Personality and Dark Gaming: The relationships between Perfectionism, the

Dark Triad, and Anti-Social Online Gaming Behaviour

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Abstract

Online gaming is an increasingly popular social and competitive activity. Through playing online games, people can connect with other people from around the world. However, many people can display a darker side of their personality, which could lead them to engage in undesirable online communications and behaviours. The aim of this project was to investigate the incremental predictive ability of the Dark Triad (Machiavellianism, Narcissism, and Psychopathy) and perfectionism (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, and OOP-90) in examining addiction and aggression in online gaming. Participants were 214 ($n = 180$ males, $n = 31$ females, $n = 3$ self-described gender) online shooter gamers aged between 18 and 57 years, recruited through online gaming forums. Participants completed an online questionnaire, including measures of the Dark Triad, perfectionism, and gaming addiction and online harassment. A hierarchical regression model indicated that, in step one, only Machiavellianism was a significant positive predictor of addiction. In step two, socially prescribed perfectionism was an additional positive predictor of addiction. A second hierarchical regression model indicated that, in step one, Psychopathy was a significant positive predictor of aggression. In step two, OOP-90 was an additional positive predictor of aggression. The findings indicate that both the Dark Triad and perfectionism predict dark gaming in the form of addiction and aggression, and perfectionism explains a significant amount of additional variance in dark gaming alongside the Dark Triad.

Keywords: *Perfectionism, Dark Triad, Online Gaming, Addiction, Aggression*

Table of Contents

v

List of Tables

List of Figures

Abbreviations

CS:GO – Counter Strike: Global Offence

DSM-5 - The World Health Organization and Diagnostic and Statistical Manual of Mental Disorders

LGBTQ+ - Lesbian, gay, bi-sexual, transgender, queer and others

M - Mean

Mage – Mean age

MPS – Multidimensional perfectionism scale (Hewitt & Flett, 1991)

N – Number

OOP-90 – Other oriented perfectionism scale (Hewitt and Flett 1990)

OPP – Other oriented perfectionism

PUBG – Player Unknown Battle Grounds

SD – Standard deviation

SD3 – Short dark triad scale (Jones & Paulhus, 2014).

SOP – Socially oriented perfectionism

SPP – Socially prescribed perfectionism

SPSS – Statistical package for the social sciences

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1. Introduction

Online multiplayer games are a popular recreational activity for many adults (Tang & Fox, 2016) and one which is related to a wealth of positive outcomes. For example, developing strong social ties, which if further developed, can lead to offline support (Trepte, Reinecke & Juechems, 2011). However, negative behaviours have also been documented, including gaming additions (Seok & DaCosta, 2012) and online harassment (Cote, 2015), which may reflect a darker gaming experience. Gamers' personalities may be associated with such dark gaming behaviours. For example, perfectionism has been found to be associated with exercise dependency (Hall, Hill, Appleton & Kozub, 2009) and the Dark Triad (Machiavellianism, Narcissism and Psychopathy) has been found to relate to online trolling behaviours (Buckels, Trapnell & Paulhus, 2014). The incremental predictive ability of both the Dark Triad and perfectionism has yet to be examined in relation to dark gaming (i.e., addiction and online harassment). Therefore, the aim of this study was to address this issue.

1.1 Introduction to Online Gaming

Increasingly, adults use online video games as a means of communicating with others, and they now constitute a legitimate recreational activity for many people in the UK (Gross, 2010; Subrahmanyam, Reich, Waechter & Espinoza, 2008). The variety of popular online video games has also advanced in a short amount of time. The first online shooter game was released in 1996 and named Quake III Arena. Since then, online shooter games have grown in size and

popularity, and are amongst the most popular genre of gaming today (Rivenes, 2017). The popularity of watching gaming in the online world is increasing. In September 2018, Twitch averaged 813 million hours watched by viewers through live streaming, while YouTube averaged over 226 million hours of live streams viewers and mixer had over 13 million live stream views. (Perez, 2018). On the 6th of September 2019, three different online shooter games were in the top ten most-streamed games in the past 30 days with Fortnite being 3rd with 78,876, 828 viewer hours, Counter-Strike: Global Offensive in 7th with 51, 993, 353 viewer hours, and Overwatch with 30,982,893 viewer hours. Six different online shooter games were in the top ten most-streamed games in the past month with Fortnite being the most streamed game with an average of 6,534 channels streaming the game, followed by Apex Legends in 4th, Player Unknown Battle Grounds in 6th, Counter-Strike: Global Offensive in 8th, Rainbow Six: Siege in 9th, and Overwatch in 10th.

There are three main types of online video games: Multi-mass online role-playing games, multi-mass online real-time strategy and multiple online first-person shooter games. Multi-mass online role-playing games refer to massive open-world online games, such as world of warcraft, where all players are in the same open world and can interact with each other. Multi-mass online real-time strategy games are games where individuals play matches against another team/individual. Multiple online first-person shooters refer to online shooting games where you aim to usually kill other players and win the game by being last man or team standing (Griffiths, 2010; Bishop, 2011). Online shooter games allow an individual to play a game with other people anywhere in the world. Such online games support a type of chat function, whether it be through a headphone set or a texting format. The ping system is a new communication system used in a new online multiplayer shooter game,

Apex Legends (Lahti, 2019). Given the growing popularity of online shooter games and the possibility to engage socially with others, these form the focus of interest for the current study.

1.2. Dark Gaming: Addiction and Aggression in Online Gaming

Online games can involve teamwork and communication, which may encourage pro-social behaviour between teammates (Bowman, Schultheiss & Schumann, 2011). However, this is not always the case. There are some players who can become addicted to online gaming and others who will act in aggressive ways towards their teammates to succeed. Within this study, dark gaming reflects anti-social behaviour patterns that can develop in online gaming; namely online gaming addiction and aggression.

Regarding addiction within online gaming, Lemmens, Valkenburg and Peter (2009) identified seven criteria. The first is salience, which involves a person feeling as if playing a video game is the most important thing in their life and is pre-occupied by the thought of or craving playing a game. Next is tolerance, where an individual begins to spend more time playing games and gradually increases their game time. Mood modification refers to the sensation an individual feels when playing online games; for instance, getting a "high" or "buzz" from playing video games. Withdrawal is when an individual feels a physical or emotional effect if their playing time is stopped or reduced; this can include symptoms such as shaking. Related to withdrawal is a relapse, whereby an individual repeatably returns to previous hours of playing time. For example, an individual might have cut down from playing 30 hours a week to 10 hours a week, but they quickly revert to playing 30 hours a week. The sixth criterion is conflict and entails players having arguments

with people around them because of their excessive gaming habits. The final addiction type is problems, which is when problems start to occur due to a large amount of game time, such as skipping work or school to play a game.

Although Lemmens and colleagues' approach is commonly used to date, it is worth noting there are other ways in which gaming addiction has been conceptualised. The World Health Organization and Diagnostic and Statistical Manual of Mental Disorders (DSM-5) define gaming disorder as a gaming behaviour which impairs an individual's control over gaming, an increase of priority of gaming activities to the point that gaming outweighs the importance of daily activities and interests, which results in the continued increase of gaming and negative outcomes. To be diagnosed with gaming disorder the behaviour of the individual must be severe enough to significantly affect the individual's educational, social, family, occupational or other important features of the individual's life, and this behaviour would have been happening for at least 12 months. However, the World Health Organization does not provide items or scales to record levels of gaming addiction, so Lemmens and colleagues' approach has taken priority in research.

The DSM-5 also identifies nine factors which play a role in internet gaming disorder: preoccupation, loss of other interests, escape, withdrawal, tolerance, unsuccessful attempts to control, continued excessive use despite psychosocial problems, functional impairment and deceiving regarding online gaming. Kim et al. (2016) investigated the efficacy of these criteria in a sample of three thousand four hundred and one adults between the ages of 20 to 49 years old. All had taken part in online gaming during the last six months. When asked about their weekly engagement in gaming, 2.6% played for over 6 hours a week. When the sample was asked to identify their online gaming frequency, specifically during first-person

shooter games, 3.5% played first-person shooter games daily. The DSM-5 does not indicate a frequency, which could lead to gaming disorder. However, Kim et al. (2016) reported the percentage of the sample at risk based on whether they met the nine factors within the DSM-5. 6.7% of those who reported that they play first-person shooters daily are identified as being at risk of developing internet gaming disorder. Correlation analyses also discovered that the sample who were at risk of developing internet gaming disorder showed different psychopathological manifestations than the DSM-5 original factors. These results demonstrate that there are more factors which could result in internet gaming disorder than highlighted in the DSM-5. Thus, Lemmens and colleagues' approach to online gaming addiction could be used as an alternative means of capturing these additional psychopathologies.

Regardless of the approach taken, online gaming addiction has a large potential number of predictor variables. In their online survey of 123 university students from the United Kingdom, Mehroof and Griffiths (2010) investigated if online gaming addiction has a relationship with aggression, trait anxiety, self-control, state anxiety and sensation seeking. The data were analysed through multiple regressions, and the results showed that sensation seeking, neuroticism, state anxiety, trait anxiety and aggression had a significant positive association with online gaming addiction. Mehroof and Griffith (2010) state that this may be because university students are under a lot of pressure and consequently could develop anxiety. In an attempt to reduce anxiety, university students might play video games, which may result in addiction. This addiction type is known as an 'escape' where people use video games to escape from reality. Overall, these findings suggest that

many personal factors, including personality traits, could also be associated with online gaming addiction.

Alongside gaming addiction, aggression is also a negative experience that many people who play online games may encounter. Aggression is another antisocial behaviour that can be displayed in many forms, online and offline. One form of aggression online is cyber-harassment (cyber-bullying). Aggression online can occur quickly and easily, and aggressive messages can be sent from anywhere at any time and in a very public way (Melander, 2010). While playing online shooter games, many will be playing with teammates. Due to advancements in technology, people can stay connected to each other more than before, yet the online world has a darker side to it. BBC News (2017) reported that 47% of young people have reported receiving threats while playing an online video game. 47% of gamers also reported that they received threats while playing an online game. Within a study of 7069 participants who play online games, 25.7% of pathological gamers (i.e., those who met criteria for gaming addiction) showed aggressive behaviours while 10.7% of non-pathological (i.e., those who did not meet criteria for gaming addiction) gamers showed aggressive behaviours (Grüsser, Thalemann and Griffiths, 2007).

The type of gaming aggression that this study will consider is online harassment. Online harassment can be directed at several different groups of people such as females, males, the LGBTQ+ community and many different ethnic groups (Cote, 2017) and so is more applicable to a general gamer population than cyberstalking, romantic aggression, or cyberbullying. Research has demonstrated that males are more likely to be the perpetrator of online harassment, while females are more likely to be the victim of online harassment. Two different types of harassment have been identified by Tang and Fox (2016). The first is general

harassment and occurs when an individual insults another player's skill and intelligence or gives general insults or taunts other players. The next harassment type is sexual harassment, where an individual will make sexist comments or rape threats towards other players. Results of Tang and Fox's (2016) study found that time spent gaming and gaming involvement predicted general harassment, demonstrating that if an individual spends more time spent in a hostile gaming environment, the higher chance of them taking part in harassment themselves and those harassing behaviours become normal to them.

As with online addiction, many factors have been implicated in the perpetration of general online harassment and sexual harassment. For instance, Tang and Fox (2016) invited 425 male participants to complete an anonymous online questionnaire regarding their social dominance goals, game indolent, ambivalent sexism and video game harassment behaviour. Analyses revealed that hostile sexism and social dominance goals, game involvement and hours of weekly gameplay predicted general harassment, while only social dominance goals and hostile sexism predicted sexual harassment. The results also demonstrated that males high in social dominance goals might harass other individuals to set themselves aside from groups they perceive as inferior. Regarding social dominance goals, game involvement, and game time predicting general harassment, it may be the more time players spend online, and they may start to normalise harassment and take part in it themselves. Based on these findings it is conceivable that other personality factors imbued with social dominance, such as the Dark Triad and perfectionism may also be implicated in online harassment (Jones & Figueredo, 2012; Stoeber, 2015).

