UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

HEROES AND VILLAINS: THE PSYCHOLOGICAL EFFECTS OF COSPLAY

A THESIS

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

MASTER OF SCIENCE

By

TAMMY CHEN
Norman, Oklahoma
2021

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/331400

HEROES AND VILLAINS: THE PSYCHOLOGICAL EFFECTS OF COSPLAY

A THESIS APPROVED FOR THE
DEPARTMENT OF PSYCHOLOGY

BY THE COMMITTEE CONSISTING OF

Dr. Jennifer Barnes, Chair

Dr. Mauricio Carvallo

Dr. Lara Mayeux

© Copyright by TAMMY CHEN 2021
All Rights Reserved.

Table of Contents

List of Tables……v

List of Figures-……...……...vi

Abstract……...…….vii

Literature Review……..1

Methods……...……..22

Results……...……28

Discussion……...……..33

References……...……..41

Appendix……...……58

List of Tables

Table 1……49

Table 2.1……50

Table 2.2……51

Table 3……52

Table 4……53

Table 5……54

List of Figures

Figure 1……56

Figure 2……57

Abstract

Prior research has suggested that identifying with fictional characters while immersing in fiction increases the likelihood of taking on the traits and perspectives of those characters (Appel, 2011; Hatvany et al., 2018; Kaufman & Libby, 2012, Shedlosky-Shoemaker et al., 2014). This study expands on these findings by examining whether wearing costume of a heroic or villainous character can cause one to take on the morality and identity of that character in the form of prosocial or antisocial behaviors, moral judgement, and temporary change in personality. Participants were randomly assigned to either dress up in the costume of a fictional hero or villain or to a no-costume control condition and completed a subtle measure of prosocial and antisocial behaviors (Saleem et al., 2015; 2017), a moral judgement task (Shtulman & Tong, 2013), and a personality measure (Rammstedt & John, 2007) while in costume. Results indicated that dressing up as a villainous or heroic character did not significantly alter the prosocial and antisocial behaviors, moral judgement, or personal identity of the participants when compared to the control group. Further correlational analyses found that participants who dressed as villains were more likely to misidentify the moral orientation of the character than participants who dressed as heroes. Several possible research directions were explored based on this finding.

Literature Review

Costumes have been used in the performance arts stretching back to the early days of theaters in ancient Greece, Egypt, Rome and China (e.g., Baines, 2006; Coben, 2006; Csapo & Miller, 2007; Csapo, 2010; Easterling & Hall, 2002; Ley, 2006; Lovrick & Siu, 2011); however, the activity of dressing in costume as a specific fictional character is not restricted to theatrical performances. Adults, as well as children, dress up on Halloween (Miller et al., 1991), many as prominent figures from pop culture, such as superheroes or characters from popular media franchises, and individuals who participate in "cosplay" dress up as fictional characters outside of Halloween (Rahman et al., 2012). Although prior research has examined the psychological effects of dressing in costumes on the mental states and behavior of participants (e.g., Diener, 1979; Mazzoli et al., 2019; Rosenberg & Letamendi, 2013; 2018; White & Carlson, 2016; White et al., 2017), much less research has focused on the psychological processes behind the specific phenomenon of *cosplay*, or dressing up as a specific fictional character with its own established set of identities (Rahman et al., 2012; Rosenberg & Letamendi, 2013). Given that research focused on video games and written narratives suggests that consumers frequently take on the properties of fictional characters as they play or read (Appel, 2011; Happ et al., 2013; Yoon & Vargas, 2014), the purpose of the current study was to explore whether donning the costume of an iconic fictional hero or villain affects a person's moral behavior, moral judgment, and self-concept, testing the hypothesis that people dressed as iconic fictional characters will experience a temporary shift in personal identities and assume the moral and personality attributes of the characters they are dressed as.

The Psychological Effects of Wearing Costumes

Multiple theoretical approaches have been used to empirically examine the psychological effects of costumes, uniforms, and styles of attires in general (Civile & Obhi, 2017; Johnson, 2001; Johnson et al., 2014; Mauro, 1984; Miller et al., 1991; 1993; Nickels, 2008). More broadly, research on the social psychology of dress has focused on the motivations to dress in certain ways, the ways our attires influence our sense of self, and finally, how our attire influences our behaviors and how our interpretations of the behaviors and intentions of others depend on their attire (e.g., Abbey et al., 1987; Edmonds & Cahoon, 1986; 1987; Guéguen, 2012; Johnson, 2001; Johnson et al., 2014; Peluchette & Karl, 2007; Rehm et al., 1987; Roberts et al., 2010; Rudd, 1991; Wade & Stafford, 2003). Costumes can be interpreted as another form of attire for self-expression; thus, research on the psychological effects of costumes can be examined as a subcategory within the overarching field of the psychology of dress.

Prior research has shown that the way a person is dressed influences not only how they are perceived, but also the choices they make. Frank and Gilovich (1988) found that football players were judged as more aggressive when donning black uniforms than when wearing white uniforms. The researchers then assessed the impact of black attire on the wearer in a follow-up study. Participants who were assigned to wear black shirts preferred more aggressive games than the white-shirted participants when asked to select the games they would like to play. Research has also examined the psychological effects of uniforms in professional contexts. A study of flight attendants found that they associated wearing casual uniforms (e.g. t-shirt and shorts) with negative self-images such as being nonauthoritative, unconfident, and unprofessional (Adomaitis & Johnson, 2005). Similarly, Peluchette and Karl (2007) found that Master of Business

Administration graduate students perceived themselves as most authoritative, trustworthy, productive, and competent when wearing formal business attire but as friendliest when wearing casual or business casual attire. Further research has shown that public-sector employees perceive themselves as more competent and authoritative in formal business or business casual attire compared to casual attire and least creative and friendly when wearing formal business attire (Karl et al., 2013).

Of particular relevance to the study of costumes is the psychological effects of uniforms that denote a specific occupation, such as police officer, scientist, or nurse, since these uniforms may also be donned by those outside of these occupations as costumes. Past research in this area has examined the internal impact of attires through the framework of enclothed cognition: how wearing clothing systematically impacts the wearer's thoughts, feelings, and behaviors (Adam & Galinsky, 2012). In a series of studies, Adam and Galinsky found that wearing a lab coat increased participants' performance on attention-related tasks. Further, in line with the principle that the impact of the clothing depends on both the symbolic meaning and the physical experience of wearing it, it was found that if the lab coat participants wore was described as a doctor's coat, participants experienced a greater increase in prolonged attention compared to if the lab coat was described as a painter's coat, and that wearing the "doctor's coat" induced a greater increase in attention than simply looking at one. The theory of enclothed cognition further argues that clothing can affect not only how we think, but also what we think (Adam & Galinsky, 2019). For example, Jones and colleagues (2019) demonstrated that wearing lab coats can have significant impacts on the self-concepts of children. Fifth graders were randomly assigned to either wearing lab coats or not in ten science classes

taught by their classroom science teacher. The researchers found increased perceptions of self-efficacy in science in the lab coat condition for students with low self-efficacy (compared to those with high self-efficacy) and students who did not have parents in STEM career (compared to those who have parents in STEM career).

