Competitive versus Cooperative Video Game Decision Making and its Relationship to

Problematic Video Game Play

Ryan P. Foley

University of Michigan

Mentor: Dr. Frank Yates

Graduate Mentor: Neil Lewis Jr.

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Arts

with Honors in Psychology from the University of Michigan 2015

Abstract

Are video game players who are more inclined towards competitive in-game decision making versus cooperative decision making more likely to have health problems associated with their video game play? In this study, we test this question, comparing the effects of in-game decision making to those of other well-documented video game play-related health factors. First, we conducted a pilot study (*n*=132, 85.5% male, mean age 20.61) to develop the Competitive versus Cooperative Video Game Decision Scale (CCVDS). After scale development, we conducted a study to test the relationship between CCVDS and video game related health outcomes. We used the Problematic Video Game Play Revised scale (PVGP-R; Tolchinsky, 2013) to examine the relationship between problematic video game play and competitive or cooperative in-game decisions. In the Main Study, we surveyed adults (*n*=261, 93% male, mean age 20) who self-reported playing no less than 5 hours of video games per week. Participants answered three sets of questions: first, participants answered the CCVDS, second, they completed the PVGP-R, and finally participants completed the Social Support Questionnaire 6 (SSQ6). The relationships between in-game video game decision making, problematic video game play, and social support were then analyzed. We predicted that participants who reported more often making competitive decisions within video games would have poorer health related to their gaming (i.e. higher PVGP-R scores). Results from the Main Study supported this prediction r (261) = .20 p = .001 (i.e. players increasing CCVDS scores predicted increasing PVGP-R scores). Implications of these findings and potential future directions are discussed.

Keywords: decision making, health, video games, social support

Competitive versus Cooperative Video Game Decision Making and its Relationship to

Problematic Video Game Play

Video game play is and will continue to be a very important driving force in our society,

economy, and culture for the foreseeable future (Vorderer & Bryant, 2006). According to the

Entertainment Software Association, the United States' most comprehensive electronic media

think-tank, the percentage of Americans who play video games was 50% in 2008 and had risen

to 62% by 2012, with the mean age of players being 29 years old (ESA, 2012). In addition, a

Kaiser Family Foundation study has shown that even the youngest children have experience with

video games, reporting that 49% of children aged 0-6 have some form of video game system in

their home (Rideout, Vandewater, & Wartella, 2003). As the prevalence of video game use

continues to rise across all demographics and nationalities, the increasing and voluminous impact

of video game play warrants a very close look from psychologists and behavior scientists.

Currently, research on video game play is divided on whether playing video games helps

us or hurts us, and according to the literature, the effects of video game use are diametric. On one

hand, games show great potential to improve areas of cognition (Boot, Blakely, & Simmons,

2011), and on the other, they display the potential to increase addiction and a host of problems

that accompany such disorders (Pouliout, 2014). One study found that video game play was

associated with positive outcomes in the realms of family closeness, activity involvement,

positive school engagement, positive mental health, reduced substance abuse, self-concept,

friendship network, and reduced disobedience to parents (Durkin & Barber, 2002), while other

studies have found links to aggression over the short and long term (Anderson et al., 2003). A

Sheese and Graziano (2005) study set out to understand what effect playing violent video games

had on subsequent cooperative behavior. The study found that those who played a violent

version of a game versus those who played a non-violent version, performed differently on a

cooperation task, with those who played the violent version significantly more likely to choose

exploitation of their partners. These results point to how decision making within video games has

the potential to change decision making within other contexts (i.e. outside of games). In addition,

the complete picture of how video games are affecting behavior, whether it be in positive or

negative directions, remains unclear. Investigation into the specific mechanisms affecting

problematic video game play will remain a continuing need as digital media's influence

continues to increase in scope.

Stemming from research into the clinical health outcomes of video game play, several

scales for measurement of problematic video game play (PVGP) have been developed. The first

of which, conceived originally by Salguero and Morán (2002), is known as the Problem Video

Game Play, or PVP scale. The scale was developed to assess relationships between several

aspects of gameplay -such as time per session and hours played per week- with clinical factors

such as severity of depressive symptoms, psychosocial problems, as well as symptoms related to

anxiety. The results of this study uncovered a relationship between PVP scores and the Severity

of Dependence scale ($r= 0.47$; $p < 0.001$), suggesting that problem video game play may be

associated with dependence disorders, now called substance use disorders (Salguero & Morán,

2002). This was the first such scale developed attempting to quantify problem video game play.