1.3. Personality and Dark Gaming

Personality varies between individuals; however, there are common traits that all individuals will possess to greater or lesser degrees, such as the Dark Triad and perfectionism. In the context of online gaming, Collins, Freeman and Charmarro-Premuzic (2012) have compared personality traits amongst problematic gamers (i.e., social isolation or conflict), non-problematic gamers (i.e., able to control their frequency of gaming), and non-gamers. They found that non-gamers have higher levels of conscientiousness (i.e., how self-disciplined and organised an individual is) and agreeableness (i.e., how cooperative with others and an individual can be) and problematic gamers have the lowest levels. Problematic gamers also had the highest levels of extraversion (i.e., how sociable or outgoing an individual is) and non-problematic gamers the lowest. Overall, the findings suggest that those who play video games and those who do not may differ in their personality traits and in turn, their thoughts and behaviours may differ. In keeping with this idea, the current study focuses on the Dark Triad and perfectionism to understand the differences in the antisocial behaviours of online gamers.

1.4 Dark Triad

Most research which has examined personality and online gaming look at the big five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism) (Müller, Beutel, Egolff & Wőlfling, 2014). However, there have been a handful of studies comparing the Dark Triad and the big five and some studies that solely focus on the Dark Triad and online gaming. The Dark Triad entails three personality traits (Machiavellianism, Narcissism and Psychopathy) that are grouped together for their anti-social characteristics (Paulhus

& Williams, 2002). Machiavellianism is when an individual is manipulative and behaves in a cold way (Christie & Geis, 1970). If a gamer were to have a high level of Machiavellianism, they would mistreat their teammates and use them to achieve their goal during the game. The next personality trait is Narcissism, where an individual has feelings of superiority and self-love (Raskin & Hall, 1970). A Narcissistic gamer would feel like they are better than all the teammates that they play with in terms of their skills. The final personality trait that makes up the Dark triad is Psychopathy. Psychopathy is when and the individual has diminished empathy, paired with high thrilling seeking behaviour (Hare, 1985). In the online video game world, those high in Psychopathy would try and make more risky plays while playing online games and not care about what their teammates think. Sadism has recently been added to the dark triad, to make the Dark Tetrad (Plouffe, Saklofske, Smith, 2017). Sadism refers to an individual who receives pleasure from inflicting pain or humiliation on others. In an online gaming aspect, someone high in sadism will enjoy trolling other people while playing online games. Little is known between the relationship between perfectionism and the Dark Tetrad compared to perfectionism and the Dark Triad, so Sadism is not measured in this study.

1.4.1. Dark Triad and Dark Gaming Addiction

The Dark Triad has been found to be related to antisocial behaviours such as addiction. Research has shown this outside of an online gaming world as Millner, and Mesagno (2014) investigated the relationship between exercise dependency, Narcissism, socially prescribed perfectionism and self-oriented perfectionism. Analyses revealed that Exercise dependency was positively related to Narcissism and both socially prescribed perfectionism and self-oriented perfectionism. Furthermore, hierarchical regression analysis implied that a mixture of self-oriented perfectionism

and Narcissism predicted a larger degree of exercise dependency. These results show how perfectionism and Narcissism are both important to consider in both addiction and exercise dependency.

A specific study to online gaming addiction and the Dark Triad was conducted by Kim, Namkoong, Taeyun and Kim (2008) who investigated the relationship between online game addiction and narcissistic traits, self-control and aggression. The study collected a sample of 1471 online video gamers (82.7% = Males, 17.3% = Females) with a mean age of 21.30. The sample completed a self-report measure distributed online. The results of the questionnaires demonstrated that narcissistic personality traits and aggression positively correlated with online game addiction. Due to the findings of this study, individuals can now better understand what portion of the population is at risk of developing online game addiction (e.g. those who are high in narcissistic personality traits).

1.4.2. Dark Triad and Dark Gaming Aggression

Previous research has highlighted the relationship between dark traits and online gaming. In a study comprised of 421 Turkish online gamers (Mage = 20.82), Kircaburun, Jonason and Griffiths (2018) investigated the relationship between the Dark Tetrad and problematic gaming. Online gaming motives (Social, Escape, Competition, Coping, Skill Development, Fantasy, and Recreation) were also considered as moderating factors in the relationships between the Dark Tetrad and problematic gaming. Narcissism was found to be indirectly associated with problematic online gaming through fantasy and escape motives. The indirect relationship between Narcissism and problematic online gaming can occur as narcissists require admiration to inflate their ego, which can lead to negative

interactions in the real world. Sadism was also found to be directly associated with problematic online gaming within first-person shooter games. While the world of online gaming can introduce a place where you can compete and be successful, and receive admiration from others, those who are high in sadism could feel as if online gaming is a world where they can hurt or kill others and not be responsible for their actions, unlike the real world. Kircaburun et al., (2018) results demonstrate that Dark Triad can influence problematic online gaming within individuals, especially Narcissism and sadism.

Many other studies have investigated dark personality (Dark Triad/Tetrad) and antisocial online behaviours. A recent systematic review conducted by Moor and Anderson (2019) resulted in 26 studies that found dark personality is related to antisocial online behaviours such as cyber aggression, cyberbullying, and 12 other antisocial online behaviours. The systematic review also found that Psychopathy was most consistently related to antisocial online behaviours, and Machiavellianism and sadism were also related to antisocial online behaviours but to a lesser extent. Narcissism was the dark personality trait which was least consistently related to antisocial online behaviours. These results demonstrate that, contrary to the findings of Kircaburun et al., (2018), Psychopathy is the darkest of the dark personality traits in an online environment, while Narcissism was the least dark of dark personality traits.

One further antisocial online behaviour that has been examined in context of the Dark Triad/Tetrad is trolling (Moor & Anderson, 2019). While developing their grief play scale, Ladanyi and Doyle-Portillo (2017) identified trolling as an act this where an individual act in a disruptive manner when playing online and likes to annoy internet users for their pleasure and labelled them grief players. While

developing the scale Ladanyi and Doyle-Portillo (2017) showed that grief players seem to be competitive and aggrieve when in a gaming environment. Greif players do not also mind how the goal of trolling another individual is achieved as long as their goal is achieved, meaning they will spam other individuals with messages or cheat/hack games to annoy other players, no path is preferred as long as the grief play meets their end goal. Greif players have been found to report higher sadism as they take pleasure out of trolling other individuals. They are also considered to be high in Narcissism, Machiavellianism and sub-clinical Psychopathy, which demonstrates further the importance of the Dark Triad in predicting anti-social online behaviour.

The relationship between trolling and the Dark Triad/Tetrad has also been researched by Buckels et al. (2014) who conducted two studies. In the first, 418 participants completed questionnaires on their favourite types of internet behaviour and personality scales, including the short Dark Triad scale (SD3). Results demonstrated that sadism had the highest association with trolling as a favourite activity followed by Psychopathy, Machiavellianism, and then Narcissism. All four personality traits scored considerably lower for debating issues as a favourite internet behaviour and even lower for chatting. In study two, multiple regression analyses revealed that when adding the Dark Tetrad as predictors for the enjoyment of trolling, both sadism and Machiavellianism were unique predictors of trolling enjoyment. The results of the study show that those high in sadism and Machiavellianism are more likely to take part in trolling behaviours.

Bullying is a very dark behaviour to take part in, and Baughman, Dearing, Giammarco and Vernon (2011) investigated the relationship between the Dark Triad and bullying. The sample consisted of 657 participants, between the ages of eighteen

to seventeen (M = 23.1, SD = 8.65). Dark triad was measured using the Short-D3 scale (Paulhus & Williams, 2002), while bullying was measured using the bullying questionnaire which was developed for Baughman et al. (2011) study. Results of the study demonstrated that all the Dark Triad traits were significantly related to bullying; Psychopathy is the strongest followed by Machiavellianism and then Narcissism. Males scored higher than females within all three Dark Triad traits, while also scoring higher on bullying. These results show that those high in Psychopathy are more likely to take part in bullying behaviours followed by Machiavellianism and then Narcissism, and those individuals are more likely to be male than female.

The Dark Triad has already been shown to relate to traditional bullying (Baughman et al., 2011) and is well known as being the darker side to personality. Goodboy and Martin (2015) investigated the relationship between the Dark Triad and self-reported cyberbullying behaviours. 227 college students reported their Dark Triad scores and their frequency of their bullying, including text and visual bullying. Correlation analyses found that Machiavellianism, Psychopathy and Narcissism all correlated to cyberbullying, both text and visual bullying. However, multiple regressions analyses demonstrated that Psychopathy was a unique predictor of cyberbullying, again for both visual and text bullying. Similar findings were reported by Baughman et al. (2011) who found that Psychopathy is the has the strongest relationship with bullying/cyberbullying. Psychopathy having a stronger relationship to bullying/cyberbullying demonstrates that it is the most problematic trait within the Dark Triad.

The relationship between the Dark Triad and cyber aggression has been researched by Pabian, Backer and Vendebosch (2015). The Dark Triad was

measured using the Short Dark Triad (SD3), the Facebook intensity scale was used to measure the frequency of online usage, while the Facebook cyberaggression scale was used to measure cyber aggression. Participants consisted of 324 adolescents between the ages of 14 to 18. Structural equational modelling was used to determine the relations between Machiavellianism, Narcissism, Psychopathy, Facebook intensity and cyber aggression. Structural equational modelling demonstrated that both Machiavellianism and Psychopathy were significantly correlated with Facebook intensity while Narcissism was not significantly correlated. Both Psychopathy and Facebook intensity significantly correlated to cyberaggression while Machiavellianism and Narcissism were not significantly correlated to cyberaggression. Furthermore, males scored higher on cyber aggression, Machiavellianism and Psychopathy than females did. Psychopathy is the more anti-social characteristics towards others than Machiavellianism and Narcissism are, which explains why it is more likely to lead to cyberaggression. Facebook intensity leading to cyberaggression could be an indication that internet addiction could potentially lead to online aggression.

Similar results have been evident in research that has investigated the Dark Triad and cyberbullying and internet addiction in the world of online gaming. Ekşi (2012) examined the extent to which Narcissistic traits predict cyberbullying and internet addiction in high school students. 508 students recruited for the study all completed questionnaires. Results of the study showed that Narcissism has an indirect effect on cyberbullying. Narcissism was also found to significantly correlate with the difficulty of controlling internet addiction. This study further provides evidence for the current study that personality traits have a relationship with anti-social behaviour in online video games.

Individuals high in the Dark Triad mostly behave in an anti-social way through aggression. The study had 82 participants (Mage= 20.4), which 60% of them were females, Jones and Paulhus (2010) investigated how those high in Psychopathy and Narcissism respond to a physically when a threat against ego is made. Multiple manipulation tests calculated which after analyses showed that when someone high in Psychopathy blasted by white noise from another person, they are more likely to respond in an aggressive way. However, narcissistic individuals did not show any responses to the white noise action. Narcissistic individuals did respond very aggressively when exposed to an ego threat. Psychopathy leading to aggression after a physical threat may be due to those being high in Psychopathy are more callous and impulsive than others and will look for short term gain from their environment through such means as aggression. An individual high in Narcissism has overwhelming feelings of self-love, and like those high in Psychopathy are impulsive. When their self-love in brought into danger as someone else may show superiority over them, a narcissistic individual may act aggressively to assert their dominance over another person to regain a feeling of self-love once proven that they are the superior individual.