Further exploration of the theory of enclothed cognition has focused on the effects of wearing a police uniform on biases in social attention. In two studies where university students were randomly assigned to wear either a mock police-style uniform or mechanic overalls during an attention task, Civile and Obhi (2017) found that wearing a police uniform induced racial and status-profiling in undergraduate students. Furthermore, students who wore police uniforms, but not those who were merely exposed to them, exhibited biased attention towards Black faces compared to White faces and towards low-status individuals (wearing a hoodie) compared to high-status individuals (wearing a suit). Civile and Obhi interpreted these results as supporting the idea that wearing police uniforms impacts social cognition and behaviors through the cultural associations and sense of power the uniforms evoke in the wearer. Mendoza and Parks-Stamm (2019) further examined how the sense of power evoked by police uniforms influences behaviors by assigning participants who were wearing or not wearing police uniforms to play a first-person video game simulation wherein participants were required to quickly decide to shoot or not shoot black or white targets holding guns or objects. Participants wearing police uniforms produced more shooting errors, particularly false alarms of shooting unarmed targets regardless of race, than control participants. Furthermore, the tendency to make this error was moderated by attitudes about the police and their abuse of power,

suggesting that donning a police uniform can induce one to embody the role of a police officer in accordance with their own social perceptions of law enforcement officers.

Similarly, studies have also shown that wearing uniforms associated with empathic professions can induce empathy and prosocial behaviors in the wearer. López-Pérez and colleagues (2016) examined the socioemotional and behavioral effects of wearing nurse's scrubs. Basing their hypotheses on the theory of enclothed cognition, they predicted that wearing nurse's scrubs would enhance empathic and helping responses compared to two other conditions: either wearing scrubs that were described as "cleaner's scrubs" or performing the task while looking at, but not wearing, a pair of "nurse's scrubs." Participants who wore the scrubs identified as nursing scrubs reported higher empathic concern towards the other participants and exhibited more helping behaviors in quicker time. In a follow-up study, participants who were assigned to wear "nurse's scrubs" volunteered more hours and demonstrated higher response latency towards words associated with altruistic motivation.

In summary, prior research examining the effects of uniforms on the wearer has shown that wearing uniforms with different associations can influence one's cognition, behavior, social perceptions, self-concept, and moral emotions. Given that costumes are also attires with socially agreed associations, dressing in costumes could induce similar effects. Indeed, one of the foundational studies that examined the psychological effects of costumes essentially utilized uniforms as "costumes" for participants to wear during the study. Johnson and Downing (1979) conducted a 2 X 2 factorial study to compare the differences between dressing up as a nurse versus a Ku Klux Klan (KKK) member in either individual or deindividualized (group) conditions. The participants were then asked

to administer different levels of electric shocks to a paid male volunteer whenever he failed to respond correctly in a verbal learning task. The researchers found that participants who were dressed as a nurse administered decreasing shock levels across the three trails of learning task (interpreted as prosocial behavior), while the participants dressed as a KKK member administered increasing shock levels across the three trails of learning task (interpreted as antisocial behavior). They also found that conditions of deindividuation interacted with what participants were wearing, with participants dressed as a nurse behaving more prosocially in the deindividuated condition than the individual one, while deindividualization had no effect on participants dressed as a KKK member. This study, designed to examine the psychological effects of costumes, bears a striking resemblance to studies focused on the effects of wearing uniforms. However, it should be noted that while costumes can come in the form of uniforms, not all costumes are uniforms. For example, in a study conducted on trick-or-treating children by Zhang and colleagues (2020), none of the most popular costumes in the study sample (i.e., unicorn, Spiderman, Batman, Master Chief of the video game *Halo*, evil clown, vampire, Jason from *Friday the 13th*, etc.) were simply a generic member of a uniformed profession. Although some studies have examined the psychology of costumes more broadly, these studies generally do not manipulate whether and what types of costumes are worn.

In one such study, Zhang and colleagues (2020) theorized that wearing a costume can influence a person's behavior through temporary altering the person's sense of identity. However, the method of this study did not examine the effects of wearing costumes on the wearer's identity but instead examined the effects of explicitly identifying the moral orientation of participants' costumes. Children who were already dressed in Halloween

costumes of their own choices were randomly assigned to answer questions about their costume, including whether they were dressed as a "good guy" or "bad guy" and whether the character they were dressed as did good or evil things, either before or after completing an ethical decision-making task, wherein the children were given the opportunity to lie to obtain more candy from the experimenters. The researchers hypothesized that identifying the moral orientation of one's costume as a "good guy" or "bad guy" would lead children to subsequently behave according to the moral orientation of their costume characters. The results were unexpected: participants who told experimenters that they were dressed as "good guys" before playing the game lied more frequently than the participants who were dressed as good guys but were not asked about their costume's identity until after completing the task. Conversely, participants who identified their costume as a "bad guy" before playing the game lied less frequently than "bad guys" in the control condition. The researchers attributed this result to the effects of moral licensing, such that children who had dressed as good guys and identified as such before the game might have felt that their lying behaviors were justified by the "good" moral orientation of their costume choices. Conversely, children who admitted that they were dressed as a "bad guy" before the game might have felt morally judged for their choice, leading to more moral behavior.

The design of this study falls short in examining the theory the researchers proposed in several ways. First, the study design did not manipulate whether participants were dressed in costume or what they were dressed as. As a result, this experiment cannot test the prediction that the identity of one's costume can influence moral behaviors. Further, this study did not have any measure of self-perception, a key component in

testing whether wearing costumes influences a person's behavior through temporary altering that person's identity. Rather, this experiment seems to capture how children feel about their own costume choices and how those feelings influence their moral behaviors.

Other past research on costumes has similarly tended to recruit participants already in costumes instead of manipulating the wearing of costume or the type of costume worn. For example, Miller and colleagues (1991) conducted a longitudinal study examining the relationship between dressing in costumes and engaging in risky behaviors during Halloween. Participants were surveyed about their Halloween activities over a five-year period. Thus, this observational study only allowed for correlational analyses of risky behaviors of college students who dressed in costumes and those who did not. Halloween costumes were also involved without being manipulated in an empirical study by Diener and colleagues (1976), in which they examined whether the conditions of anonymity, trick-or-treating in a group (instead of alone), and whether a group member was held accountable for the group's actions predicted the candy-stealing behaviors of costumed children during Halloween. In a follow-up study, the researchers further investigated how manipulations that increase self-awareness of trick or treaters, such as placing a mirror behind the candy bowl and asking the children their names and addresses, affected the participants' candy-stealing behaviors (Beaman et al., 1979). Thus, while prior work has studied costumed individuals, this prior research did not directly examine the effects of wearing costumes per se, though these studies often discuss the theoretical effects of costumes, such as deindividualization (Beaman et al., 1979; Diener et al., 1976; Miller et al.; Zhang et al., 2020)

In summary, much of the prior research investigating the effects of attire has focused on examining the effects of uniforms in the framework of enclothed cognition, which states that the clothing one wears can systematically influence the wearer's thoughts, feelings, and behaviors (Adam & Galinsky, 2012). While uniforms can be worn as costumes, not all costumes are uniforms. Prior research focusing on a broader array of costumes has generally theorized that wearing a costume can elicit psychological influences on the self, but generally has not empirically tested this theory. Further, a common category of costumes has often been overlooked. A recent survey on trick-or-treating children by Zhang and colleagues (2020) demonstrated that many of the most popular costumes in their sample were costumes based on characters from popular media. The psychological influences of uniforms on the wearer may be conceptually different from that of dressing as a specific individual. For instance, both positive and negative moral orientations could be associated with a given uniform, depending on the individual being depicted (i.e., hero Margaret Houlihan and villain Nurse Ratched are both nurses). The next section of this paper will explore the phenomenon of dressing up as a specific character.