However, the scale was rudimentary due to its use of a small sample size within a narrow

population.

The Problematic Video Game Play – Revised scale was developed in 2013, with the

objective being to update PVP and further validate it as a useful measure of a potentially

clinically significant pathology (Tolchinsky, 2013). The modifications included normalization on

adult populations and increased internal validity (α=.69 for PVP and α=.94 for PVGP-R). During the development of the PVGP-R researchers found that a combination of factors were related to higher PVGP-R scores: absorption, the tendency to daydream or commit a willful act such as read a book or watch TV, and self-reported symptoms of depression, anxiety, and stress (Tolchinsky, 2013).

Advances in technology, mainly the move to interactive media, have allowed video game designers to integrate classic principles of behavioral psychology into the reward schedules of video games (i.e. operant and classical conditioning; Tolchinsky & Jefferson, 2011). This has set the stage for psychosocial interaction within video games - choices you make while interacting with digital media can be rewarded or punished by other players, as well as the game designers. The implications stemming from such a revelation are far reaching and ambiguous. Therefore, it was the purpose of the current study to gain further understanding of these implications by considering the specific elements of in-game, competitive (self-interested) versus cooperative (egalitarian) decision making strategies, and how this specific factor may influence problematic video game play. Answering these questions may be an important component to building a greater understanding of problematic video game play and the components of contribution.

The question as to how decision making may affect PVGP is largely yet unexplored. Other aspects of games that may interact with PVGP have been examined by various researchers. Elliot, Golub, Reem, and Dunlap (2012) considered the impact of game genre and its relationship with PVGP scores. Further, the structural characteristics of video games associated with higher PVGP scores were examined by King, Delfabbro, and Griffiths (2011). Elliot et al. (2012) found the genres of role-playing, shooter, and action-adventure to be the most commonly associated with higher PVP scores. Similarly, Pouliout (2014) found the genres of first person shooter

(FPS), and massively online multiplayer role playing games (MMORPG) to be correlated with problematic video game play more than other genres. Studies inquiring into specific characteristics of game design have also been performed. The King et al. (2011) study, "The Role of Structural Characteristics in Problematic Video Game Play: An Empirical Study," garnered results indicating that reward and punishment features, earning points, finding rare items, and fast loading times were considered the most important and pleasurable aspects of video games. On top of that, the results indicated certain structural elements of video games were stronger predictors of PVGP than age, gender, and time spent playing - indicating that specific elements of game design may be important to understanding PVGP (King et al., 2011).

Still absent across the literature are specific studies exploring what role the players' agential actions – specifically their decisions - play amongst the external factors related to problematic video game play. The current study aims to address this gap in the literature. Specifically, the current study sought to examine and quantify a specific, decision based element of video game play and its relationship with problematic video game play - that specific element being competitive versus cooperative decisions made within video games.

Because previous research into video game's effects on aggression and group dynamics indicates that the content of video games used can effect consequent decision behavior (e. g. after playing violent games players making choices to satisfy the self at the expense of a group; Sheese, & Graziano, 2012) we suspected that players making competitive decisions may be facilitating less social interaction and thusly less social support, a factor that's been shown to mediate health problems (Schaffer, Coyne, Lazarus, 1981). We took this paradigm and specified it further, considering decisions in the form of the Competitive versus Cooperative Video Game Decision Scale and health problems in the form of the Problematic Video Game Play Revised

scale. In this way we tailored the previous evidence to our circumstances. This led to our prediction that competitive decision making would be positively correlated with problematic video game play, via PVGP-R scores, competitive decisions indicating players that prefer to make decisions beneficial to themselves at the expense of a group. To help determine which elements of problematic video game play competitive versus cooperative decision making are related to it was of interest to us to investigate the relationships between in-game decision making, social support, and problematic video game play.