An impulsive nature may be one of the main reasons why individuals lash out aggressively at each other during online gaming. Jones and Paulhus (2011) navigated the association between the Dark Triad and dysfunctional (more erratic disorderliness) and functional impulsivity (make decisions, adventurousness, and idea generation). Two samples, including 142 students and 329 adults, recorded their Dark Triad levels and also dysfunctional and functional impulsivity through Dickman's (1990) scale. Psychopathy was the only trait that showed association with dysfunctional impulsivity, while Narcissism was the only trait to be discovered to be

associated with functional impulsivity. Psychopathy association with dysfunctional impulsivity demonstrates the danger of someone high in Psychopathy, taking part in a self-destructive lifestyle. Because of these behaviours not only can they put themselves at risk, but potentially hurt others on their way. Narcissism associating with functional impulsivity and having small contributions towards dysfunctional impulsivity demonstrate how narcissistic individuals are good in short term situations; however, when dragged out long term, they may resort to dysfunctional impulsive behaviours. These results suggest that during an online video game, where matches on average do not last longer than 30 minutes, those high in Psychopathy may react more aggressively than others, the potentially narcissistic people if the game drags out for long enough or as their playtime increases.

1.4.3. Concluding Comments on the Dark Triad

The Dark Triad could lead to aggression and addiction during online video games in various ways. In terms of aggression, Psychopathy is the most aggressive trait out of the three, while there was a small correlation for Machiavellianism and Narcissism (Goodboy & Martin, 2015: Pabian et al., 2015). Psychopathy is considered the most aggressive of the Dark Triad as Baughman et al. (2011) demonstrated it has the strongest relationship with cyber aggression and Moor and Anderson (2019) findings that it mostly correlates with many antisocial online behaviours. In terms of addiction, Narcissism has been shown to correlate with online gaming addiction, and difficulty in controlling online gaming addiction (Ekşi, 2012; Kim, et al., 2008) which could show an individual high in Narcissism are more likely to struggle to control their gaming habits and develop gaming addiction. Gaming dependency also could contribute to someone high in Dark Triad traits becoming addicted as they are always trying to inflate their ego, and constantly

playing online games may help them do this. Alongside the Dark Triad, perfectionism is another aspect of personality that may relate to dark gaming behaviours.

1.5 Perfectionism

Perfectionism is a personality disposition that involves setting high standards of performance, striving for flawlessness, alongside overcritical evaluation (Stoeber, 2018). Perfectionism has been found to have different dimensions and characteristics (Enns & Cox, 2002). Hewitt and Flett (1991) have identified three dimensions of perfectionism. The first dimension is Other-Oriented Perfectionism (OOP), where an individual requires other people to be perfect. In the online gaming world, this would be an individual expecting perfection from his online teammates or others generally. The second dimension of perfectionism is Self-Oriented Perfectionism (SOP) when an individual strives for perfection from themselves. Relating to online video games, this would be the person who is playing the game demanding perfection of themself. The final dimension of perfectionism is Socially Prescribed Perfectionism (SPP), where an individual perceives that other people require them to be perfect. Socially prescribed perfectionism could relate to several things in the online gaming world. Firstly, it could be an individual feeling pressure from their teammates to be perfect. However, those who participate in esports may have not only the pressure of their teammates but also the fans who watch and potentially coaches.

Other-oriented perfectionism has not received as much attention as self-oriented, and socially prescribed perfectionism has (Stoeber, 2015). Because of this, Stoeber (2015) conducted multiple studies to show how other-oriented perfectionism differs from the other two types of perfectionism. Other-oriented perfectionism was

found to be significantly negatively correlated with agreeableness, showing people high in other-oriented perfectionism to have less interest in other people and their feelings. Other-oriented perfectionism also has been found to have a unique positive relationship with all three Dark Triad traits of Machiavellianism, Narcissism, and Psychopathy. These results show how an individual who is high in other-oriented perfectionism are more likely to be looking for admiration from others, more exploitative, more callous, manipulative and are more entitled than those who are low in other-oriented perfectionism. Furthermore, these characteristics were found to be exclusive to other-oriented perfectionism. Due to the relationship between other-oriented perfectionism and the dark side of perfectionism, other-oriented perfectionism may be an interesting predictor when looking at online gaming and anti-social behaviour.

Other-oriented perfectionism has been explained to be the dark side of perfectionism as Stober (2014) suggested that those who are high in other-oriented perfectionism are less interested in getting along with others, less interested in supporting others, less interested in helping people and getting to know other people. Other-oriented perfectionism has further been shown to be the dark side of perfectionism as it has found to have a relationship with the Dark Triad. Recently, Flett and Hewitt (2012) stated that other-oriented perfectionism is largely present within narcissistic personality disorder. Furthermore, Nealis, Sherry, MacNeil, Stewart and Sherry (2013) suggested that other-oriented perfectionism is a key component in narcissistic perfectionism.

While investigating how other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism, Stoeber (2015) used both the OOP-90 scale and Hewitt and Flett Multidimensionsal Perfectionism Scale (1991) scale to

measure other-oriented perfectionism. The results of this study demonstrate how OPP-90 may differ to the MPS version. One multiple regression used all three dimensions of perfectionism from the MPS, while the second replaces the MPS version of other-oriented perfectionism with the OOP-90 scale. The first difference captured was that the OOP-90 showed a unique positive relationship with social dominance goals. This result was the first indication that the OOP-90 does measure different aspects of perfectionism than the MPS version does. When measured against the Dark Triad, both the MPS and OOP-90 significantly correlated to Machiavellianism, Narcissism and Psychopathy. However, the multiple regression results do show that the OOP-90 had a stronger relationship with the Dark Triad than the MPS version did, especially in Psychopathy. Because the OOP-90 had a stronger relationship with the Dark Triad, this may indicate that the OOP-90 measures more anti-social and selfish behaviours than the MPS version does. During the bivariate correlation, the OOP-90 was negatively significant with openness to experience. However, this relationship disappeared when entered into a multiple regression. The OOP-90 scale was also shown to have a unique negative relationship with altruism, which shows that when an individual score higher on the OOP-90 scale, it measures more of a selfish person, who has lower concerns for the well-being of others than the MPS version would. With these findings, it could show that the OOP-90 scale does measure a darker side to perfectionism than the MPS version would. Perfectionism seems to have a relationship with aggression especially other-oriented perfectionism; however perfectionism may also have relationships with other antisocial behaviours such as addiction.

1.5.1 Perfectionism and Dark Gaming Addiction

To date, there is not a study which looks at perfectionism and online gaming. However, the sporting literature can line up with situations that have occurred in the online gaming community in such forms of cheating.

Research has shown that perfectionism (Madigan, Stoeber & Passfield, 2016) has positive associations with intentions to engage in doping behaviours. Stoeber and Hotham (2016) showed that socially prescribed perfectionism shows a positive correlation with attitudes of favouring cognitive enhancers, while self-oriented perfectionism showed a negative relationship. People high in perfectionistic traits will do anything to be perfect at what they do, including cheating. However, those high in self-oriented perfectionism may see using any type of cognitive enhancers is not achieving perfection and refuse to use them, which may explain the negative relationship. Stoeber and Hotham (2016) show that those high in socially prescribed perfectionism will do anything to win, this could mean someone high in socially prescribed perfectionism will ignore all other rules and responsibility to constantly play the game to improve their skills until they become better, however, due to increased playtime, the individual may become addicted.

The association between self-oriented perfectionism, socially prescribed perfectionism and exercise dependency has been examined by Hall et al. (2009). 370 participants who competed in middle distance running was recruited to fill out a multi-section questionnaire. The results of the study showed that self-oriented perfectionism had a positive direct effect on exercise dependency. This may happen as when those high in a self-oriented perfectionism experience some form of negative life event, such as feeling they are failing to achieve their goals, they work

even harder which could result in exercise dependency. In terms of socially prescribed perfectionism, there was found to be a positive relationship with exercise dependency, which is mediated by unconditional self-acceptance. Those high in socially prescribed perfectionism may have a risk of developing exercise dependency because these individuals could feel constant pressure to exercise to feel a sense of worth. Self-oriented and socially prescribed perfectionism may both predict exercise dependency because they both invoke different motivational responses. Unconditional self-acceptance may mediate the relationship between both self-oriented perfectionism/socially prescribed perfectionism and exercise dependency due to unconditional self-acceptance hindering the individual's ability to prevent exercise dependency.

The findings of Hall et al. (2009) may parallel with online gaming as Peng, and Liu (2010) have found that within a Chinese sample (Mage = 26) depression and cognitive shyness are positively related to gaming dependency, gaming dependency then being correlated to different types of negative outcomes. With research demonstrating the existence of gaming dependency, it may be that those high in socially prescribed perfectionism may feel pressure to play an online game to gain a sense of worth because reality is not as good as the online world, leading them to depend on online gaming.

A study closer to perfectionism and online gaming addiction was conducted by Senormanci, Saracli, Atasoy, Senormanci, Koktürk and Atik (2013). Specifically, they examined how dysfunctional attitudes, personality, self-esteem and depression relate to internet addiction in university students. Seven hundred twenty university students were recruited from Bülent Ecevit University English Preparatory School, and completed various questionnaires, which included the Dysfunctional attitudes

scale form A. Results showed that 7.2% of students suffered from internet addiction, which was more prevalent in male students. These results are consistent with other studies, as Dalbudak, Evren, Aldemir, Coskun, Ugrulu, and Yildirim (2013) reported that 12.2% of their sample was addicted to online video games. Perfectionistic attitudes were significantly related to online gaming addiction (p<0.001). These results show that personality traits do show a relationship with online gaming addiction. Those high in perfectionism have more cognitive features that maintain, trigger and can develop stress. Because of these cognitive features, those high in perfectionism may become addicted to online gaming due to escaping from real-life stress.

1.5.2 Perfectionism and Dark Gaming Aggression

Individuals high in perfectionism can result in taking part in more antisocial behaviour than addiction. Research into perfectionism has found that people who are high in perfectionism have problems with social disconnection. The social disconnection model demonstrates that people who are high in perfectionistic concerns usually try to gain approval and acceptance through focusing on goals, however, if these goals are not meet due to failure or rejection, then they are vulnerable to developing psychopathology and become socially disconnected (Sherry, Mackinnon and Gautreau, 2016). While perfectionistic concerns (including socially prescribed perfectionism) are a key component in the social disconnection model, Sherry et al. (2016) argue that perfectionistic strivings (including self-oriented perfectionism) and other-oriented perfectionism can also play a role in the model. People who are high in perfectionistic strivings feel a need to be perfect, which can result in an unbalanced lifestyle where they put improvement ahead over social relations (Graham et al., 2010). People who would be high in other-oriented

perfectionism demand perfection from others in what they do. Through doing this, it can leave stress on a relationship, leaving people high in other-oriented perfectionism constantly disappointed with others and resulting in people high in other-oriented perfectionism becoming hostile to others.

The social disconnection model has been tested by Roxborough et al. (2012) to conclude if experiences of social disconnection (in the form of being bullied and social hopelessness) is the mediator between perfectionism (Socially prescribed perfectionism and perfectionistic self-presentation), and suicide outcomes. Both perfectionistic self-presentation (the need to be perfect or appear to be perfect to others) and socially prescribed perfectionism associated with suicide outcomes; these components of perfectionism were also found to be significantly associated with social hopelessness and being bullied. The relationship between both types of perfectionism and suicide risks were mediated by social hopelessness, while only perfectionistic self-presentation and suicide outcomes were mediated by being bullied. Perfectionism may lead to suicide risk as individuals believe they have to be perfect, but due to a lack of confidence to become perfect, they start to feel frustrated and more hopelessness. These negative feelings may lead to a risk of suicide (Roxborough et al., 2012). Roxborough et al., (2012) state that people who are high in perfectionistic self-presentation potentially cannot convince others that they are perfect, but instead are seen to be faking perfection, this could result in people who are high in perfectionistic self-presentation trying to increase their state of perfection to feel accepted while creating rejection and social disconnection from other people.