Psychology of Cosplay

Cosplay (the portmanteau of "costume" and "play") is the practice of donning costumes, props, and accessories to represent a fictional character (Rahman et al., 2012; Rosenberg & Letamendi, 2013). Cosplay can serve as an outlet for expressing alternative identities by assuming the physical forms of fictional characters (Napier, 2007). It has been suggested that cosplaying is not only a way for the cosplayers to express their fandom and passion for their favorite characters but also a way for them to express their

self-identities beyond what is acceptable to the mainstream culture (Rahman et al., 2012). Other have compared cosplaying to pretend play in children (Geczy, 2016; Thompson & Goldstein, 2019). With the recent rise in popularity of conventions devoted to fictional media, cosplaying has become more popular, as illustrated by the estimated annual attendance of 135,000 people to San Diego Comic-Con, one of the most popular venues for cosplaying activities in North America (San Diego Comic Convention, 2021).

Relatively little prior research has directly investigated the psychology of cosplay. In one study, Rosenberg and Letamendi (2018) surveyed self-identified cosplayers about the reason they cosplayed; the most common reasons were “fun” and “a vehicle for creative/artistic expression,” and the most common reason for selecting a character for cosplaying was “aspect of the character's personality.” In another study, Rosenberg and Letamendi (2013) found that cosplayers reported feeling more empowered when dressed in the costumes of their favorite characters. Further research has investigated the idea that cosplay allows a person to enact his or her ideal self. Plante (2018) assessed the degree to which cosplayers identified with their favorite character and the extent to which the character represented their actual, ideal, and ought self. The results indicated that both actual and ideal selves were positively related to with character identification, while the resemblance of the character and one’s ought self was not associated with character identification. These findings are in line with the self-reports of the cosplayers from a survey study conducted by Rosenberg and Letamendi (2018), in which cosplayers reported shifts in internal psychological states to become more similar to the character they are cosplaying as, in addition to experiencing external changes in physical appearances.

Other research has found that higher levels of extrinsic personal aspirations lead to greater likelihood of the cosplayers including the characters when defining themselves (Mazzoli et al., 2019). In summary, prior research on cosplay has focused on the personality traits of cosplayers, motivations to cosplay, and a tendency to identify with the characters one dresses as (Letamendi, 2013; 2018; Mazzoli et al., 2019; Plante, 2018), but most of the body of research on the psychology of cosplay is correlational in nature.

No prior research has experimentally examined the effects of dressing in cosplay through direct manipulation of costumes worn by the participants. However, some researchers have examined other concepts by manipulating whether participants wear costumes of fictional characters. White and Carlson (2016) theorized that role-playing through wearing costumes of a known fictional character can induce self-distancing, a construct defined as taking an outsider's perspective on one's own situation, which in turn psychologically distances oneself from the egocentric perspective (see White et al., 2015). In their study, White and Carlson predicted that dressing up in costume and role playing as an inspirational fictional character (such as Batman or Dora the Explorer) would lead to the most improvement in performance on executive function task, compared to when children were encouraged to focus on their own thoughts and strategies to solve the assigned cognitive task and to instructing children to adopt a third-person perspective (wherein children referred to themselves in the third-person). They found that children performed significantly better on the executive function task when they were dressed up as and role playing as an inspirational fictional character while solving the task. However, because children were asked to wear a costume *and* pretend to be the character they were dressed as, it is unclear whether the effect of improved

cognitive performance was driven by role playing or dressing up as the fictional character. Indeed, in a follow up study, White and colleagues (2017) found similar effects when children were asked to take on the perspective of a fictional character but did not wear costumes.

While no prior research that we know of has investigated the effects of dressing as a fictional character per se, there is a large body of work focusing the broader concept of the effects of psychological immersion in fictional characters through other means, which will be explored in the next section.

Effects of Immersion in Fictional Characters

Fictional narratives can often facilitate the spontaneous enjoyment of an alternative reality by providing an environment for the consumers to be immersed in (Douglas & Hargadon, 2000). The psychological state of immersion is when the individual perceives himself or herself to be comprehensively involved in and interacting with an environment that provides a constant source of stimuli that little to no attention is paid to the surrounding events (Roohi & Forouzandeh, 2019; Witmer & Singer, 1998). In addition to becoming immersed in fictional narratives, immersion in fictional characters can also be achieved through the process of experience-taking, a deeper version of perspective-taking through which the consumer suspends the self and adopts the character's traits and perspectives, which may facilitate temporary changes in a person's emotions, goals, attitudes, and behaviors due to inhibition of the self (Kaufman & Libby, 2012). Similarly, the term "self-expansion" has been used to refer to the process of acquiring a range of experiences and thoughts through social interaction with characters

(Shedlosky-Shoemaker et al., 2014), a type of psychological fusion, or the perception that an object, concept, or person is incorporated into the self-concept (Hatvany et al., 2018).

Consuming media about fictional characters has also been found to influence the cognitive processes of the consumers through temporary priming effects on behaviors (known as "assimilation"). Appel and colleagues (2011) argued that given the short-term influences of priming, reading about a fictional character most likely would not alter the consumer's self-concepts permanently. However, they pointed out that active self-concept, the portion of self-concept that is activated during a certain task or situation, can be influenced by priming and lead to assimilation with a fictional character. In this study, participants either read about a stupid soccer hooligan or an unrelated narrative. Participants who read about the stupid character were randomly assigned with either the instruction to read with the goal of finding dissimilarities between themselves and the story character or without this instruction. Participants who read about a stupid character without being specifically instructed to identify dissimilarities between themselves and that character ended up performing worse on a subsequent knowledge test than either control group.

