playing MMORPGs, value still exists because this has opened the door for other researchers to examine further this relationship.

However, the current study found compelling results in the following areas: gender, age, education level, smoking, drinking, hours each week spent playing “EQII” as well as other MMORPGs, and lying over the amount of time spent playing the game. The results offer clinicians and researchers knowledge and information on this population.

Traditionally, males make up the majority of MMORPG players. Yee (2006) studied MMORPG players and found that 85.4% were males and 14.3 females. The current study found something slightly different. The gender makeup of “EQII” players is 27.2% female and 72.8% male. Women are experiencing gender equality in real life as well as in their virtual lives. A growing number of females are now being drawn to this form of entertainment, so women should not be excluded from questions concerning excessive gaming habits.
The current study found 81.5% of respondents were twenty-four years of age or older. Video games are no longer just for children and clinicians need to screen for excessive game play in adults during initial screening procedures in order to fully understand their clients’ lives. This is especially important when considering the correlation the researcher found between age and the addiction potential of “EQII” from the study population.

The education level of participants was of interest. The level of education possessed by players breaks the stereotypical idea that games are for the uneducated and those with nothing better to do with their time. The difficulty of MMORPGs and constantly changing nature of this genre of game appeals to an educated group of individuals and this is another reason clinicians need to be aware of this trend.

“EQII” players smoke at a rate of 34.8% with national averages placing 21% of all adults as current smokers (Sondik, Madans, & Gentleman, 2010). “EQII” players smoke more often than the general population. This offers evidence of the need for further research into this area. The researcher did not find a correlation between excessive game playing with smoking and yet, “EQII” players are more likely to smoke and this needs to be examined further.

The number of individuals who drank did not match national averages. Individuals over the age of 18 years of age in the United States have drunk alcohol at a rate of 80% (Sondik, Madans, & Gentleman, 2010). The current study found that 92.4%
of “EQII” players have drunk alcohol and this again highlights the need for further research due to the high percentage of players who drink.

The amount of time players spend each week with “EQII” is surprising given that this game launched in the fall of 2004. The researcher found that 52.5% of individuals started playing in 2004 with another 26.7% starting in 2005. The researcher was surprised to discover the length of time the majority of people playing “EQII” spent with this game. “EQII” with the many changes and updates is able to hold the attention of players even after many years of game play. The amount of time the “EQII” players spend each week was also of interest when compared the release date of the game. Players are still playing “EQII” over sixteen hours a week at a rate of 68.9% even though the game has been out for almost 7 years.

The number of individuals who lie to their family and friends regarding the amount of time spend playing “EQII” is amazing. “EQII” players lied to family and friends at a rate of 55.5%. Given this rate of lying, it is not surprising that 48.4% of players’ family or friends complained about the amount of time the individual spends playing MMORPGs. In the realm of addiction, minimizing plays a large part in the methods employed by individuals to draw attention away from behavioral problem or excessive substance use (Van Wormer & Davis, 2008; Stevens & Smith, 2009). “EQII” players employ this same method of minimization and this is of concern especially given the significant correlation found between lying and a higher gaming addiction score. All of these factors combined offer evidence of the need for additional research into this area.
**Recommendations**

The researcher recommends that clinicians do not ignore females when screening for substance abuse. The researcher found no gender differences when males and females were compared for addiction potential. The findings from this study differ from the majority of studies in which men were more likely to suffer from an addiction (Back, Payne, Simpson, & Brady, 2010; Fleming, Gmel, Bady, Yersin, Givel, Brown, & Daepen, 2007, & Desai, Maciejewski, Pantalon, & Potenza, 2006). Women are reaching equality not just in the workforce but also when dealing with addiction.

**Limitations**

The current study was limited in several ways. The first limitation deals with the sample size. Given the total number of “EQII” players, the sample was extremely small. The collection method was problematic as well. The researcher used SurveyMonkey and those individuals who chose to respond using this method may be different from those who chose not to respond. The researcher only pulled respondents from “EQII” and the results may not transfer to other MMORPGs. The recruitment method was also problematic since the participants were recruited using two websites catering to “EQII” players and this limits the potential pool of individuals who volunteered to take the survey. The final limitation has to do with the researcher’s ability to question the target population on illegal drug use or other addictive problems due to human subject protections.
Implications for Social Work Practice and Policy

MMORPG graphics are advancing at a rapid pace and as technology advances, so will ways in which people attempt to escape from the problems in their daily lives. Social workers need to be aware of these trends in order to provide comprehensive care to their clients. Social workers are ethically required to examine all areas of their client’s lives and as the current study highlighted, people are spending a significant amount of time playing MMORPGs.