Research has found more evidence that social reasons mediate the relationship between perfectionism and negative outcomes. Sherry, Law, Hewitt, Flett and Besser (2008) investigated if perceived social support mediates the

relationship between socially prescribed perfectionism and depression. The results of the study demonstrated that the relationship between socially prescribed perfectionism and depressive symptoms is significantly mediated through perceived social support. Further, there was no association between socially prescribed perfectionism and social support received from others. These results demonstrated that people who are high in socially prescribed perfectionism are at risk of developing depressive symptoms. These findings demonstrate that people who are high in socially prescribed perfectionism believe they must be perfect for receiving and deserving other people's acceptance and support. Because of this, it is more difficult for those high in socially prescribed perfectionism to recognise that other people are offering them unconditional positive regard and they are likely to view others negatively, resulting in depressive symptoms.

Different dimensions of perfectionism can result in different antisocial outcomes as shown by Stoeber (2015). He investigated the relationship between the trait dimensions of perfectionism (socially prescribed, self-oriented and other-prescribed perfectionism) and self- and other-interest, callous-unemotional-uncaring traits, positive self-evaluation and humour styles. Multiple regressions analyses showed that other-oriented perfectionism showed a unique positive relationship with uncaring traits, positive self-regard and aggressive humour while showing a unique negative relationship with other interests and prosocial orientation. On the other hand, self-oriented perfectionism revealed a unique positive relationship with other-interest and affiliative humour, while it also had a unique negative relationship with the callous-uncaring trait, competitive nature and aggressive humour. Socially prescribed perfectionism revealed a unique positive relationship with unemotional traits and self-deprecating humour while having a unique negative relationship with

positive self-evaluation. These results indicated that within the three different dimensions of perfectionism, other-oriented perfectionism would be the more aggressive dimension.

Perfectionism has also been shown to have more explicit relationships with aggression. Öngen (2009) showed in their study of 445 Turkish high school students that high standards (similar to self-oriented perfections) and discrepancy (similar to socially prescribed perfectionism) had diverse relations with hostility, aggression, and anger. High standards were a negative predictor of hostility and a positive predictor of verbal aggression, while discrepancy was found to be a positive predictor of physical aggression, hostility and anger. High standards positively predicting verbal aggression, may be a result of those with pressure to achieve certain goals, leading to a more distorted form of high standards resulting in verbal aggression to others. Based on these findings, it is possible that setting high perfectionistic goals standards for oneself during online video games could result in anti-social behaviour in the form of verbal aggression.

Öngen (2009) was not the only study to discover that perfectionism is associated with aggression. In two studies, Chester, Merwin and DeWall (2016) have shown how high levels of maladaptive perfectionism (including socially prescribed perfectionism) is linked to aggressive behaviour. Study one investigated if after an individual receives negative feedback, does maladaptive perfectionism lead to aggression and if so, is this relationship mediated by using aggression to improve mood motives. Before filling out an aggression measure, participants wrote a 5-minute essay about a time where they felt angry; after this, they received negative feedback on the essay, such as harsh comments and low marks. Multiple regression analyses revealed that the positive association between maladaptive perfectionism

and aggression, which was stronger after receiving negative feedback. The relationship between maladaptive perfectionism and aggression was mediated by a desire to improve mood through aggression. These results demonstrate that those high in maladaptive perfectionism believe that acting aggressively to others will improve their mood, especially after receiving negative feedback.

Using aggression to improve mood could be harmful in an online shooter game. During most online shooter games, you will receive a statistics table after the match you have just played. As such, each time an individual play, they will receive some feedback whether it be good or bad. Statistical feedback is not the only potential feedback mechanism as teammates who have headphones or message someone through a chat system may also give negative feedback. Any one of these ways to receive negative feedback may result in an individual high in maladaptive dimensions of perfectionism, such as socially prescribed perfectionism, using aggression to try and improve their mood during an online shooter game.

There are previous studies which have also researched the Dark Triad alongside perfectionism in tandem. Sherry, Hewitt, Besser, Flett and Klein (2005) examined the relationships between Machiavellianism, trait perfectionism, and perfectionistic self-presentation. The sample consisted of 483 university students (134 males and 349 females). Results of mediation analyses concluded that the positive association between Machiavellianism and perfectionistic self-presentation was mediated by socially prescribed perfectionism, in both males and females. These results show that those high in the Machiavellianism trait, feel the need to show that they are perfect because of perceived perfectionism from others. The study outlines that individuals high in Machiavellianism may promote that they are the image of perfection to others, will hide any sign of perfectionism and see other individuals as

hostile and demanding towards them. The findings can be explained in the sense that individuals high in Machiavellianism are quite good at manipulating others and are practical, so when others confront them with perfectionistic demands, they may choose to fake perfection instead of aiming to be perfect. In an online gaming world, this would be hacking the game to cheat instead of training to become better.

1.5.3. Concluding comments on the Perfectionism

In terms of aggression, other-oriented perfectionism appears to be the dimension of perfectionism which is most likely to result in aggression towards others, while those high in socially prescribed perfectionism are more likely to act aggressive to improve mood (Chester et al., 2016). The dangers of this is that because they are more likely to be aggressive, they may start bullying or harassing other people. In terms of addiction, both self-oriented perfectionism and socially prescribed perfectionism shared positive relationships with exercise dependency, which were mediated by unconditional self-acceptance (Hall et al. 2009). If an individual who plays online games and is high in either socially prescribed perfectionism or self-oriented perfectionism, then they may have a risk of becoming dependent on online gaming. Senormanci et al. (2013) discovered that personality traits have a relationship with online gaming addiction and that people high in perfectionism have more cognitive features they must keep under control which can lead to stress. This stress from any dimensions of perfectionism could lead to online gaming addiction, which then could result in injury or missing important events. However, these possibilities have yet to be examined extensively.

1.6. The current study

The current thesis will examine relationships between perfectionism, the Dark Traid, and dark gaming (gaming addiction and harassment in online games). Online gaming has grown in popularity amongst gamers and as such has attracted a research attention, particularly regarding personality traits in online gamers (e.g., Griffths, 2010). Current research into personality and online gaming suggests that the Dark Triad is related to dark gaming (e.g. Moor and Anderson (2019). While evidence suggests a relationship between the Dark Triad and dark gaming, the majority of studies focused on massively multiplayer online role-playing games and have not tended to focus on online shooter games. However, research examining the role of in gaming addiction or harassment during online gaming is lacking. Different gaming environments may have different level of motives for gaming (Ghuman and Griffiths, 2012), as such the different gaming environments may result in different personality traits predicting dark gaming. Furthermore, while evidence has suggested a relationship between the Dark Triad and dark gaming, there is little evidence of the relationship between perfectionism and dark gaming. Therefore, the first aim of this thesis is to examine whether the Dark Triad and perfectionism predict aggression and addiction in online shooter games.

Research suggests that perfectionism is related to antisocial behaviours such as; addiction through exercise dependency (Hall, Hill, Appleton and Kozub, 2009), and aggression (Chester, Merwin & DeWall, 2016; Öngen 2009). Therefore, perfectionism may also relate to dark gaming behaviours. Perfectionism has also been found to relate to the Dark Triad. Particularly other-oriented perfectionism is related to narcissism, Psychopathy and Machiavellianism (Stoeber, 2015). Given the possible overlap between the Dark Triad and perfectionism (Sherry et al.) the second

aim of the study is to test whether perfectionism accounts for significant additional variance in dark gaming, beyond that accounted for by the Dark Triad.

Finally, there is a suggestion that other-oriented perfectionism is the "nastier" form of perfectionism, especially when using the OOP-90 scale because of the negative language used in this scale (Stoeber, 2015). As online harassment and gaming addiction can be considered antisocial behaviours, the OOP-90 may be more strongly associated with these behaviours, compared to a standard scale of other-oriented perfectionism. Therefore, the third aim of the study is to determine whether the OOP-90 is more strongly associated with dark gaming compared to the standard other-oriented perfectionism measure.

2. Methods

2.1 Participants

Participants were 551 online gamers who play online shooter games between the ages of 18 and 57 (mean age = 26.22, SD = 7.09). Of these 551 participants, 337 (61%) were removed from the sample because they reported they did not take part in online shooter games, were not under the age of 18, or they did not complete more than 50% of the questionnaire. The remainder of the sample consisted of 214 participants, 84% (N=180) being male, 15% (N= 31) being female, and 1% (N= 3) preferred to self-describe.

2.2 Measures

A questionnaire was designed for the purposes of this study (see appendix IV) and included measures of gaming activity, the Dark Triad, perfectionism, gaming addiction and online harassment.

2.2.1. Online gaming

Questions related to participants gaming activity were included in the questionnaire. First, participants were asked if they play online shooter games, those who clicked no were sent to the end of the questionnaire. Participants who responded to state they played shooter games were then asked whether they use any form of chat function while playing online games, and how many times a week do they take part in online video games. Questions relating to the types of games played by participants were also included. A multiple-choice question asking which online shooter game do they play, with ten options to pick from (tenth being 'if other, please describe'). Participants were asked to keep their main game in mind for filling out the questionnaire. One last question to help understand potential preparators of

harassment in the sample, the question "Have you ever been banned by another player while playing an online game", this would give an idea of how many people took part in dark gaming, and as a result are reported for it.

2.2.2. Dark Triad

The personality traits of Narcissism, Machiavellianism and Psychopathy were measured using the Short Dark Triad (SD3) (Jones and Paulhus, 2014). The scale consists of 27-items, nine items for each Machiavellianism, e.g. "It is not wise to tell your secrets, nine items for Narcissism, e.g. "people see me as a natural leader", and nine items for Psychopathy, e.g. "I like to get revenge on authority". The scoring was measured using a 5-point scale 1 (1 = Agree strongly) to 5 (Strongly agree). During analyses, five questions were reversed scored (three within Narcissism, two within Psychopathy), e.g. "I avoid dangerous situations". The validity of the SD3 has been demonstrated by Maples, Lamkin and Miller (2014) and reliability by (Buckels et al., 2014; et al., 2015).

2.2.3. Perfectionism

Trait perfectionism dimensions with online gamers were measured through Hewitt and Flett's (2008) short form of Multidimensional Perfectionism Scale (MPS). The scale is made up of 15 items; 5 items for self-oriented perfectionism, e.g. "one of my goals is to be perfect in everything I do", 5 items for socially prescribed perfectionism, e.g. "the better I do, the better I expect to do", and 5 items for other-prescribed, e.g. "everything other do must be of top-notch quality". Participants responded to trait perfectionism dimensions using a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants were given instructions to complete the sentence "In my main online game…", such as "in my main online game, I strive to

be as perfect as I can be". The higher the scale score the higher state of perfectionism within the individual.

Reliability and validity of the short form of Multidimensional Perfectionism scale have been supported by research and also said to be the better of the two short scales in measuring trait dimension perfectionism, as Cox et al. (2002) short form of perfectionism measure of other-oriented perfectionism did not perform as well as Hewitt et al. (2008) measure for other-oriented perfectionism as Cox et al (2002) short form contained many negative wording while Hewitt et al. (2008) did not (Stoeber, 2018).

Due to the interest in other oriented-perfectionism within online gamers, and past research demonstrating that the OOP-90 measures a more 'darker' form of perfectionism (Stoeber, 2015) the OOP-90 (Hewitt and Flett 1990) was added as a measure to test against the original to see if the OOP-90 predicts dark gaming, more than the MPS version, due to the negative wording used in the OOP-90. The OOP-90 is an 8-item measure, e.g. "if someone I know cannot do something really well, they shouldn't do it at all". The measure is rated on a 7-point measure 1 (*Strongly disagree*) to 7 (*Strongly agree*). Participants were instructed to think about their main online game when completing this section, e.g. "In my main online game, I cannot help but get upset if some I know makes mistakes". A higher score represents a larger state of other-oriented perfectionism represented in the sample. Research has shown reliability for the OOP-90 (Smith et al. 2017) and the validity (Stoeber, 2015).