In addition to the body of research examining how reading about a character can facilitate the assimilation of the character's attributes to the reader's self, empirical studies examining the impacts of role-playing through video games have found similar results. Happ and colleagues (2013) argued that empathy with the character one role plays as will enhance the attributes that are assimilated to the self from the character. Specifically, they predicted that the player's level of empathy for a character influences the effects of role-playing as the character in a violent video game. The researchers

randomly assigned participants to one of the four conditions, in which participants played a violent game as either Superman or Joker. Before playing the game, participants were randomly assigned to read either articles that evoke empathy for their respective characters (i.e., Superman described as coming from a loving family, while Joker's childhood was described as violent due to his abusive father) or neutral descriptions of the characters. Participants who played the game as hero Superman subsequently behaved more prosocially (returning a lost letter) than when they played as villain Joker. In addition, participants who read the empathy-evoking text perceived violence in the game to be less justified compared to those who read the neutral text, regardless of the character they played as. Most interestingly, they found that participants who read the empathy-evoking texts perceived the neutral faces in the game as less hostile if they played as Superman and perceived the faces as more hostile if they played as Joker. These results demonstrated that empathy and identification with the character can be facilitated during role-playing, which can in turn shift the player's perception of facial hostility and prosocial behaviors to become more similar to the character (Happ et al., 2013). However, it is important to note that this study did not include a control condition, in which the participants would not play as a character in the game.

In a similar study, Yoon and Vargas (2014) proposed that role-playing as virtual avatars can facilitate the player's behavioral modeling of the character they play as They randomly assigned participants to play video game in avatars of heroic (Superman), neutral (circle), and villainous (Voldemort) avatars. Results suggested that participants behave consistently with the character they played as in the game. People who played as heroes, such as Superman, behaved more prosocially than people who played as villains.

They also found that participants who played as the characters displayed stronger behavioral effects than participants who were simply asked to adopt the heroic or villainous avatar's perspective while watching a game demonstration. These findings indicated that role-playing as an avatar in video games can evoke pro- or antisocial behaviors in the real world that are modeled based on the avatar's traits.

In the current study, we are particularly interested in how the psychological immersion in a character through cosplaying can influence the wearer's morality. Specifically, we are interested in investigating whether people assume the moral identity of the character they cosplay as. In the next section, we will explore concepts in moral psychology relevant to the cosplaying experience.

Morality

The study of moral psychology investigates the relationships between moral thoughts and how one applies them to the situation through actions, encompassing the domains of moral cognition, moral behavior, moral motivation, moral judgment, and moral identity (Bergman, 2002). The current study focuses specifically on two of these domains: moral cognition and moral behavior.

Research in moral cognition examines the reasoning processes surrounding one's moral judgments (Baril & Wright, 2012) and aims to understand the various factors that influence moral judgments and whether the influences came from conscious or unconscious processes (Lapsley & Hill, 2008). Research in moral cognition focuses on the decision-making processes of moral issues and often examines their relationship with moral behaviors (Baril & Wright, 2012). During moral cognitive processes, the engagement of moral judgments facilitates the intention to act according to certain moral

norms or moral identity, leading to the subsequent moral behavior (Reynolds & Ceranic, 2007). Example tasks that have been used in past research to examine moral cognition include asking participants to assess whether a taboo act might be morally permissible in some circumstances (Shtulman & Tong, 2013), presenting participants with a theoretical scenario in which they must decide whether to allow a runaway trolley kill five men on the track ahead or kill one man instead by switching a lever to divert the trolley to a sidetrack (e.g., Feltz & May, 2017), and a presenting participants with moral dilemmas that force them to sacrifice of one of two groups of characters under time-pressure (Bago & Neys, 2019). It has been suggested that moral judgment is largely determined by the accessibility of moral identity within the working self-concepts, which can be made more accessible through situational factors (Aquino et al., 2009).

Similarly, it has been suggested that moral behaviors are largely the result of interactions between situations, one's moral cognition and identity (Aquino et al., 2009). Some researchers argue that moral behavior is the direct result of both moral judgments, an individual's assessments of right and wrong, and moral identity, the relevance of moral values to self-identity (Hardy & Carlo, 2011; Reynolds & Ceranic, 2007). Others have suggested that the most crucial component that contributes to moral behavior is moral judgment (Rest, 1986). Prior research has also shown that moral behavior is subject to contextual factors (Manesi et al., 2016; Reynolds & Ceranic, 2007; Saleem et al., 2015; Van Rompay et al., 2009; Zhang et al., 2020). Consider, for instance, the studies outlined in the previous section examining how the likelihood of engaging in prosocial (helpful) and antisocial (harmful and disruptive) behaviors can be influenced by

the moral attributes of the avatar participants played as in a video game (Happ et al., 2013; Yoon & Vargas, 2014).

Notably, contextual factors can guide not only moral behavior but also moral cognition. In a series of studies conducted to examine the priming effects of villainous avatars in virtual game settings on the players' attitudes and intentions, Peña and colleagues (2009) found that participants who played the game with avatars dressed in black cloaks displayed more negative thoughts, such as aggression, and inhibited more prosocial thoughts, such as group cohesion. In the second experiment, they found that participants who completed a Thematic Apperception Test (TAT) in a virtual environment while using an avatar with KKK attires displayed more negative attitudes of aggression and less positive attitudes of affiliation in their TAT stories compared to those who completed the task using avatars dressed as doctors.

Beyond environmental factors, moral behavior and judgment are also influenced by one's sense of self. Moral identity is a type of identity that concerns the moral aspects of the self that may serve to regulate individual behaviors and motivate specific moral actions (Bergman, 2002; Blasi et al., 1994). Strong moral identity may motivate people to behave consistently with the principle they have set for themselves. The interrelated influences between moral identities and moral judgment can result in specific moral behaviors (Reynolds & Ceranic, 2007). A metanalysis by Hertz and Krettenauer (2016) on 111 studies from various fields, including business, developmental psychology and education, marketing, sociology, and sport sciences, found moral identity to be significantly associated with moral behavior and that the effect sizes did not differ

between various types of behavioral outcomes (prosocial behavior, avoidance of antisocial behavior, ethical behavior).

Hypotheses and Aims

The purpose of the current study was to explore whether dressing as an iconic fictional hero or villain affects a person's moral behavior, moral judgment, and self-concept. To examine the effects of cosplaying on subsequent change in self-reported personality, moral behavior, and moral cognition, the study design randomly assigned participants to one of three conditions, where participants either cosplay as a heroic or villainous character or do not participate in cosplaying in the control condition. Participants then complete a series of measurements assessing the aforementioned factors.

The current study aims to extend on prior research in three ways. First, this study focuses on the impact of dressing up as a specific fictional character, rather than the effect of dressing in uniform (e.g.,Adam & Galinsky, 2012; Civile & Obhi, 2017; Johnson & Downing, 1979; López-Pérez et al., 2016). Second, this study also aims to examine the effects of cosplaying on both moral behaviors (in the form of helping and hurting behaviors) and moral judgement (specifically, the degree to which participants are willing to deem seemingly taboo actions as morally permissible in some circumstances). Lastly, we directly test the theory that dressing as a hero or villain causes a temporary shift in one's view of the self that then influences subsequent moral behaviors (Zhang et al., 2020). Overall, we predicted that dressing up as a fictional character (hero or villain) will cause participants to behave more prosocially or more

antisocially, according to the moral identity of their costume characters. Specific hypotheses are summarized below.