Pilot Study: Development of a self-report Competitive versus Cooperative Video Game Decision Scale

After a comprehensive review of the literature, we found no previous instrument developed as a measure of in-game video game decision making. Therefore, we first conducted a pilot study to develop an appropriate video game decision scale. We designed a questionnaire to explore decisions players make while playing video games: The Competitive versus Cooperative Video Game Decision Scale (CCVDS) is a measure that examines an unexplored dimension of video game players – their in-game decisions. To verify that this measure would indeed be meaningful, in the pilot we examined the relationships between the CCVDS and other measures previously documented to influence PVGP.

Method

Sample and Procedure

Adults (n=132, 85.5% male, mean age 20.61) were recruited from online gaming forums to participate in a 10-20 minute online survey. To ensure that results could generalize beyond one specific gaming population, the survey link was posted on several public gaming discussion forums, spanning multiple genres of gaming (e. g. the gaming sub-section of the popular website

Reddit.com). To assist in maintaining external validity to the population of interest, participants

needed to meet the requirements of playing video games for at least 5 hours per week for the

duration of the previous year. No other restrictions were placed on the participants.

Measures

The study consisted of two sets of questions, the first of which was the Competitive

versus Cooperative Video Game Decision Scale (CCVDS) developed for this pilot, and the

second was the Problematic Video Game Play Revised scale (PVGP-R). ***Competitive versus***

Cooperative Decision Making was assessed using 10 items answered on a 1-5 Likert-like scale,

1 being "never" and 5 being "often" (see Appendix A). These items constituted the Competitive

versus Cooperative Video Game Decision Scale (CCVDS).

Problematic Video Game Play was assessed using the Problematic Video Game Play -

Revised Scale (PVGP-R; Tolchinsky, 2013).

Data Analysis

Participants received a sum score for each scale (CCVDS and PVGP-R), in order to

examine potential correlations. A higher score on the Competitive versus Cooperative Video

Game Decision Scale indicates more competitive or self-interested decision making, and a higher

score on the PVGP-R scale indicates more health problems related to video game play. Simple

bivariate analysis (Pearson product-moment correlation coefficient) was utilized to examine

correlation between the two scores.

<div align="center">

Results

</div>

The 6 items found to constitute the CCVDS through factor analysis significantly

correlated r (132) = -.18, p = .04, with video game playing behavior - specifically the number of

hours people spend playing video games. Further, the amount of hours people spend playing

video games is significantly correlated r (132) = .42, $p < .0001$, with problematic video game

play (PVGP-R score). The more people play for self-interested reasons, the less time they play,

and this influences their problematic video game play. This provides evidence that the

Competitive versus Cooperative Video Game Decision Scale has the potential to capture and

explain some previously unexplained variance in video game playing behavior - which the

literature has demonstrated can influence health outcomes.

Discussion

The pilot study served as an important first step to forging a pathway into understanding

video game decision making within the context of problematic video game play. Able to

demonstrate that player's in-game decisions were interacting with problematic video game play,

it was important to continue this line of questioning with a follow-up study. An important

question that arose after the results of the pilot study was: what is it about competitive versus

cooperative in-game decisions that connects those decisions to problematic video game play?

Considering that many of the questions on the Competitive versus Cooperative Video Game

Decision Scale pertain to scenarios of self versus group oriented decisions, it was important for

us to consider the relationship between those decisions and players social support. Measuring

players' social support through the Social Support Questionnaire 6 seemed to be a reasonable

first step in the rule-out process.

Main Study: Competitive versus Cooperative in-game Decision Making and its relationship

to Problematic Video Game Play and Social Support

After the development of the Video Game Decision Scale, which resulted in encouraging

findings that indicated CCVDS was predicting a known correlate of PVGP (time played), it was

important to further examine validity of scale items to distill down the most relevant predictors

of problematic video game play. In addition to re-examining the 2 core measures of competitive versus cooperative video game decision making (CCVDS) and problematic video game play (PVGP-R), the examination of social support was included through the addition of the Social Support Questionnaire 6. A new sample was sought and tasked to perform mainly the same procedures of the pilot study, the only major difference being the inclusion of the SSQ6. These 3 measures, CCVDS, PVGP-R, SSQ6, were examined and relationships present were considered. Based on the findings of previous research into the effects of violent video game play on subsequent social decisions (Sheese & Graziano, 2005), as well as the findings of the pilot, it was predicted that competitive decisions would be correlated with increased problematic video game play and decreased social support. The idea being that players making more competitive decisions may be giving away something about how they approach social interaction.