2.2.4. Addiction to online video games

How addicted (where an activity starts to take priority of other important activities such as gaming taking priority over school work) an individual was to playing online video games were measured using the Game Addiction Items (Lemmens et al. 2009). The measure includes 21 items, which splits into seven different addiction categories (salience, tolerance, mood modification, relapse, withdrawal, conflict and problems) using three items each, e.g. "did you think about playing games all day long?". The scores were rated on a five-point scale 1 (*Never)* to 5 (*Very often*). For this study, all items were scored together to give the score on addiction. Research shows the reliability and validity of this scale (Lemmens, Valkenburg & Peter, 2011).

2.2.5. Harassment in online gaming

Aggression in online gamers was measured using the Short Version of the Video Game Harassment Scale (Fox and Tang, 2013). This measure is ten items long, which splits into five items on general harassment and five items on sexual harassment and includes items such as "said a curse or swear words directed at someone". For the current study, the first five items which make up the score of general harassment was used. The short version of the Video Game Harassment Scale rated on a five-point scale 1 (*Never*) to 5 (*Very often*). Reliability and Validity of the Video Game Harassment Scale have been displayed by De Letter, Van Rooij and Van Looy (2017) with multiple good internal consistency record through Cronbach alpha and validity through exploratory factor analyses revealed that the items did correlate to harassment.

2.3. Procedure

York St John University Research Ethics Committee granted ethical approval for this study (See Appendix I). The questionnaire (See Appendix IV) were distributed through Qualtrics on to social media platforms such as Facebook, gaming forums such as Reddit and emails to university gaming/geek societies. Consent was gained through informed questions by answering yes or no to statements provided (See Appendix II). It was then made clear to the participant that they had the right to withdraw their response any time before the 1st of June if they felt uncomfortable with their data being used for the study. Once the participant consented to the study, they were asked to fill out a questionnaire which would take ten to fifteen minutes to complete. The questionnaire started with general demographic questions about the participants and their online gaming activity, such as sex, age and time spent on video games per week. The next section of the questionnaire measured the participant's personality in terms of perfectionism and Dark Triad through the short form of Multidimensional Perfectionism Scale (Hewitt and Flett's, 2004), OOP-90 (Hewitt and Flett, 1990) and the Short Dark Triad (SD3) (Jones and Paulhus, 2014). The final section of the questionnaire aimed to measure the participant's outcomes of playing online shooter games in terms of addiction and harassment using the Game Addiction Items (Lemmens et al., 2009) and the Video Game Harassment Scale (Fox and Tang, 2013). Once participants completed the questionnaire, they were debriefed and given links towards websites that could help them gain any help they may need after potential discomfort of filling in the questionnaire and emails to all researchers involved if they had any questions regarding the study.

2.4. Analytic Strategy

Using SPSS Statistic 25 (IBM Support, 2019), bivariate correlations were conducted to measure the relationship between Dark Triad and perfectionism as predictor variables, with addiction and harassment being the outcome variables. This was followed by two hierarchical multiple regressions to investigate the incremental validity, entering the Dark Triad in step one and perfectionism in step two and using addiction and aggression as outcome variables to test the relationship between personality traits (perfectionism and Dark Triad) and dark gaming, across variables. By looking at significant standardised betas in step two and variance change from step one to step two, the study will be able to identify if perfectionism explains the relationship between dark traits and dark gaming beyond the Dark Triad.

3. Results

3.1. Descriptive Statistics

Descriptive stats are reported in Table 1, including means, standard deviation, Cronbach's alpha, Skewness and Kurtosis. For each variable used within the study. Self-reported addiction displayed an excellent internal consistency (above .9) while self-oriented perfectionism, socially prescribed, OOP-90, Machiavellianism and aggression all reported a good internal consistency score (between .8 and .9). The original other-oriented perfectionism scale internal consistency was questionable (between .6 and .7), while Narcissism and Psychopathy were poor, however in Jones and Paulhus (2014) found Narcissism to have acceptable internal consistency, and Psychopathy reported just above the acceptable mark. Self-oriented perfectionism has the highest mean within perfectionism, followed by socially prescribed perfectionism, other-oriented perfectionism and the OOP-90. Within the Dark Triad Machiavellianism reported the higher mean, followed by Narcissism and Psychopathy. Cronbach alphas for the SD3 is as follows; Machiavellianism $\alpha = .83$, Narcissism $\alpha = .67$, Psychopathy $\alpha = .67$, while Cronbach alpha for the short form of Multidimensional Perfectionism is as follows; socially prescribed perfectionism $\alpha = .82$, self-oriented perfectionism $\alpha = .87$, other-oriented perfectionism $\alpha = .77$. Cronbach alpha for OOP-90 suggested an acceptable level of internal reliability, $\alpha = .82$, while the Game Addiction items suggested a Cronbach alpha level of $\alpha = .92$ and harassment was reported as $\alpha = .91$.

3.2. Bivariate Correlations

Bivariate correlations are in Table 1 and revealed that other-oriented perfectionism-90, Psychopathy, Machiavellianism and other-oriented perfectionism

all had a significant, small to moderate, positive correlation towards aggression during online shooter games, starting with other-oriented perfectionism as the strongest and ending with Narcissism as the weakest. Self-oriented perfectionism, socially prescribed perfectionism and Narcissism did not correlate significantly with aggression. Correlation analyses revealed self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism and the Dark Triad had, significant, small to a moderate, positive correlation with addiction during online video games. Machiavellianism was the strongest variable significantly positively correlated towards addiction, followed by socially prescribed perfectionism, other-oriented perfectionism-90, other-oriented perfectionism, self-oriented perfectionism and Psychopathy. Only Narcissism was not significantly correlated to addiction.

Table 1. *Perfectionism, Dark Triad, Addiction and Aggression: Correlations, mean, standard deviations, skewness, kurtosis and Cronbach's alpha scores.*

Scale.	1	2	3	4	5	6	7	8	*M*	*SD*	SK	Ku	α
1. Self-oriented perfectionism									3.99	1.43	.08	-.62	.87
2. Other-oriented perfectionism	.54**								3.43	1.13	.04	-.50	.77
3. Socially prescribed perfectionism	.35**	.30**							3.72	1.27	.26	-.07	.82
4. Other-Oriented perfectionism- 90	.33**	.56**	.30**						2.24	.91	.78	.21	.82
5. Machiavellianism	.25**	.38**	.27**	.54**					2.97	.74	.10	.05	.83
6. Narcissism	.34**	.30**	.14	.18**	.10				2.55	.57	-.14	-.07	.67
7. Psychopathy	.17*	.27**	.21**	.41**	.52**	.25**			2.17	.57	.62	.80	.67
8. Addiction	.21**	.21**	.31**	.26**	.34**	.12	.14*		2.60	.65	.51	.46	.92
9. Aggression	.02	.19**	.04	.36**	.30**	.11	.40**	.13	1.61	.61	2.00	4.79	.91

Note. = *p<.05. **p<.01. M = Mean, SD = Standard Deviation, Sk= Skewness, Ku = Kurtosis, α = Cronbach's alpha.

3.3. Online gaming results

The sample of 214 online gamers reported that 86% of them use certain forms of online communication such as Discord or through the use of headphones when playing online games. The sample reported that on average, they play between one to thirty times per week. Over ten different online shooter games were reported as their most played game by the sample, the most being Apex Legends followed by Overwatch, Destiny 2, Battlefield Five, CSGO, Player Unknown Battle Gronds (PUBG). Rainbow six siege, Fortnite, Black Ops 4 and others. When asked if they have ever been banned during an online shooter 15% of the sample reported that they had been banned from playing in an online game, while 75% reported that they had not been banned.

Figure 1.

Online shooter games played by participants
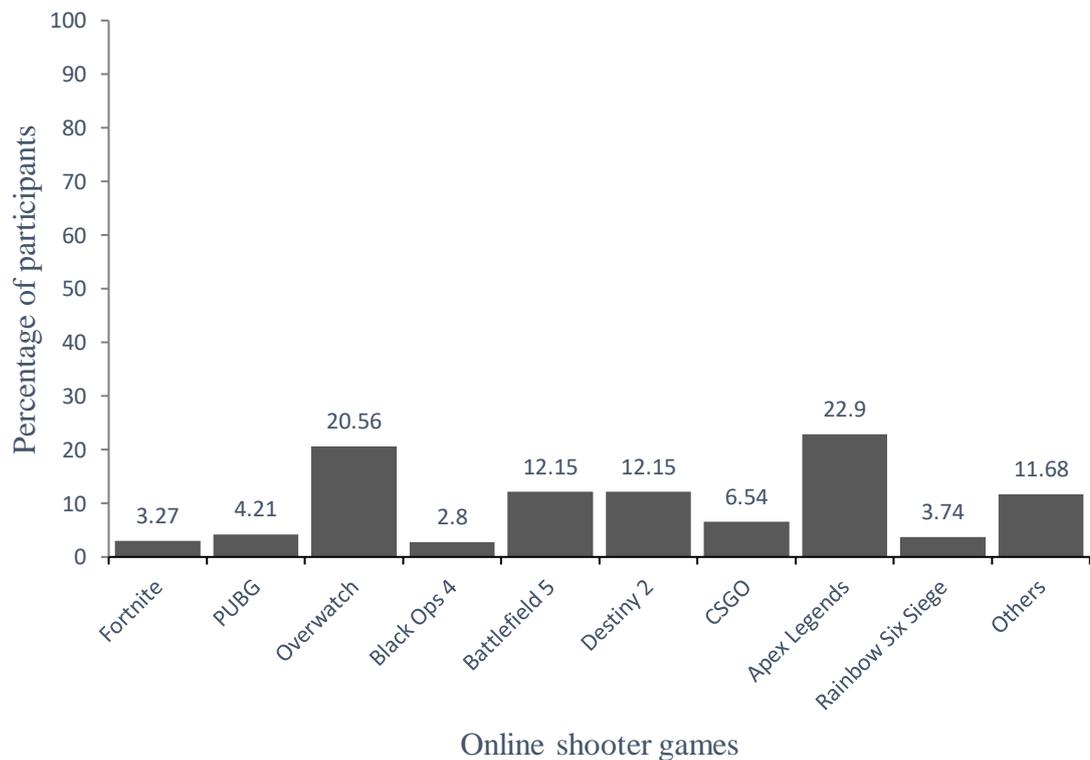
3.4. The prevalence of harassment in online gaming

Table 2 (overleaf) shows the prevalence of each harassment behaviour. The most prevalent harassment behaviour is "Made comments about someone's abilities to play" as it has the lowest response to never, followed by "Said curse or swear words directed at someone", "Said general insults directed at someone", "Made comments about someone's intelligence" and the least prevalent being "Asked someone to leave the game". Focusing on those behaviours that occur 'very often', the most commonly reported behaviour reported "Said curse or swear words directed at someone", followed by "Said curse or swear words directed at someone", "Made comments about someone's abilities to play", "Made comments about someone's intelligence", "Said general insults directed at someone" and "Asked someone to leave the game". General harassment is also to be shown as more prevalent than sexual harassment during online shooter games, as shown in Table 2.