Hypothesis 1: Dressing up as a fictional character (hero or villain) will cause one to behave in line with that character's moral orientation. Specifically, participants who dress up as villains will behave more antisocially than participants in the control group (H1a) and those who dressed up as heroes will behave more prosocially than participants in control group (H1b).

Given that prior research has found that virtual role-playing as a hero or villain significantly impact moral identity and behaviors (Happ et al., 2013; Yoon & Vargas, 2014), and that physically donning uniforms of specific careers can significantly impact either the wearer's subsequent moral behaviors or their justifications of their moral behaviors (Adam & Galinsky, 2012; Civile & Obhi, 2017; Johnson & Downing, 1979), we predicted that dressing in the costume of a character with specific moral valence (hero or villain) will influence the wearer's subsequent moral behaviors in the form of helpful and hurting behaviors on an established task (Saleem et al., 2015).

Hypothesis 2: Participants who dress up in costumes of villain characters will consider more moral situations as permissible compared to those who wore hero costumes and those who are in control condition.

Given that prior research has shown that one's moral behavior is associated with one's moral thoughts (Reynolds & Ceranic, 2007), and that moral thoughts can be temporarily influenced through role-playing as a hero or villain in video games (Peña et al., 2009), we theorized that participants would assimilate to the moral perspective of the characters they were dressed as. This prediction is also in line with the theory of

enclothed cognition, which states that wearing clothing systematically impacts the wearer's thoughts, feelings, and consequentially behavior (Adam & Galinsky, 2012). We chose to focus on villains, because villains tend to have greater tolerance for moral depravity (i.e., mass murder is an immoral act that Joker from the Batman series often engage in). Therefore, participants dressing in the costume of a villain may cognitively adopt moral judgements and perceptions of the villain and temporarily have higher tolerance for moral taboos than the control group. In contrast, it is unclear whether dressing in hero costumes would have similar effects on the wearer (i.e., making participants judge fewer moral taboos as permissible compared to the control group), given that some of the hero characters used in this study are morally ambiguous (i.e., Batman) and may be deemed as an antihero rather than as a hero by the participants. Therefore, we did not make a prediction about the moral judgements of those who dressed up as heroes.

Hypothesis 3: Participants who dress as an iconic hero or villain will experience a temporary shift in self-concept, as reflected in self-reported personality traits (compared to baseline). Specifically, participants who dressed up as villains should demonstrate a greater difference between pre- and post-study personality measures than those in the control group (H3a), and those who dressed up as heroes should also demonstrate a greater difference between pre- and post-study personality measures than those in the control group (H3b).

In this hypothesis, we propose that dressing up as a fictional character can lead to the wearers' self-concept being shifted to become more similar to the characters they are dressed. In the survey study conducted by Rosenberg and Letamendi (2018), cosplayers

indicated that the most common reason for selecting a character was due to an "aspect of the character's personality," potentially reflecting the desire of cosplayers to temporarily fuse the character's personality attributes to their own. Further, Zhang and colleagues (2020) theorized that wearing a costume can influence a person's behavior by temporary altering the person's sense of identity. With respect to cosplay specifically, this theory is in line with several previously described psychological processes involved in immersion in a fictional character, which are "experience-taking" (temporary changes in a person's emotions, goals, attitudes, and behaviors due to suspension of the self and adoption of the character's traits and perspectives) (Kaufman & Libby, 2012); "self-expansion" (the process of acquiring a range of experiences and thoughts through social interaction with characters) (Shedlosky-Shoemaker et al., 2014); and "psychological fusion" (the perception that an object, concept, or person is incorporated into the self-concept) (Hatvany et al., 2018).

Finally, in addition to these hypotheses, the current study also addressed one research question. **RQ1: Does a shift in self-perceived agreeableness mediate the effect of cosplaying on moral behaviors?**

Past research on moral emotions and behaviors has shown that moral thoughts, identity, and behaviors may be influenced by personality traits (Tangney et al., 2007); thus, if the predicted effects are seen in H1 and H3, we will explore whether the influence of cosplaying as a heroic or villainous character on the wearer's helpful and hurtful behaviors is (fully or partially) mediated by the change in agreeableness after putting on the costumes. We are choosing to focus on how participants perceive their agreeableness for two reasons. First, villains such as Darth Vader, Voldemort, and Joker may vary

wildly on multiple dimensions of personality, but they are decidedly not agreeable by the virtue of being villains. Furthermore, the personality dimension of agreeableness has been found to be significantly associated with prosocial motives, empathy, and helping behaviors (Graziano et al., 2007).

It is possible that the effect of condition on moral behavior will be fully or partially mediated by a shift in self-perceived agreeableness. This is in line with the theory proposed by Zhang and colleagues (2020), which suggests that when dressed in costumes, a temporary shift in the person's sense of identity could underlie any changes in moral behavior. However, it is also possible that the mediating effect of agreeableness may be nonexistent if the cosplayer experienced a change in moral behavior during the process of role playing but not a change in their perceptions of self (i.e., self-reported personality). In this case, participants may possibly be role-playing, or behaving as the character, regardless of whether they report a change in personality. Finally, it is also possible that the causal relationship between study conditions and moral behaviors is not mediated by how participants view their own personality, but rather, by moral identity, which was not measured in this study.

Methods

Participants

Participants were 131 college students recruited from the undergraduate subject pool from the psychology department of a Midwestern University. Seven participants were excluded for reporting unfamiliarity with the media franchise they selected (rated 3 or under on a familiarity scale of 1 to 10), and two participants were excluded for

guessing the purpose of the experiment. The final analyses of this study included 122 participants (Mean age =18.7 years; SD = 1.32 years). Eighty-nine participants were female, thirty-two were male, and one did not identify a gender. The final sample was 4% African American, 9% Asian; 5% Hispanic; 3.3% Native American, 67.2% Caucasian, 8.2% mixed, and 3.3% other.

Participants received course credits for their participation. The university's Institutional Review Board approved this study, and participants provided written informed consent.

Procedure

A minimum of three weeks before participating in the study, participants completed an online personality measure, the ten-item Big Five Inventory (BFI-10; John, Donahue, et al., 1991; John, Naumann, et al., 2008; Rammstedt & John, 2007) as part of the departmental prescreening for introductory psychology courses. Upon arriving to the lab, participants were asked to silence electronic devices to avoid disturbing another participant who would also be participating in the experiment. Participants were then instructed to fill out the demographics survey and told, "This experiment involves you and another participant who is located in the room next to you. The purpose of this experiment is to understand, for both of you, the relationship between costumes and performance on cognitive tasks." Participants were then randomly assigned to one of three conditions: a control condition, the hero condition, or the villain condition.