Method

Sample and Procedure

Adults (*n*=261, 93% male, mean age 20) were recruited from various online gaming forums to participate in a 15-30 minute online survey. To further ensure that results could generalize beyond one specific gaming population, the survey link was posted on previously unused public gaming discussion forums (e.g. the www.gamespot.com discussion forums). Participants needed to meet the requirements of playing video games for at least 5 hours per week for the duration of the previous year. No other restrictions were placed on participants.

Measures

The study consisted of 3 sets of questions, the first of which was the Competitive versus Cooperative Video Game Decision Scale. ***Competitive versus Cooperative Decision Making*** was assessed using the 10 items described in the pilot study. To verify that the factor found in the

pilot study would replicate, no changes were made to the CCVDS for its application in the Main Study. However, as in the pilot study, a confirmatory factor analysis confirmed that the same 6 items showed acceptable internal validity and those 6 items were used during analysis to represent the CCVDS.

Problematic Video Game Play was assessed using the Problematic Video Game Play Revised Scale (PVGP-R; Tolchinsky, 2013).

To incorporate a measure of *Social Support*, a third scale was added, The Social Support Questionnaire 6 (SSQ6; see Appendix C). The SSQ6 is an oft tested measure of social support that has been shown to be associated with positive life changes (Sarason et al., 1983). Adding this additional scale was intended to bring a deeper understanding of the interaction between gamers social networks, their decisions, and problematic video game play.

Data Analysis

As in the pilot, participants received two sum scores, one each for the CCVDS and another for the PVGP-R. A higher score on the CCVDS indicates more competitive (self-interested) decision making, and a higher score on the PVGP-R scale indicates more problems related to video game play. In addition to those two scores, in the Main Study, two additional scores were collected related to the Social Support Questionnaire 6, the social support number score (SSQN) and social support satisfaction score (SSQS). The two SSQ6 scores (SSQN, SSQS) along with CCVDS and PVGP-R scores were computed to examine the relationships between social support, problematic video game play, and competitive versus cooperative in-game video game decision making.

<div align="center">

Results

</div>

Results indicated a statistically significant, negative correlation between overall social

support and problematic video game play r (183) = -.15 p = .04, implying that the more social support one has, the fewer problems that person is likely to incur related to problematic video game play. Competitive decision making, as measured by the Cooperative versus Competitive Decision scale, was found to be positively correlated with problematic video game play r (261) = .20 p = .001, implying that the more competitive over cooperative your decisions in video games are, the more likely you are to have health problems related to video game play (higher PVGP-R scores). There was no correlation found between social support and CCVDS, indicating that each scale was predicting problematic video game play independently. However, it is interesting to note that CCVDS had a stronger positive correlation with problematic video game play than social support did a negative correlation. Suggesting that in-game decision making may be a stronger predictor of problematic video game play than social support.

General Discussion

People are playing video games at ever increasing rates (ESA, 2012). With the inundation and access to video games and digital media continuously increasing, the ways in which video games are interacting with our psychological functioning are still yet largely unexplored. While there is evidence to suggest that video games may improve perceptual and cognitive performance (Boot, Blakely, & Simmons, 2011), there is also evidence that video games may have negative impacts as well (i.e. problematic video game play). The need for further insight into factors contributing to both positive and negative outcomes related to video game play is broadening and urgent. In this study we attempted to shed light on a more specified area of video game interaction related to problematic video game play. By framing our exploration through the lens of decision making, it becomes possible to identify potential avenues of future manipulation and intervention into problematic outcomes associated with video game play.

In the pilot study, we identified six internally consistent questions out of the original ten question scale, measuring players' competitive versus cooperative in-game video game decisions. Previous to this scale, there have been no measures attempting to examine in-game, video game decision making and its relationship to problematic video game play. During the development of the Competitive versus Cooperative Video Game Decision Making Scale, there were interesting correlations discovered between in-game decisions and factors related to problematic video game play (e.g. competitive decisions and time played). It was therefore important to design a follow-up study with the objective of further understanding the network of correlations between in-game decision making, problematic video game play, and social support.