Conclusion

The current study sought to examine the relationship between excessive time spent playing “EQII”, substance use, and gambling. The results and sample size highlight the need for additional research into this relatively new area. The game industry is predicted to keep growing and more research is necessary in order to fully understand the addiction potential of MMORPGs and the potential for multiple addictions.
APPENDIX A

Consent to Participate as a Research Subject

I am a Master of Social Work student at California State University, Sacramento, and a fellow EverQuest II player. I would like to invite you to participate in a study about the gaming habits of EverQuest II players. Other researchers have studied the gaming habits of MMORPG players but this study focuses on areas that have not been covered. You have been selected because you play EverQuest II. The purpose of this study is to understand the behavior of individuals that play EverQuest II. I hope to recruit fellow gamers who will act as co-investigators and who will fill out this survey completely and honestly. Your involvement is entirely voluntary, and you may withdraw at any time without penalty.

If you decide to participate, I ask you to fill out the entire survey and this will take 15 to 20 minutes. One potential detriment to your participation in this study could be some discomfort over the questions asked by the researcher. The only benefit you will receive from participating, other than my gratitude, is the fact that your answers will further knowledge about this new form of entertainment.

Your responses will be kept confidential to the degree permitted by the technology used. However, no absolute guarantees can be given for the confidentiality of electronic data. I will not collect your email address or IP address while gathering my data and as such, I will not be able to retrieve this data from the database if you wish to withdraw this information. The survey information will be gathered using SurveyMonkey.

I am only interested in general statistical patterns, not your individual response. Please share as much as you feel comfortable sharing, and you may decline to answer any question. Your participation is entirely voluntary. The results of this study may be published. I want to thank you for participating. I appreciate the time you spent helping a fellow gamer complete such a large project.

If you have any questions or concerns regarding this research please email the researcher at pab52@saclink.csus.edu or Dr. Maura O'Keefe at okeefem@saclink.csus.edu. If you experience any stress or discomfort due to your participation in this research project, please access the National 24 hour toll-free crisis hotline, (1-800-273-8255) which can put you in contact with your local crisis center that can direct you to help in your area. Mental Health America is another resource for information about local programs and
services including affordable counseling services. Their website is http://www.mentalhealthamerica.net/farcry/go/searchMHA. From here one can access information for counseling locally.

Patty Boykin, MSW II student, California State University, Sacramento

1. By completing this survey, you are agreeing to voluntarily participate in research studying the gaming habits of EverQuest II players.

☐ I agree

☐ I do not agree

2. In order to take part in this research project, you must be 18 years of age or older.

☐ I am 18 years of age or older

☐ I am NOT 18 years of age or older
APPENDIX B

Gaming Habits

2. Section I: Gaming
1. When did you start playing EverQuest II?
   - 2004
   - 2005-2006
   - 2007-2008
   - 2009-2010
   - 2011

2. How many hours a week do you play EverQuest II?
   - Under 5
   - 6-15
   - 16-20
   - 21-29
   - 30-36
   - 36-40
   - 40+

3. Do you play other MMORPGs? Please check all the apply.
   - EverQuest
   - Warhammer Online
   - Dark Age Of Camelot
   - World of Warcraft
   - City of Heroes/Villians
   - Star Wars Galaxies
   - Others (please specify)

4. How many hours a week do you spend playing other games?
   - Under 5
   - 6-15
   - 16-20
5. When questioned by your family or friends about the amount of time you have spent playing EverQuest II have you ever under-estimated the actual time you play?
   - No, I have not
   - Yes, I have done so a few times
   - Yes, I have done so multiple times
   - Yes, I almost always do

6. When you are not playing EverQuest II do you think about it?
   - Yes, I sometimes do
   - Yes, I frequently do
   - No, I do not

7. Have you ever attempted to cut down on the time you spend playing EverQuest II? (If you answer yes, please go to question 8 and if no, please go to question 9)
   - Yes
   - No