Participants in all three conditions were presented with the names of three media properties (*Batman, Star Wars,* and *Harry Potter*) on index cards and instructed to select

a media franchise. Once participants had selected a media franchise, they were asked to rate their familiarity with the selected media franchise on a scale of 1 to 10. In the control condition, participants proceeded on to the Tangram task, a measure of prosocial and antisocial behavior (Saleem, Anderson, et al., 2015; Saleem, Barlett, et al., 2017) after selecting the media franchise they preferred, while in the experimental conditions, participants were given the costume of a hero (hero condition) or villain (villain condition) from their selected media franchise. Participants were informed of the characters they were dressed as when given the costume (i.e., "Here is your Batman costume"). Participants in the experimental conditions were instructed to put on the costume over their clothes before they proceeded to the Tangrams task. Descriptions of the villain and hero costumes for each of the three media properties can be found in the Appendix.

After completing the Tangrams task, participants in all three conditions completed a measure of moral judgment and a post-manipulation measure of BFI-10, before proceeding to take a variety of creativity measures for another study and answering a series of manipulation check questions. To reinforce the cover story that the purpose of the study was to assess cognitive performance, participants were told that after completing the survey portion of the experiment, they would be required to complete the Tangrams puzzles assigned to them by the other participant, and their performance would be assessed. However, once the participants have completed the manipulation check, they were notified that they had completed the study and were debriefed.

Measures

Ten-item Big Five Inventory (BFI-10) (pre-test)

A minimum of three weeks prior to study participation, participants completed a pre-test measure of BFI-10, a ten-item self-reported inventory designed to measure five dimensions of personality: openness to experience, conscientiousness, extraversion, agreeableness, neuroticism (Rammstedt & John, 2007). Participants were instructed to rate ten statements on a Likert scale of 1 (strongly disagree) to 5 (strongly agree). Examples of items from this measure include: "I see myself as someone who has an active imagination." (for openness to experience), "I see myself as someone who does a thorough job." (for conscientiousness), "I see myself as someone who is reserved." (for extraversion), "I see myself as someone who is generally trusting." (for agreeableness), and "I see myself as someone who gets nervous easily." (for neuroticism). BFI measures were collected from the participants prior to study participation were intended to serve two purposes. First, pre-test BFI-10 scores were used to control for the effects of personality on prosocial and antisocial behaviors and moral judgment. Second, pre-test BFI-10 scores were compared to post-manipulation BFI-10 scores to allows us to test whether the participants' self-concept was influenced by wearing a costume.

Tangram Help/Hurt Task

The Tangram Help/Hurt Task is a measure designed to concurrently assess helpful and hurtful behavior in the laboratory (Saleem, Anderson, et al., 2015; Saleem, Barlett, et al., 2017). A Tangram puzzle set consists of seven geometric pieces that the player can arrange to form the outlined shapes on the puzzle sheet. Easier puzzles may have simpler outlined shapes that require less than seven pieces to form while more

difficult puzzles might use all seven. The tangram task consists of a practice portion to familiarize the participants with the puzzle and its various levels of difficulties and an assignment portion, where participants assign the "other" participant 11 tangrams to complete within time limit.

During the practice portion of the Tangrams task, participants were guided through directions on solving the Tangram puzzles with demonstrations by researchers using plastic Tangram pieces and outlined shapes of the puzzles printed on A4 index cards. Participants received guided practiced at solving Tangram puzzles of all three difficulty levels (easy, medium, hard) before being left to practice on their own with the same puzzle set for 10 minutes. Participants were encouraged to try practicing all levels of Tangrams during the practice session. Throughout the practice session, the research assistant frequently left the room to pretend checking on the non-existent "other" participant. After practicing Tangrams puzzles for 10 minutes, participants were told that they needed to assign Tangrams to the "other" participant.

On a computer survey, participants were presented with 30 Tangrams puzzles of varying levels of difficulty and asked to select 11 puzzles to assign to the other participant. Following the procedures by Saleem and colleagues, participants were told that if the other participants solved all 11 of the assigned puzzles in a ten-minute time frame, they would receive a $25 gift certificate. It was emphasized that the participant was not eligible to receive any prize. Of 30 Tangrams puzzles that participants had to choose from, 10 were easy, 10 were of medium difficulty, and 10 were hard. Since participants were required to select 11 Tangrams for the "other participant" to complete, and there were only 10 puzzles of medium difficulty, participants were forced to select at

least one “easy” or “hard” puzzle to assign. Assigning easy puzzles is deemed as a prosocial behavior by creating an easier situation for the other participant to win the gift certificate even though the participants themselves are not eligible to win a prize. In contrast, assigning hard puzzles is deemed as an antisocial act by creating a more difficult situation for the other participant to obtain the gift certificate (Saleem, Anderson, et al., 2015; Saleem, Barlett, et al., 2017). The total numbers of easy puzzles (prosocial option) and difficult puzzles (antisocial option) that each participant assigned to the confederate were tallied.

Ten-item Big Five Inventory (BFI-10) (post-test)

After completing the Tangram task, participants filled out the BFI-10 a second time while still dressed in costume.

Moral Judgment Task

Moral judgment was assessed using a 50-item measure that assesses the possibility and permissibility of extraordinary scenarios (Shtulman & Tong, 2013). After completing the BFI-10, participants were asked to assess the possibility of 25 extraordinary events (i.e., “Will it ever be physically possible for humans to live to the age of 200 years or greater?”) and the moral permissibility of 25 extraordinary actions (i.e., “Is it ever morally permissible for a couple to kidnap an infant and raise it as their own child?”) with 50 questions on a four-point Likert scale of 1 (never) to 4 (always). Extraordinary events and actions were listed in decreasing order of perceived possibility and permissibility respectively. Participants who selected a greater number of “yes” answers on the questions about physical possibility were considered to be more lenient in

imagining the extraordinary scenarios. Participants who scored higher on the Likert scale for moral questions were considered to be more lenient in their judgments on the permissibility of moral actions that are social taboos to various degrees.

Manipulation Check Questionnaire

The manipulation check includes a question assessing the participants' understandings of the instructions in the Tangram task by asking them if they believe they were eligible to win the $25 gift card (yes/no), two free-response questions asking what they believe was the most important part and the purpose of the study, whether they had prior experience dressing up as fictional characters (yes/no), and a follow-up question assessing the participants' evaluations of the characters they were dressed as (hero, villain, or antihero), which would only be displayed if they were in experimental groups.

Results

Descriptive Statistics

Of the 122 participants that took part in the study, 35 participants (28.7%) were randomly assigned to the control group, 41 participants (33.6%) were assigned to dressed as a heroic character, and 46 participants (37.7%) were assigned to dressed as a villainous character. The choice of media franchise by all participants were as follows: 26.2% selected Batman, 60.7% selected Harry Potter, and 13.1% selected Star Wars. All of the participants reported their familiarity with the media franchise they chose ($M = 7.18$, $SD = 1.69$). When asked whether they have discussed with others about the study prior to participation, 107 participants (87.7%) reported they did not while 15 participants

(12.2%) reported they did. Participants who discussed the study with others prior to participation were not automatically excluded from analyses as long as they did not correctly guess the study purpose in the free response question of manipulation check. Due to a survey error, only 101 participants completed the baseline Big Five personality measure before participating in the study. Participants who did not complete this measure were excluded only from analyses that required this measure.