Table 2:

The prevalence of harassment behaviours in online games

Scale items	Never	Sometimes	About half the time	Most of the time	Very often
1. Said curse or swear words directed at SOMEONE	50 (23.36%)	103 (48.13%)	16 (7.48%)	13 (6.07%)	29 (13.55%)
2. Made comments about SOMEONE's intelligence	77 (35.98%)	89 (41.59%)	13 (6.07%)	13 (6.07%)	19 (8.88%)
3. Said general insults directed at SOMEONE	56 (26.17%)	102 (47.66%)	21 (9.81%)	16 (7.48%)	16 (7.48%)
4. Made comments about SOMEONE's abilities to play	42 (19.63%)	98 (45.79%)	38 (17.76%)	11 (5.14%)	22 (10.28%)
5. Asked SOMEONE to leave the game	154 (71.96%)	40 (18.69%)	3 (1.40%)	5 (2.34%)	9 (4.21%)
6. Made sexist comments or insults towards SOMEONE	195 (91.12%)	7 (3.27%)	4 (1.87%)	2 (.93%)	3 (1.40%)
7. Made comments about SOMEONE's appearance or weight	175 (81.78%)	25 (11.68%)	5 (2.34%)	1 (.47%)	4 (1.87%)
8. Doubted SOMEONE's motivations for playing video games because of their gender	199 (92.99%)	8 (3.74%)	1 (.47%)	1 (.47%)	2 (.93%)
9. Expressed unsolicited liking or affection towards SOMEONE	190 (90.05%)	18 (8.41%)	2 (.93%)	0	1 (.47%)
10. Made a rape joke at SOMEONE's expense or threatened to rape SOMEONE	200 (93.46%)	8 (3.74%)	0	0	2 (.93%)

3.5. Do the Dark Triad and perfectionism predict aggression and addiction in online shooter games?

Hierarchical multiple regressions implied both socially prescribed perfectionism and Machiavellianism both significantly predict addiction during online shooter games, while both other-oriented perfectionism and Psychopathy significantly predict aggression during online shooter games.

Step one in the addiction model resulted in a significant model, $F(3,193) = 10.10$, p<.05, which accounted for 13.6% of the variance $R^2 = .136$. Step two of the addiction model added dimensions of perfectionism as predictors variables and resulted in a significant model, $F(7,189) = 6.04$ p<0.05, which accounted for 18.3% of the variance $\Delta R^2 = .047$. The individual contributions of each variable are shown in table 3.

Step one in the aggression model resulted in a significant model, $F(3,195) = 13.37$, p<.05, which accounted for 17.1% of the variance $R^2 = .171$. Step two of the aggression model added dimensions of perfectionism as predictor variables and resulted in a significant model $F(7,191) = 8.53$ p<.05, which accounted for 23.8% of the variance $\Delta R^2 = .068$. The individual contributions of each variable are shown in table 3.

3.6. Does perfectionism predict these relationships beyond the Dark Triad?

Results of a hierarchical regression are shown in table 2 for both addiction and aggression. Regression one represents addiction as the outcome variable with the Dark Triad entered in step 1. During step 1, the variance accounted for is 13.6%, and homoscedasticity was assumed. At step 1, the model is significant, and Machiavellianism was the only variable significantly correlated with addiction

during online shooter games. At step 2, 18.3% of the total variance was explained; the overall model was significant and accounting for less than of the total variance than it does not account for. Perfectionism sub-scales were entered and significantly improved the model. Machiavellianism and socially prescribed perfectionism were both significantly associated with addiction. Standardised betas show that for everyone standardised unit change in Machiavellianism addiction was associated with an increase of .31 in addiction score. Furthermore, one standardised unit change in socially prescribed perfectionism addiction will was associated with an increase of .20 in addiction, suggesting Machiavellianism to be more strongly associated with addiction compared to socially prescribed perfectionism.

Regression two represents aggression during online shooter games as the outcome variable, while the Dark Triad entered in the step one. During step one the variance accounted for is 17.1%, and homoscedasticity was assumed. Psychopathy was the only variable significantly correlated with aggression during online video games. At step 2, 23.8% of the total variance was explained: the overall model was significant and accounting for less than of the total variance not accounted for. Perfectionism subscales were entered and significantly improved the model. Psychopathy and other-oriented perfectionism, while using the OOP-90 both significantly associated with aggression during online video games. Standardised betas show that for every one-unit change in Psychopathy aggression was associated with an increase of aggression .30 score. Furthermore, one standard unit change in other-oriented perfectionism while using the OOP-90 aggression was associated with an increase of .32 in aggression, suggesting other-oriented perfectionism to be similarly associated with aggression when compared to psychopathy.

These results suggest that for both cases of addiction and aggression variables of perfectionism predict the relationship between dark personality and dark gaming beyond the Dark Triad. The results also suggest that the OOP-90 predicts dark gaming, better than the MPS scale for other-oriented perfectionism.

Table 3.

Hierarchical Regression Analyses for addiction and aggression during online video games

Variables	Addiction			Aggression		
	B	β	t	B	β	t
Step 1						
Machiavellianism	.33	.39	4.92**	.14	.11	1.43
Narcissism	.13	.11	1.59	.01	.01	.05
Psychopathy	-.11	-.11	-.19	.59	.34	4.34**
Step 2						
Machiavellianism	.26	.31	3.52**	.01	.01	.10
Narcissism	.07	.06	.85	.01	.01	.01
Psychopathy	-.13	-.12	-1.42	.51	.30	3.82**
SOP	.03	.07	.84	-.06	-.09	-1.10
OOP	-.02	-.03	-.31	-.01	-.01	-.06
SPP	.10	.20	2.68**	-.06	-.08	-1.17
OOP-90	.05	.06	.67	.34	.32	3.61**

*Notes: *p<.05, **p<.01.*

3.7. Does the OOP-90 scale predict dark gaming more than the standard scale of other-oriented perfectionism?

Table 1 demonstrates that regarding addiction both the MPS version of other-oriented perfectionism and OOP-90 version were significantly correlated with addiction and aggression, with the OOP-90 being more significantly correlated with both addiction and aggression than the MPS version of other-oriented perfectionism. Table 2 shows that through a hierarchical regression, in step two of the addiction model, neither the MPS version of other-oriented perfectionism or the OOP-90 version was significantly correlated. However, when entered into step 2 of the aggression model, the OOP-90 contributed significant value to the model while the MPS version of other-oriented perfectionism did not. The results of table one suggests that other-oriented perfectionism is a potential predictor of dark gaming, while the results of table two suggest that the OOP-90 is a stronger predictor of dark gaming than the MPS version of other-oriented perfectionism is, especially aggression. The OOP-90 scoring a higher significant standardised beta score than Psychopathy in terms of harassment demonstrates how dark other-oriented perfectionism can be when using the OOP-90 scale.

4. Discussion

The aims of the current study were to examine if perfectionism or the Dark Triad predict dark gaming, whether perfectionism predicts the relationship between the dark gaming beyond the Dark Triad, and if the OOP-90 differs to the original scale when measuring dark gaming. Perfectionism was found to be related to harassment in online gaming through other-oriented perfectionism while using the OOP-90 and addiction through socially prescribed perfectionism. The Dark Triad was found to be related to harassment through Psychopathy and related to addiction through Machiavellianism. Hierarchical regression demonstrated that perfectionism does predict the relationship with dark gaming, above and beyond the Dark Triad. The OOP-90 was found to differ from the original scale when measuring the prevalence of harassment in gaming.

4.1. Correlations between Dark Triad and addiction

Table 2 shows that Machiavellianism and Psychopathy are both significantly correlated to online gaming addiction, while Narcissism did not correlate to online gaming addiction. Narcissistic traits have been previously found to correlate online gaming addiction (Kim, et al., 2008), unlike this study; this may be due to an individual high in narcissism having a high level of self-love, and because of this they may see themselves as being above having an addiction to online video games or are better at recognising that they do have an addiction. However, Pabian et al. (2015) found that both Machiavellianism and Psychopathy were significantly correlated with Facebook intensity, while Narcissism was not significantly correlated with Facebook intensity. Pabian and colleagues also used the SD3 and discovered that Narcissism did not correlate with more time spent online. With the results of this

study and Pabian and colleagues' study, it may be that Narcissism is not likely to correlate with additive related measures, especially when using the SD3.

4.1.2. Correlations between Dark Triad and aggression

Machiavellianism and Psychopathy significantly correlated towards aggression, while Narcissism did not correlate to aggression during online shooter games (Table 1). As Machiavellianism and Psychopathy are significantly correlated with aggression, the results align with Baughman et al. (2011) and Goodboy and Martin's (2015) correlation findings. While not much research has shown Machiavellianism to be aggressive unless they have a reason, Buckels et al. (2014) demonstrated that Machiavellianism predicts enjoyment of trolling online, which lines up with Machiavellianism correlating with harassment. Psychopathy correlating to aggression is consistent with Moor and Anderson's (2019) findings that psychopathy has the strongest relationship with antisocial online behaviour within the Dark Triad. The results and research suggest that those high in Psychopathy are more likely to act aggressively towards other people during online gaming potentially because they are either not accepting of them or untrustworthy towards them.

However, unlike this study, Baughman et al. (2011) reported that Narcissism was significantly correlated with cyberbullying, similar to Ekşi (2012) who discovered that Narcissism significantly correlated with cyberbullying. This study found that Narcissism did not significantly correlate to aggression. In most online multiplayer shooter games, an individual player will be put into a random team each game. Considering how past research discovered that those high in Narcissism put other people down to make themselves feel superior and boost their feelings of self-

love (Kim et al., 2008) it could be that, whilst online, those high in narcissism are more likely to target someone who they are able to gain access to more easily and frequently, such as a Facebook page. However, due to the randomly generated teammates provided by online shooter games, a narcissist would only have access to a victim for between a couple of seconds to half an hour as this is how most shooter games are structured. Because finding a victim during online shooter games could be more difficult than on a social media page, a narcissist would get their sensation of self-worth some other way rather than putting other people down during an online shooter game, such as being top of the leader board to show off how good at the game they are.

4.1.3. Correlations between perfectionism and addiction

Table 2 shows that self-oriented perfectionism, socially prescribed perfectionism and other-oriented perfectionism are all correlated to internet gaming addiction. Socially prescribed perfectionism scored the highest correlation, followed by other-oriented perfectionism using the OOP-90 scale and the other-oriented perfectionism and self-oriented perfectionism. Similar findings were shown by Senormanci et al. (2013) and Dalbudak et al. (2013) whose results show that perfectionistic attitudes were significantly related to online gaming addiction. The relationship between perfectionism and online gaming addiction could be explained by studies which have investigated exercise dependency. Dependency on online gaming could be similar to how Hall et al. (2009) showed that socially prescribed perfectionism and self-oriented perfectionism could lead to exercise dependency. Becoming dependant on online video games will increase the time spent playing these games, therefore will increase the risk of addiction.

4.1.4. Correlations between perfectionism and aggression

Table 2 shows that self-oriented perfectionism did not correlate to aggression during online gaming, while socially prescribed perfectionism and other-oriented perfectionism positively significantly correlated to aggression during online games. Other-oriented perfectionism had a stronger correlation, especially when the OOP-90 scale was used. These findings are similar to Stoeber (2015) findings where multiple regression analyses lead to other-oriented perfectionism having a unique positive relationship with aggressive humour, and self-oriented perfectionism had a unique negative relationship with aggressive humour. The results suggest that different dimensions of perfectionism do indeed result in different levels of aggression, mostly other-oriented perfectionism.

4.2. Do the Dark Triad and Perfectionism predict addiction

When the Dark Triad was entered at step one of hierarchical multiple regression for addiction, Machiavellianism is significantly related to addiction to online video games. When perfectionism variables were entered at step 2, the only change was socially prescribed perfectionism also significantly correlated to online gaming addiction. The change in variance demonstrates that socially prescribed perfectionism measures online gaming addiction beyond the Dark Triad. However, the Dark Triad is still a stronger predictor due to its higher standardised beta value. The results do highlight the importance of socially prescribed perfectionism and Machiavellianism when it comes to trying to understand online gaming addiction. Standardised betas demonstrate that for everyone unit of change in Machiavellianism, addiction will rise .31, and for every one unit of change in socially prescribed perfectionism, addiction will rise .20. The results demonstrate

how much Machiavellianism and socially prescribed perfectionism influence and increase online gaming addiction.

Being high in Machiavellianism is to be more manipulative and behave in a colder way towards other individuals. The Short Dark Triad scale Jones and Paulhus (2014) used to measure Machiavellianism mentions preserving reputation, making sure their plans benefit themselves and not others, and believing that most people can be manipulated. Due to these ideas that those individuals who are high in Machiavellianism have, they may take part in addictive gaming in order to feel a sense of power or influence as they will always be online talking to everybody from everywhere in the world, which will increase their sense of influence. Due to addictive behaviours leading those high in Machiavellianism to play online games for many hours, they are improving their gaming skills to show off to others while increasing their sense of power and influence over others during online gaming.