In the Main Study we showed that social support is not the reason that players make competitive or cooperative decisions, but that competitive in-game decisions do predict problematic video game play as strongly as does social support. This finding is interesting in many respects, firstly because it is the initial exploration of in-game video game decision making within the context of problematic video game play. Secondly, this line of inquiry may be instrumental in the continuing understanding of problematic video game play as a pathology. With PVGP being explored for inclusion into the American Psychiatric Association Diagnostic and Statistical Manual of Mental Health Disorders (DSM V; Pouliout, 2014; Tolchinsky, 2013) the importance of continuing investigation into the components of PVGP has been heightened. As PVGP is being considered as an emerging pathology, it is important to gain further insight into the role that decision making contributes to problematic video game play and more generally maladaptive psychological thought processes related to interaction with digital media. These combined studies are an important first step into these examinations. Future studies could improve upon this research by employing stricter methods of measurement over in-game

decision making (e.g. recording players decisions on their computers as they make them), as well

as designing experiments based on these findings.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: American Psychiatric Association.

Anderson, C. A., Berkowitz, L., Donnerstein, E., Huesmann, L. R., Johnson, J. D., Linz, D., & Wartella, E. (2003). The influence of media violence on youth. *Psychological Science in the Public Interest*, *4*(3), 81-110. doi:10.1177/1046878108327539

Boot, W. R., Blakely, D. P., & Simons, D. J. (2011). Do action video games improve perception and cognition? *Frontiers in Psychology*, *2*, 226. doi:10.3389/fpsyg.2011.00226

Chappell, D., Eatough, V., Davies, M. N., & Griffiths, M. (2006). EverQuest—It's just a computer game right? An interpretative phenomenological analysis of online gaming addiction. *International Journal of Mental Health and Addiction*, *4*(3), 205-216. doi:10.2466/PR0.105.F.1237-1247

Durkin, K., & Barber, B. (2002). Not so doomed: Computer game play and positive adolescent development. *Journal of Applied Developmental Psychology*, *23*(4), 373-392.

Elliott, L., Golub, A., Ream, G., & Dunlap, E. (2012). Video game genre as a predictor of problem use. *Cyberpsychology, Behavior, and Social Networking*, *15*(3), 155-161. doi:10.1089/cyber.2011.0387

Entertainment Software Association. (2008). Essential facts about the computer and video game industry: Sales, demographic, and usage data. Retrieved August 14, 2014, from http://www.theesa.com/pressroom.html

Entertainment Software Association. (2012). Essential facts about the computer and video game industry: Sales, demographic, and usage data. Retrieved August 14, 2014, from http://www.theesa.com/pressroom.html

Gentile, D. (2009). Pathological video-game use among youth ages 8 to 18 a national study. *Psychological Science*, *20*(5), 594-602. doi:10.1111/j.1467-9280.2009.02340.x

Griffiths, M. D., & Dancaster, I. (1995). The effect of type A personality on physiological arousal while playing computer games. *Addictive Behaviors*, *20*(4), 543-548.

King, D. L., Delfabbro, P. H., & Griffiths, M. D. (2011). The role of structural characteristics in problematic video game play: An empirical study. *International Journal of Mental Health and Addiction*, *9*(3), 320-333. doi:10.1007/s11469-010-9289-y

Pouliot, Gregory Scot, "Can Videogames be Addicting? An Investigation into the Specific Game Features and Personal Characteristics Associated with Problematic Videogame Playing" (2014).*Master's Theses and Doctoral Dissertations.* Paper 576. http://commons.emich.edu/theses/576

Rideout, V. J., Vandewater, E. A., & Wartella, E. A. (2003). Zero to six: Electronic media in the lives of infants, toddlers and preschoolers.