Among participants randomly assigned to the experimental conditions, 90.8% had prior experience cosplaying. Among the 41 participants assigned to the hero condition, 40 participants (97.6%) considered the character they were dressed as to be a hero, 0 as an antihero, and one participant (2.4%) as a villain. Among the 46 participants assigned to the villain condition, 15 participants (32.6%) considered the character they were dressed as to be a hero, two participants (4.4%) as an antihero, and 29 participants (63%) as a villain. Thus, of the participants who misinterpreted their character's moral orientation (N=18), 1 participant in hero group thought character was a villain, 15 participants in villain group thought character was a hero, and 2 participants in villain group thought character was an antihero.

A 2*2 chi-square test of independence was conducted to examine the relation between group assignment to either of the two experimental conditions ("hero" or "villain") and misinterpreted moral orientation; this analysis showed that the relation between these two variables was significant, X^2 (1, N = 87) = 15.74, p = 0.000073. Participants in the villain group were more likely to misinterpret the moral orientation of their characters compared to participants in the hero group.[1] Further post hoc analysis

[1] Participants in the hero and villain conditions who misidentified their characters were included in all the analyses; however, excluding those participants does not change the results.

was conducted to explore the bivariate zero-order correlation between the likelihood to misinterpret the moral orientation of the character one was dressed as in the villain condition and baseline variables such as gender, familiarity with the media franchise, and Big Five personality traits. Of the 40 participants in the villain condition, 17 participants misinterpreted moral orientations of the character. The only variable that was significantly correlated with the likelihood to misinterpret the moral orientation of the character was the personality trait of openness, $r = 0.316$, $p = 0.047$. The positive correlation indicates that participants who score higher on openness in the villain group were more likely to correctly interpret the villain's moral orientation compared to participants who score lower on openness (see Table 4).

Preliminary Analyses

Test for the skewness of all outcome variables (prosocial behavior, antisocial behavior, moral judgement, and Euclidean difference in Big Five personality traits between baseline and post-intervention) indicated that only antisocial behavior, *skew*(antisocial) = 1.5, *SE* = 0.219, and moral judgement, *skew*(antisocial) = 1.167, *SE* = 0.219, required logarithmic transformation, given that the skewness is more than twice the standard error. All subsequent analyses involving antisocial behavior and moral judgement as outcome variables will be conducted on transformed values.

Preliminary analyses were conducted to determine the covariates to control for in subsequent analyses. Zero-order correlational analyses were conducted for the descriptive variables of age, gender, and baseline BFI with the outcome measures of moral judgment, prosocial behavior, and antisocial behavior. Any variable that had a significant

correlation with the outcome measure ($p < 0.05$) was included as a covariate in subsequent analyses involving that outcome measure.

Results from pairwise correlations indicated that gender was significantly correlated with moral judgment, r (120) = -0.311, p = < 0.0005, and prosocial behavior, r (120) = -0.210, $p < 0.05$, and was marginally significantly correlated with antisocial behavior, r (120) = 0.178, p = 0.05. Baseline agreeableness was significantly correlated with moral judgement, r (99) = 0.213, p < 0.05. The rest of the baseline variables were not significantly correlated any of the outcome variables (Table 1).

Primary Analyses

To examine the first hypothesis, that dressing up as a fictional character will make one behave more in line with the character's moral orientation, two analyses of covariance (ANCOVAs) were conducted using SPSS (IBM, 2019). For the first sub-hypothesis (H1a), which predicted that participants who dressed up as villains would behave more antisocially than the control group, an ANCOVA was conducted with number of difficult puzzles selected by the participants as the outcome variable and gender as covariate. The number of difficult puzzles selected was not significantly different across groups, F (2, 118) = 2.392, p = 0.096, η_p^2 = 0.039. For the second sub-hypothesis (H1b), which predicted that those who dressed up as heroes would behave more prosocially than participants in control group, we conducted an ANCOVA for the number of easy puzzles selected with gender as covariate. The results did not

significantly different across groups, F (2, 118) = 0.954, p = 0.388, η_p^2 = 0.016). Means and standard deviations can be found in Table 2.1.[2]

To examine the second hypothesis, that dressing up as a villainous fictional character would influence the wearer's moral judgement (tolerance of taboo actions), we conducted an ANCOVA, controlling for baseline agreeableness and gender, with moral judgement score as the outcome measure. Moral judgement was not significantly different across groups, F (2, 96) = 1.236, p = 0.295, η_p^2 = 0.025 (see Table 2.1 for means and standard deviations).[3]

To examine the third hypothesis that dressing up as a fictional character would lead to a temporary shift in self-concept, as measured by self-reported personality, we calculated a single Euclidean distance score (see Gower, 1985) between pre-intervention and post-intervention scores from the Big Five personality measure. We then conducted an analysis of variance (ANOVA) with change in personality score (calculated as Euclidean distance) as the outcome measure. Results showed that the three conditions were not significantly different in their change in agreeableness, F (2,98) = 0.738, p = 0.481, η_p^2 = 0.015 (Table 2.1).

To test our final research question about the mediating role of self-perceived agreeableness in the effect of wearing costume on prosocial and antisocial behaviors, simple mediation analyses examining both variables were performed using SPSS PROCESS Model 4 at 10,000 iterations for bootstrapping (Hayes, 2012; IBM, 2019). In

[2] The results remain nonsignificant for hypothesis 1a, F (2, 100) = 0.834, p = 0.437, η_p^2 = 0.016, and hypothesis 1b, F (2, 100) = 0.275, p = 0.76, η_p^2 = 0.005, even if analyses excluded participants who misidentified the moral orientation of their character (Table 2.2).

[3] The results remain nonsignificant for hypothesis 2, F (2, 81) = 0.672, p = 0.513, η_p^2 = 0.016, even if analyses excluded participants who misidentified the moral orientation of their character (Table 2.2).

these two mediation analyses, the outcome variables were prosocial and antisocial behaviors, the predictor was group condition, the mediator was baseline agreeableness, and gender was included as a covariate. Results demonstrated that both the relationships between costume condition and prosocial behavior and between costume condition and antisocial behavior were not significantly mediated by change in agreeableness. Unsurprisingly, given the lack of direct effects, $\beta_{prosocial}$ = -0.339, 95% *C.I.* (-1.161, 0.483), p = 0.415; $\beta_{\text{antisocial}}$ = 0.057, 95% *C.I.* (-0.019, 0.134), p = 0.1411, the indirect effect was also not found to be significant, $\beta_{prosocial}$ = -0.059, 95% *C.I.* (-0.219, 0.073); $\beta_{\text{antisocial}}$ = 0.0053, 95% *C.I.* (-0.006, 0.019) (Table 3). Indirect effect from the mediator of change in agreeableness account for less than 15% of the total effect of condition on prosocial behavior, P_{pro_diff} = 0.148, and less than 10% of the total effect of condition on antisocial behavior, P_{anti_diff} = 0.085 (Figure 1 and 2).