Socially prescribed perfectionism may also help explain why Machiavellianism leads to gaming addiction as Sherry et al. (2005) found that Machiavellianism and perfectionistic self-presentation was mediated by socially prescribed perfectionism due to those being high in Machiavellianism feeling a need to promote themselves as perfect to others. In an online gaming world, this could be achieved by playing a significant amount of the game to be a higher level or have better items than other people to feel that sense of dominance over others because they are perfect or better compared to other players. The feeling of dominance that those high in Machiavellianism feel may lead them to become dependent on the game to repetitively experience the sense of dominance that online gaming provides them. The results show that individuals high in Machiavellianism and socially prescribed perfectionism are more likely to become addicted to online gaming than

individuals who are not high in Machiavellianism and socially prescribed perfectionism.

Socially prescribed perfectionism leading to gaming addiction furthers evidence for the idea that socially prescribed perfectionism can lead to gaming dependency much like Hall et al. (2009) findings where socially prescribed perfectionism leads to exercise dependency through unconditional self-acceptance and Millner and Mesagno's (2014) findings where exercise dependency was positively related to socially prescribed perfectionism. An individual who is high in socially prescribed perfectionism may feel pressure to play online games to feel a sense of worth and those high in socially prescribed perfectionism has been shown to be ready to take part in antisocial behaviour in order to validate themselves (Stoeber et al., 2016; Madigan et al., 2016), and because of this constant need of validation, they become dependent on the video game.

Gaming dependency may also lead to gaming addiction because of depressive symptoms, as Sherry et al. (2008) discovered that those high in socially prescribed perfectionism lead to depressive symptoms through the desire of social support. An individual high in socially prescribed perfectionism who plays online games, may feel as if they have to be better or perfect at the game to gain social support from others who play the game, which will lead them to become addicted or reliant on the game to gain a sense of social support; similar to how Peng and Liu (2010) found that depression and cognitive shyness was related to gaming dependency. Future research into predictors of online gaming addiction should focus on why these personality traits can lead to addiction, for example gaming dependency, and also should measure longitudinal changes in levels of Dark Triad as well as levels of addiction over time.

4.2.1. Do the Dark Triad and Perfectionism predict aggression?

When entered in step one, only Psychopathy had a significant relationship with aggression during online gaming. When entering the perfectionism subscales into step two, other-oriented perfectionism was significantly correlated with aggression during online gaming, when using the OOP-90 scale. These results show that perfectionism does predict aggression in online gaming alongside the dark trad, in the form of other-oriented perfectionism. It also demonstrates that the OOP-90 scale reveals a darker side of perfectionism than the original scale does. These findings are similar with those of Stoeber (2015) who noted that when using the OOP-90, other-oriented perfectionism is more of a dark trait than socially prescribed or self-oriented perfectionism. Standardised betas show that when using the OOP-90, other-oriented perfectionism (.32) is a slightly bigger predictor of harassment than Psychopathy which is (.30). The results highlight that other-oriented perfectionism is just as important in understanding harassment during online gaming as Psychopathy. It may also indicate how much of a change other-oriented perfectionism and Psychopathy have on harassment in online gaming over time, however, cannot be too sure due to the cross-sectional design.

Psychopathy leading to aggressive behaviour online may be due to Jones and Paulhus (2010) findings that those high in Psychopathy may act more aggressive when their ego is in danger. An individual high in Psychopathy may be playing an online game and feel as if their ego is being threatened by another online gamer, they may act aggressively in order to defend their ego. Jones and Paulhus (2011) also discovered that Psychopathy is related to both overall impulsivity and dysfunctional impulsivity, which could suggest that those high in Psychopathy are more impulsive,

meaning they are more likely to react in an aggressive way on impulse alone before trying to control themselves and not 'lash out'.

Other oriented perfectionism may lead to aggression in online shooter games due to its potential importance to the social disconnection model as Sherry et al. (2016) argue this, and Graham et al. (2010) acknowledge that those high in other-oriented perfectionism demand perfection from others. The stress and high demands that those high in other-oriented perfectionism put on others to be perfect can result in those high in other-oriented perfectionism being disappointed with others not achieving their expectations and this leads them to aggressive behaviour. This would translate to the online gaming world as someone high in other-oriented perfectionism will pressure teammates to be perfect, resulting in a negative relationship within the team, and the one high in other-oriented perfectionism will act out more aggressively because of this negative relationship. Aggression is most likely to be take form in a verbal manner during online gaming, as Öngen (2009) demonstrated that high standards leads to verbal aggression and this is possible through the use of headphones.

Other oriented perfectionism was also shown to predict aggression during online shooter games slightly more than Psychopathy does. The findings further the idea that other-oriented perfectionism is the dark side of perfectionism which may be explained by Stoeber (2015) demonstrating that other-oriented perfectionism has a unique positive relationship with social dominance goals when using OOP-90 scale. The findings could mean those high in other-oriented perfectionism are trying to show their dominance over others during online video games through aggression. The results demonstrate that both Psychopathy and other-oriented perfectionism can lead to aggression during online gaming. Future studies should take note that

personality such as perfectionism and Dark Triad predicts levels of aggression during online gaming and the video games themselves are not to blame for acts of aggression. In future studies, how personality develops and changes over time should be measured against change in aggression during online video games, for example overtime, an increase in other-oriented perfectionism and increased levels of aggression.

4.3. Comparing OOP-90 and the original MPS scale

Both correlation and hierarchical analyses reveal that when using the OOP-90, the relationship between perfectionism and aggression was stronger than when the original Hewitt and Flett MPS scale. Due to OOP-90 having a stronger relationship with aggression, this could mean that the OOP-90 scale records a darker version of perfectionism than the original scale, in a sample of online gamers. Reasons for why the OOP-90 may do this is because of what words are used in the measures themselves. Stoeber (2015) found that the OOP-90 has negative words in the items themselves when the original MPS scale from Hewitt and Flett does not have any negative words in the items, and also found a similar finding in Stoeber (2018) when comparing the short form of the MPS to Cox et al (2002) short form of perfectionism, concluding that the MPS short form had a better measure of other-oriented perfectionism due to the Cox and colleagues' form containing too many negative words. The findings add further evidence that the OOP-90 measures a darker form of other-oriented perfectionism, and so in future studies involving the other-oriented perfectionism there should be careful consideration of which scale to use as if the outcome variable is involving a dark of antisocial behaviour then the OOP-90 may be a better fit than the MPS.

4.4 Future Research

The current study has many strengths as it is the first to examine both Dark Triad and perfectionism in relation to dark gaming. Through this study comparing Dark Triad and perfectionism, it allowed analyses to compare different dimensions of personality and to what degree they differ to each other. By comparing the OOP-90 measure to the MPS short version, the study was able to add to past research knowledge that the OOP-90 predicts a darker form of other-oriented perfectionism than the MPS version does. There are also weaknesses to the current such as it being a cross-sectional study as it does not measure the change of variables over time. The questionnaire was also self-reported scale which could mean that participants gave inaccurate data as they do not wish to admit that they take part in anti-social behaviours. The short form of other-oriented perfectionism of the MPS reliability was questionable, while Machiavellianism and Narcissism were poor, this may be due to one of the items in each scale performing poorly and would need to be removed from the measure in future studies, or a full scale should be utilised instead of a short form.

Many approaches can be taken to future research, a longitudinal study of dark gaming could reveal how dark gaming increases or decreases over time due to potential increasing levels of perfectionism or Dark Triad personality traits or a mixed approach where a participant answers questions and play video games while a researcher observer their behaviour. The current study focused on dark gaming in online shooter games, however there are more genres of games to look into so a similar study to this could be conducted just with a different game genre to measure if there are differences across genres. Addiction and aggression in the form of harassment were the outcome variables for this study, however, Moor and Anderson

(2019) found that there were 14 different types of online anti-social behaviours that researched have previously focused on. This demonstrates that there is more to dark gaming than just addiction and harassment and many possibility to explore.

Recent years have seen a focus on the Dark Tetrad rather than the Dark Triad. While perfectionism has been researched alongside the Dark Triad (Stoeber, 2015) not much has been researched regarding the relationship between perfectionism and Sadism at the time of this study, and for that reason the Dark Triad was used over the Dark Tetrad. Future research could investigate the relationship between Dark Tetrad, perfectionism and online gaming and if perfectionism still adds more to the relationship between Dark Tetrad and dark gaming. Through the addiction of sadism, more dark gaming actions could be investigated such as trolling, as Buckels et al. (2014) found it to be the favourite online activity of those who are high in sadism.

5. Conclusion

The current study aimed to discover if there was a relationship between perfectionism or the Dark Triad with dark gaming, whether perfectionism predicted the relationship with dark gaming beyond the relationship between the Dark Triad and dark gaming, and if the OOP-90 measure predicted dark gaming better than the original MPS scale. Socially prescribed perfectionism was found to predict dark gaming in the form of addiction. Machiavellianism also predicted this relationship and predicted the relationship with dark gaming stronger than socially prescribed perfectionism did. The change in variance demonstrates that socially prescribed perfection does predict online gaming addiction beyond the Dark Triad. Other-oriented perfectionism was found to predict dark gaming in the form of aggression; however, only when using the OOP-90 scale. Psychopathy also predicted aggression during online video games. However, other-oriented perfectionism was slightly stronger than psychopathy. The results show that both perfectionism and the Dark Triad predict dark gaming in the form of aggression and perfectionism does predict this relationship beyond the Dark Triad, demonstrating its importance in understanding aggression during online gaming. The OOP-90 measure was also shown to indeed measure a darker form of other-oriented perfectionism during online gaming than the original MPS version did. These results outline which characteristics of personality are at risk of taking part in dark gaming and that intervention needs to take place to stop dark gaming manifesting in younger people.

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7. Appendices

7.1. Appendix I. Approval letter

York St John University,

Lord Mayors Walk,

York,

YO31 7EX

17/01/2019

York St John University Cross School Research Ethics Committee

(Health Sciences, Sport, Psychological and Social Sciences and Business)

Dear Aaron,

Title of study: Dark Gaming: The relationship between Perfectionism, The Dark Triad and Anti-Social Behaviour in Online Video Games.

Ethics reference: Jones_17012019

Date of submission: 17/01/2019

I am pleased to inform you that the above application for ethical review has been reviewed by the Cross School Research Ethics Committee and I can confirm a favourable ethical opinion on the basis of the information provided in the following documents:

Document	Date
Research Ethics Form	02/12/2018
Participant information sheet & consent form	02/12/2018
Debrief	02/12/2018

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval, including changes to recruitment methodology or accompanying documentation. All changes must receive ethical approval prior to commencing your study.

Yours sincerely,

Dr Rosie Smith   *Dr Katy Marsh-Davies*

7.2. Appendix II. Participant Information Sheet

Name of school: School of Sport

Title of study: Dark Gaming: The relationship between Perfectionism, The Dark Triad and Anti-Social Behaviour in Online Video Games.

Introduction

My name is Aaron Jones, an postgraduate student at York St John University. I am currently conducting some research about different traits that may predict antisocial behaviour in online gaming with my supervising team Andrew Hill, Sarah Mallinson-Howard, Nathalie Noret and Martin Smith. If you wish to contact me, my email is aaron.jones@yorksj.ac.uk.

What is the purpose of this investigation?

The aim of this study is to see if such things as perfectionism or the Dark Triad can predict antisocial behaviour in online shooting games. We are conducting this because there has not been much if any research done like this before and with the popularity of online gaming on the rise we would like to explore this area. By finding a relationship between one of the predictor variables and anti-social behaviour we provide new evidence for further research into the topic of anti-social behaviour and online multiplayer shooter games.