Sarason, I.G., Levine, H.M., Basham, R.B., et al. (1983). Assessing social support: The social support questionnaire. *Journal of Personality and Social Psychology, 44*, 127-139. http://dx.doi.org/10.1037/0022-3514.44.1.127

Sarason, I.G., Sarason, B.R.., Shearin, E.N., & Pierce, G.R. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships, 4*, 497-510. doi:10.1177/0265407587044007

Schaefer, C., Coyne, J. C., & Lazarus, R. S. (1981). The health-related functions of social support. *Journal of behavioral medicine*, *4*(4), 381-406. doi:10.1007/BF00846149

Sheese, B. E., & Graziano, W. G. (2005). Deciding to defect: The effects of video-game violence on cooperative behavior. *Psychological Science*, *16*(5), 354-357. doi:10.1111/j.0956-

7976.2005.01539.x

Tejeiro Salguero, R. A., & Morán, R. M. B. (2002). Measuring problem video game playing in

adolescents. *Addiction*, *97*(12), 1601-1606. doi:10.1046/j.1360-0443.2002.00218.x

Tolchinsky, A., & Jefferson, S. D. (2011). Problematic video game play in a college sample and

its relationship to time management skills and attention-deficit/hyperactivity disorder

symptomology. *Cyberpsychology, Behavior, and Social Networking*, *14*(9), 489-496.

doi:10.1089/cyber.2010.0315

Tolchinsky, Anatol, "The Development of a Self-Report Questionnaire to Measure Problematic

Video Game Play and its Relationship to Other Psychological Phenomena" (2013).

Master's Theses and Doctoral Dissertations. Paper 555.

http://commons.emich.edu/theses/555

Vorderer, P., & Bryant, J. (Eds.). (2010). Playing video games: Motives, responses, and

consequences. Routledge.

.

Appendix A

Competitive versus Cooperative Videogame Decision Scale (CCVDS)

1) When playing video games, if I have the option of keeping a newly discovered resource for myself to increase my power or returning the resource to a friendly non-player character to increase my reputation within the game world, I keep the resource

Never 1 – 2 – 3 - 4 - 5 Often

2) When playing video games I prefer to make "evil" choices rather than "good choices"

Never 1 – 2 – 3 – 4 – 5 Often

3) When I play video games my ultimate goal is to be better than other players

Never 1 – 2 – 3 – 4 – 5 Often

4) When I play video games I feel like other players mostly just get in the way

Never 1 – 2 – 3 – 4 – 5 Often

5) When I play video games it is for my own satisfaction, others aren't important

Never 1 – 2 – 3 – 4 – 5 Often

6) When playing video games if I find a new item or reward I only consider how the item will be useful to me, not other players

Never 1 – 2 – 3 – 4 – 5 Often

7) When playing a cooperative video game I mostly just use my teammates as a means for me to get ahead, instead of working together to achieve a group goal

Never 1 – 2 – 3 – 4 – 5 Often

8) When playing online video games I prefer to play alone, instead of with a group or team

Never 1 – 2 – 3 – 4 – 5 Often

9) When playing a video game I never consider diplomacy, I am the only one who can get me

what I want

Never 1 – 2 – 3 – 4 – 5 Often

10) When I play video games I take satisfaction in making other players frustrated or upset

Never 1 – 2 – 3 – 4 – 5 Often

Appendix B

Problematic Video Game Play – Revised (PVGP-R)

1) When I am not playing video games, I keep thinking about games I have played

Never 1 – 2 – 3 – 4 - 5 Often

2) Because of my video game playing, I have spent less time with my friends and family

Never 1 – 2 – 3 – 4 – 5 Often

3) When I can't play video games, I get irritable

Never 1 – 2 – 3 – 4 – 5 Often

4) When I have not obtained the desired results while playing, I need to play again to achieve my

target

Never 1 – 2 – 3 – 4 – 5 Often

5) When I play video games, it makes my nervousness go away

Never 1 – 2 – 3 – 4 – 5 Often

6) I spend an increasing amount of time playing video games

Never 1 – 2 – 3 – 4 – 5 Often

7) Because of my video game playing, my neck hurts

Never 1 – 2 – 3 – 4 – 5 Often

8) I have tried to stop playing video games

Never 1 – 2 – 3 – 4 – 5 Often

9) When I play video games, it makes my anger go away

Never 1 – 2 – 3 – 4 – 5 Often

10) Because of my video game playing, I have missed meals

Never 1 – 2 – 3 – 4 – 5 Often

11) When I am not playing video games, I am often planning how I will play my next game