8. After you cut down on the time you spent playing EverQuest II did you feel restless or irritable?
   - Yes
   - No

9. Have your family or friends ever complained about the amount of time you spend playing EverQuest II?
   - Yes
   - No

10. Do you find yourself saying, "just a few minutes more" when playing EverQuest II?
    - Yes
    - No

11. Do you feel like your life would be boring or joyless if you stopped playing EverQuest II?
    - Yes
3. Section II: Gambling
1. Have you ever gambled?
   ☐ Yes
   ☐ No

1. Have you ever purchased a lottery ticket from a state-run lottery? (Example: Powerball)
   ☐ Yes
   ☐ No

2. Have you ever purchased "scratcher type" lottery tickets?
   ☐ Yes
   ☐ No

3. Have you ever played slot machines in a casino?
   ☐ Yes
   ☐ No

4. Have you ever played card games for money? (Example: poker)
   ☐ Yes
   ☐ No

5. Have you ever gambled online using "video poker" type games?
   ☐ Yes
   ☐ No

6. Do you play the Gigglegibber Goblin lottery in EverQuest II?
   ☐ Yes
   ☐ No

1. How many times a week do you play the Gigglegibber Goblin lottery in EverQuest II?
   ☐ 1-2
   ☐ 3-4
   ☐ 5-6
   ☐ 7+
6. Section IV: Tobacco
1. Do you smoke or use tobacco products?
   - [ ] Yes
   - [ ] No

1. If you smoke tobacco how many packs (20 cigarettes each) do you smoke in a week (7 days)?
   - [ ] 0-1
   - [ ] 2-3
   - [ ] 4-5
   - [ ] 6+

2. Do you smoke tobacco while playing EverQuest II?
   - [ ] Yes
   - [ ] No

3. Do you use other tobacco products? (Example: chewing tobacco)
   - [ ] Yes
   - [ ] No

1. How many times do you use other tobacco products during the week (7 days)? (Example chewing tobacco)
   - [ ] 0-1
   - [ ] 2-3
   - [ ] 4-5
   - [ ] 6+

2. Do you use other tobacco products while playing EverQuest II?
   - [ ] Yes
   - [ ] No

9. Section V: Alcohol
1. Have you ever drank alcohol?
   - [ ] Yes
1. Do you drink alcohol while playing EverQuest II?
☐ Yes
☐ No

11. Additional Information
1. In your life outside of EverQuest II, do you consider yourself?
   ☐ An extrovert who frequently socializes with others
   ☐ An introvert who prefers solitude
   ☐ A combination of both extrovert and introvert

2. Are you currently?
   ☐ Single
   ☐ Engaged
   ☐ Married
   ☐ Divorced
   ☐ Widowed

3. Are you employed?
   ☐ Yes
   ☐ No

1. How many hours a week do you spend at work?
   ☐ 10 or less
   ☐ 11-20
   ☐ 21-39
   ☐ 40-50
   ☐ 51+

2. Which industry are you currently employed in?
   ☐ Accounting/Finance
   ☐ Administration/Office
   ☐ Architecture/Engineering
   ☐ Arts/Media/Design
Biotech/Science
Business/Management
Computer Programing/Technical Support
Construction
Customer Service
Education
Journalist/Editor/Writer
Law Enforcement/Fire Protection
Legal/Paralegal
Medical/Health care
Social Services/Non-Profit
Real Estate
Sales
Other (please specify)

3. Do you socialize with your coworkers outside of work?
- Yes
- No

13. Section VI: Demographic Information
1. Your current age?
- 18-23
- 24-29
- 30-35
- 36-40
- 40-46
- 46+

2. Are you male or female?
- Male
- Female

3. What is the highest level of education you completed?
- Did not graduate high school
- High school or GED
- Trade or Technical school
- Some college
- Currently attending college
- 2 year college degree (AA or AS)
- 4 year college degree (BA or BS)
- Masters Degree or PhD
- Professional Degree

4. Are you glad this survey is finally over?
   - Yes
   - Hell yes, this was a waste of my time
   - No, I like wasting my time
   - No
REFERENCES


Driessen, M., Schulte, S., Luedecke, C., Schaefer, I., Sutmann, F., Ohlmeier, M.,... & The TRAUMAB Trauma Group. (2008). Trauma and PTSD n patients with