Do you have to take part?

Taking part in the study is voluntary and you do not have to take part in it if you wish not to. There is potential that you may feel some discomfort due to the research

bringing up anti-social behaviour whilst playing online multiplayer shooter games and may remind you of some bad memories. If you wish to withdraw your data from the study, you are allowed anytime before June 1st. To withdraw please email me at the email address listed below and provide your participant number which you will enter on the next page.

What will you do in the project?

In this study you will be asked to complete and online questionnaire. A reminder as this study does deal with anti-social behaviour in online multiplayer shooter games and may cause some discomfort you do not have to finish the questionnaire if you do not wish to. The questionnaire should only take 30 minutes to complete.

Why have you been invited to take part?

To take part in the study you must be 18 or older and play at least one online multiplayer shooting game.

What are the potential risks to you in taking part?

The study looks into antisocial behaviour in online shooting games, this may remind you of past experiences with anti-social behaviour. The questions will also be aimed at your perfectionism and Dark Triad personality traits which again may lead you to feel some discomfort. If during completing the questionnaire you feel any discomfort, please stop filling in the questionnaire. If after stopping the questionnaire and still feel discomfort, please follow the links provided on the debrief for further help. You will have until the 1st of June to withdraw your data.

What happens to the information in the project?

Your data will be anonymously and confidentially stored in a protected computer file in which only me and my supervisory team will be able to access. The data will be analysed and anonymised data will be presented in my masters thesis and possible publications. Once complete an anonymous version of the data set will be uploaded onto the Open Science Framework open repository.

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy with the information provided and would like to take part in the study, please complete the consent form below. If you are not happy with the information provided, then do not complete the form any further and thank you for your time.

This investigation was granted ethical approval by the York St John University Module Research Ethics Committee

Researcher contact details:

Aaron Jones

School of Sport

York St John University,   Nathalie Noret

Lord Mayors Walk,   School of Psychological and social Sciences

York,   York St John University,

YO31 7EX

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YO31 7EX

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If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Anna Macklin

Member of the York St John University

Research Ethics Committee

School of Psychological and Social Sciences,

York St John University,

Lord Mayors Walk,

York,

YO31 7EX

Email: A.Macklin@yorksj.ac.uk

7.3. Appendix III. Consent Form

Name of school: School of Sport

Name of researcher Aaron Jones

Title of study: Dark Gaming: The relationship between Perfectionism, The Dark Triad and Anti-Social Behaviour in Online Video Games.

_____

Please read and complete this form carefully. If you are willing to participate in this study, ring the appropriate responses and sign and date the declaration at the end. If you do not understand anything and would like more information, please ask.

- I have had the research satisfactorily explained to me in verbal   Yes/No
  and / or written form by the researcher.
- I understand that the research will involve: (answering a   Yes/No
  questionnaire that may take approximately 15-20 minutes)
- I understand that I may withdraw from this study at any time   Yes/No
  without having to give an explanation. Please email your
  pseudonym name to Aaron Jones by the 1st of June.
- I understand that all information about me will be treated in strict   Yes/No
  confidence and that I will not be named in any written work
  arising from this study.
- I understand that any audiotape material of me will be used   Yes/No
  solely for research purposes and will be destroyed on completion
  of your research.

- I understand that you will be discussing the progress of your   Yes/No

    research with your supervisors at York St John University

- I consent to being a participant in the project   Yes/No

Appendix IV - Items

1. Age? _____

2. Sex? Male / Female / I prefer to self-describe / Prefer not to say

3. Do you play online games?_____

4. When you play an online game, do you use any form of online chat functions?

   E.g. through headphones or discord._____

5. How many times a week do you play online games?_____

6. Which online shooter game would you say you play the most?

Fortnite

Player Unknown Battle Grounds (PUBG)

Overwatch

Black Ops 4

Battlefield 5

Destiny 2

H1Z1

Halo 2 Wars

Other, please describe:_____

7. Have you ever been banned by another player whilst playing an online game?____

Instructions: Whilst completing this questionnaire, keep in mind your answer to question 7 (which online shooter game would you say you play the most).

Hewitt et al. (2004) Short form of Multidimensional Perfectionism Scale

1 = Strongly Disagree, 2 = Somewhat disagree, 3 = disagree, 4 = neither agree or disagree, 5 = agree, 6 = somewhat agree, 7 = Strongly agree.

Self-Oriented Perfectionism

8.   One of my goals is to be perfect in everything I do.

9.   I strive to be as perfect as I can be.

10.   It is very important that I am perfect in everything I attempt.

11.   I demand nothing less than perfection from myself.

12.   I must work to my full potential at all times.

Other-Oriented Perfectionism

13.   Everything that others do must be of top-notch quality

14.   I have high expectations for the people who are important to me.

15.   I can't be bothered with people who won't strive to better themselves.

16.   If I ask someone to do something, I expect it to be done flawlessly.

17.   I cannot stand to see people close to me make mistakes

Socially Prescribed Perfectionism

18.   The better I do, the better I am expected to do.

19.   Success means that I must work even harder to please.

20.   My family expects me to be perfect.

21.   People expect nothing less than perfection from me.

22.   People expect more from me than I am capable of giving.

Other-Oriented Perfectionism, 1990 Scale (OOP-90; Hewitt and Flett 1990):

23. If I do not set very high standards for people I know, they are likely to end up

second-rate people.

24. I think less of people I know if they make mistakes.

25. If someone I know cannot do something really well, they shouldn't do it at all.

26. I cannot help getting upset if someone I know make mistakes.

27. It is shameful for people that I know to display weakness or foolish behavior.

28. An average performance by someone I know is unsatisfactory.

29. When someone I know fails at something important, it means they are probably

less of a person.

30. If I scold others for their failure to live up to expectations, it will help them in the

future.

Short Dark Triad (SD3), Jones and Paulhus (2014)

Strongly Disagree = 1, Disagree = 2, Neither Agree or Disagree = 3, Agree = 4,

Strongly Agree = 5

Machiavellianism

31. It's not wise to tell your secrets.

32. I like to use clever manipulation to get my way.

33. Whatever it takes, you must get the important people on your side.

34. Avoid direct conflict with others because they may be useful in the future.

35. It's wise to keep track of information that you can use against people later.

36. You should wait for the right time to get back at people.

37. There are things you should hide from other people to preserve your reputation.

38. Make sure your plans benefit yourself, not others.

39. Most people can be manipulated.

Narcissism

40. People see me as a natural leader.

41. I hate being the centre of attention. (R)

42. Many group activities tend to be dull without me.

43. I know that I am special because everyone keeps telling me so.

44. I like to get acquainted with important people.

45. I feel embarrassed if someone compliments me. (R)

46. I have been compared to famous people.

47. I am an average person. (R)

48. I insist on getting the respect I deserve.

Psychopathy

49. I like to get revenge on authorities.

50. I avoid dangerous situations. (R)

51. Payback needs to be quick and nasty.

52. People often say I'm out of control.

53. It's true that I can be mean to others.

54. People who mess with me always regret it.

55. I have never gotten into trouble with the law. (R)

56. I enjoy having sex with people I hardly know

57. I'll say anything to get what I want.

Game Addiction Items, Lemmens, Valkenburg and Peter (2009)

Instructions: Please indicate how much you agree with each of the following

statements

1 = Never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often

Salience

58. Did you think about playing a game all day long?

59. Did you spend much free time on games?

60. Have you felt addicted to a game?

Tolerance

61. Did you play longer than intended?

62. Did you spend increasing amount of time on games?

63. Were you unable to stop once you started playing?

Mood Modification

64. Did you play games to forget real life?

65. Have you played games to release stress?

66. Have you played games to feel better?

Relapse

67. Were you unable to reduce your game time?

68. Have other unsuccessfully tried to reduce your game time?

69. Have you failed when trying your reduce your game time?

Withdrawal

70. Have you felt bad when you were unable to play?

71. Have you become angry when unable to play?

72. Have you become stressed when unable to play?

Conflict

73. Did you have fights with others (e.g., family and friends) over your time spent on games?

74. Have you neglected others (e.g., family, friends) because you were playing games?

75. Have you lied about time spent on games?

Problems

76. Has your time on game caused sleep deprivation?

77. Have you neglected other important activities (e.g., school, work, sports) to play games?

78. Did you feel bad after playing for a long time?

Short version of The Video Game Harassment Scale (Fox and Tang, 2013)

Instructions: Please indicate how much you agree with each of the following statements. GH = (General Harassment), SH (Sexual Harassment) (Code not including in participants copy.

1 = Never to 5 = very often

79. Said curse or swear words directed at SOMEONE (GH)

80. Made comments about SOMEONE's intelligence (GH)

81. Said general insults directed at SOMEONE (GH)

82. Made comments about SOMEONE's abilities to play (GH)

83. Asked SOMEONE to leave the game (GH)

84. Made sexist comments or insults towards SOMEONE (SH)

85. Made comments about SOMEONE's appearance or weight (SH)

86. Doubted SOMEONE's motivations for playing video games because of their gender (SH)

87. Expressed unsolicited liking or affection towards SOMEONE (SH)

88. Made a rape joke at SOMEONE's expense or threatened to rape SOMEONE (SH)

7.5. Appendix V. Tables

Table 4

Frequency of predictors: perfectionism

(Frequency = f, Relative frequency = rf and percentage frequency = f%)

Score	Self-oriented perfectionism			Other-oriented perfectionism			Socially prescribed perfectionism			Other-oriented perfectionism-90		
	f	*rf*	*f%*	*f*	*rf*	*f%*	*f*	*rf*	*f%*	*f*	*rf*	*f%*
1	107	.10	10	115	.11	10.75	153	.14	14.30	675	.39	39.43
2	203	.19	18.97	219	.20	20.47	209	.19	19.53	506	.30	29.56
3	137	.13	12.80	201	.19	18.79	149	.14	13.93	228	.13	13.32
4	112	.10	10.47	147	.14	13.74	141	.13	13.18	110	.06	6.43
5	250	.23	23.36	220	.21	20.56	179	.17	16.73	135	.08	7.98
6	170	.16	15.89	99	.09	9.25	161	.15	15.05	51	.03	2.98
7	90	.08	8.41	27	.03	2.52	76	.07	7.10	7	.00	.41
Mis	1	.00	.09	2	.00	.29	2	.00	.18	0	0	0
N=	1070	1.00	100	1070	1.00	1.00	1070	1.00	1070	1712	1.00	100

Note = Mis (Missing)

Table 5

Frequency of predictors: Dark Triad after reverse scoring

(Frequency = f, Relative frequency = rf and percentage frequency = f%)

Score	Machiavellianism			Narcissism			Psychopathy		
	f	*rf*	*f%*	*f*	*rf*	*f%*	*f*	*rf*	*f%*
1	314	.16	16.30	367	.19	19.06	700	.36	36.34
2	417	.22	21.65	669	.35	34.74	586	.30	30.43
3	394	.20	20.46	439	.23	22.79	287	.15	14.63
4	603	.31	31.31	349	.81	18.12	272	.14	13.86
5	193	.10	10.02	91	.05	4.72	68	.03	3.47
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
Mis	5	0.00	.26	11	0.01	.57	13	.01	.66
N=	1926	1.00	100	1926	1.00	100	1962	1.00	100

Table 6

Frequency of outcome variables: Online gaming addiction and Aggression (Frequency =

f, Relative frequency = rf and percentage frequency = f%)

Score	Addiction			Aggression		
	f	*rf*	*f%*	*f*	*rf*	*f%*
1	1149	.26	25.57	1338	.63	62.52
2	1023	.23	22.76	498	.23	23.27
3	1101	.24	24.50	103	.05	4.81
4	772	.17	17.18	62	.03	2.89
5	383	.09	8.52	107	.05	5.00
Missing	66	0.01	1.47	32	.01	1.50
N=	4494	1.00	100	2140	1.00	100

Note = Mis (Missing)