Never 1 – 2 – 3 – 4 – 5 Often

12) When I play video games, it makes my sadness go away

Never 1 – 2 – 3 – 4 – 5 Often

13) I conceal my video game playing from my significant others

Never 1 – 2 – 3 – 4 – 5 Often

14) Because of my video game playing, my wrist(s) hurt

Never 1 – 2 – 3 – 4 – 5 Often

15) When I play video games, it makes my worries go away

Never 1 – 2 – 3 – 4 – 5 Often

16) I have tried to cut back playing video games

Never 1 – 2 – 3 – 4 – 5 Often

17) In order to play video games I have stolen

Never 1 – 2 – 3 – 4 – 5 Often

18) Because of video game playing, I have gone to bed late

Never 1 – 2 – 3 – 4 – 5 Often

19) I conceal my video game playing from my parents

Never 1 – 2 – 3 – 4 – 5 Often

20) In order to play video games I get into arguments with people

Never 1 – 2 – 3 – 4 – 5 Often

21) I conceal my video game playing from my friends

Never 1 – 2 – 3 – 4 – 5 Often

22) Because of my video game playing, I experience headaches

Never 1 – 2 – 3 – 4 – 5 Often

23) I play video games over a longer time period than I intended

Never 1 – 2 – 3 – 4 – 5 Often

24) Because of my video game playing, my hand(s) hurt

Never 1 – 2 – 3 – 4 – 5 Often

25) In order to play video games I have skipped class or work

Never 1 – 2 – 3 – 4 – 5 Often

26) I have tried to control how much I play video games

Never 1 – 2 – 3 – 4 – 5 Often

27) Because of my video game playing, my eyes hurt or feel strained

Never 1 – 2 – 3 – 4 – 5 Often

28) In order to play video games I have lied

Never 1 – 2 – 3 – 4 – 5 Often

29) I conceal my video game playing from my significant other (romantic partner)

Never 1 – 2 – 3 – 4 – 5 Often

30) Because of my video game playing, I experience migraines

Never 1 – 2 – 3 – 4 – 5 Often

31) When I can't play video games, I get restless

Never 1 – 2 – 3 – 4 – 5 Often

32) Because of my video game playing, I have trouble falling asleep

Never 1 – 2 – 3 – 4 – 5 Often

33) Because of video game playing, I have neglected my homework/schoolwork

Never 1 – 2 – 3 – 4 – 5 Often

34) Because of my video game playing, my back hurts

Never 1 – 2 – 3 – 4 – 5 Often

35) When I play video games, I play until I have reached my goal (for example, defeated a boss,

finished a chapter, gained a level, acquired a special item) instead of setting a time limit

Never 1 – 2 – 3 – 4 – 5 Often

Appendix C

Social Support Questionnaire 6 (SSQ6)

Instructions: The following questions ask about people in your life who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the person's initials and their relationship to you (see example). Do not list more than one person next to each of the numbers beneath the question.

For the second part, circle how satisfied you are with the overall support you have.

 If you have no support for a question, check the words "No one," but still rate your level of satisfaction. Do not list more than nine persons per question.

Please answer all questions as best you can. All your answers will be kept confidential.

Example: Who do you know whom you can trust with information that could get you in trouble?

No one 1) T.N. (brother) 2) T.N. (father) 3) L.M. (friend) 4) L.M. (employer) 5) R.S. (friend) 6) 7) 8) 9)

How Satisfied?

6 – very satisfied 5 – fairly satisfied 4 – a little satisfied 3 – a little dissatisfied 2 – fairly dissatisfied 1 – very dissatisfied

1. Whom can you really count on to be dependable when you need help?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

2. Whom can you really count on to help you feel more relaxed when you are under pressure or

tense?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

3. Who accepts you totally, including both your worst and your best points?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

4. Whom can you really count on to care about you, regardless of what is happening to you?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the dumps?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

6. Whom can you count on to console you when you are very upset?

No one 1) 2) 3) 4) 5) 6) 7) 8) 9)

How Satisfied?

very satisfied 6 – 5 – 4 – 3 – 2 – 1 very dissatisfied

To score SSQ6: 1. Add total number of people for all 27 items. (Max. is 243). Divide by 27 for

per item score. This gives you SSQ Number Score, or SSQN. 2. Total satisfaction scores for all

27 items. (Max is 162). Divide by 27 for per item score. This gives you SSQ Satisfaction score

or SSQS 3. You can also add up total number of people that are family members and that can

give the SSQ family score.