Discussion

In this study, participants were randomly assigned to either dress up as a heroic character or a villainous character or to a no-costume control condition. We hypothesized that participants would behave more in line with the moral orientation of the character they were dressed as. Specifically, that those dressed as heroes would behave more prosocially and those dressed as villains would behave more antisocially. We also predicted that those dressed as villains would judge moral taboos as more permissible and that participants in the experimental groups would experience significant shifts in self-reported personality traits compared to the control condition. An additional research question also explored whether any change in self-perceived agreeableness mediated the effect of wearing costume on prosocial and antisocial behaviors.

No significant effect of condition was found on any of the outcome measures (prosocial behavior, antisocial behavior, moral judgment, or shift in self-reported personality through change in agreeableness from baseline). Unsurprisingly, given the lack of effects, the mediation analysis was also not significant. Interestingly, participants in the villain group were significantly more likely to misinterpret the moral orientation of their characters compared to participants in the hero group, and the trait of openness to experience was negatively associated with the likelihood to misinterpret the moral orientation of the character one was dressed as in the villain condition. Several aspects of these results will be further discussed.

First, it is highly possible that the current study was underpowered, and that the small sample sizes for various analyses (*N* ranging between 86 to 122) contributed to the lack of significant results for hypothesized relationships. The power analysis (RStudio Team, 2020) conducted prior to the study was conducted using an effect size based on a highly cited study examining the effects of heroic and villainous video avatars on prosocial and antisocial behaviors (Yoon & Vargas, 2014), which has recently been criticized for unrealistically high effect size (Hilgard, 2019). Given the possibility that the current study may be underpowered, it should be noted that the mean differences between groups were in the hypothesized direction for the first two hypotheses. Participants who were in the villain condition demonstrated the highest level of antisocial behaviors by selecting the most difficult puzzles on average (M = 2.09), followed by those who were in the control condition (M = 1.66), with hero condition selecting the least difficult puzzles (M = 2.41). Likewise, participants in the hero condition demonstrated the highest level of prosocial behaviors by selecting the highest number of easy puzzles (M = 6.15),

followed by those who were in the control condition (M = 5.34) and with villain condition selecting the least easy puzzles (M = 4.89). Similarly, mean scores on the moral judgment task also adhered to the direction of our prediction for the second hypothesis, with mean score being highest in the villain group (M = 40.10) and lowest in the hero group (M = 37.00). This overall pattern of results indicates that there is a need for future studies with more sufficient power to explore whether there may be a small but significant effect of wearing costumes on moral behavior and moral judgment.

Future studies examining the effect of costumes on the morality of the wearer would need to pay careful attention to both the manipulation and dependent measures when estimating the study's power. In the current study, we assumed that dressing as an iconic hero or villain would have a similar effect to playing a video game as an iconic hero or villain, but the prior is more active in nature compared to the relatively passive nature of the latter. Furthermore, the current study used different measures for prosocial and antisocial behaviors, in addition to including several additional outcome measures such as moral judgement and change in self-reported personality. As indicated in Table 5, studies using tangram tasks as the outcome measure tend to have smaller effect sizes (Saleem et al., 2015; 2017). It is possible that the Tangram task is difficult to manipulate as an outcome measure due to the helping or hurting conducts in the Tangram task being less direct in nature than the tasks used to measure aggression or helping behaviors in other studies, such as the hot-sauce allocation task (Fischer et al., 2010; Lieberman et al., 1999; Yoon & Vargas, 2014). Therefore, future studies examining the effects of cosplay might observe stronger effect from using outcome measures that capture helping and hurting behaviors more directly, such as the hot-sauce allocation task (Fischer et al.,

2010; Lieberman et al., 1999) or the modified version by Yoon and Vargas that included the allocation of chocolate sauce for measuring prosocial behaviors (2014).

Given that the current study differs from prior research examining role-playing as heroic or villainous characters both in terms of the manipulation (i.e., the immersive experience of wearing costumes of the character differs from role playing or playing video games using avatar of the character) and in terms of dependent measures, it is difficult to assess the degree to which the relatively smaller effect sizes observed here (see Table 5) may be due to actual differences in the psychological effects of different types of role play.

Happ and colleagues (2013) pointed out that playing video games as an avatar allows the players to interactively "try on" identities of the avatar as part of the enjoying experience. Due to the interactive nature of video games, players may share the characters' experiences, feelings, and goals while completing the tasks within the game. Thus, playing as avatars in video games may induce the process of experience-taking, the temporary adoption of a character's traits and perspectives while suspending the self (Kaufman & Libby, 2012). In comparison, the manipulation in the current study simply requested the participant to dress as a character while completing the outcome measures without first becoming explicitly immersed in the character in any way. Notably, in the real world, cosplayers are often actively cued to perform as the character by shifting their identity or internal psychological states to become more similar to the character they are cosplaying during actual cosplaying sessions (Plante, 2018; Rahman et al., 2012; Rosenberg and Letamendi, 2018). Past surveying of cosplayers has found that cosplaying is often considered as a form of performance that not only includes dressing as but also

acting as the character (Rahman et al., 2012). Therefore, it would be helpful for future research to directly compare the effects of immersion in characters between playing video games with their avatars versus dressing as the character. Further research is also needed to explore whether the effects of cosplay are dependent on elements of role-playing or performing as the character.

Incorporating manipulations of role playing into future cosplay research could be carried out through several approaches. Appel and colleagues (2011) found that participants who read about a stupid character subsequently performed worse on a knowledge test unless participants were instructed to read with the goal of finding dissimilarities between themselves and the character. Thus, future cosplay studies could instruct participants to contemplate similarities between themselves and the character they were dressed and examine whether doing so was more likely to lead to changes in behavior and judgment if participants were dressed as the character than if they were not. Alternatively, White and Carlson (2016) requested children to not only dress in costumes, but also to address themselves by the character's name. A more subtle manipulation for adults could include asking participants to fill out a nametag with their character's name.

Notably, participants in the current study may have experienced a harder time than actual cosplayers in assimilating to the character they were dressed as through psychological experiences such as fusion (Hatvany et al., 2018), as fusion often occurs with entities one feels close to, as opposed to unfamiliar strangers (Aron et al., 1992). Given that cosplayers frequently choose to dress as characters they like and are able to identify with (Plante, 2018), participants could be asked to list their favorite traits about a

character before dressing in the character's costume. Another method to incorporate the choice of character into the study design would be to give the participants the choice to pick a favorite heroic or villainous character to dress as based on the study condition they were randomly assigned to, instead of having to pick their favorite media franchise as with the current study's procedure. Similarly, most frequent cosplayers commit considerable time and effort to cultivate a deep understanding of their characters' persona (Rahman et al., 2012). Therefore, participants could be asked to read a short narrative about character's background or childhood from the character's perspective, such as the study manipulation of having participants read about the character's empathy-inducing background in the study by Happ and colleagues (2013). Other forms of manipulations that would require participants to engage deeply with the character's perspectives and personal traits would be tasks that require participants to simulate the choices of the heroic or villainous character in various hypothetical scenarios or in-lab simulations of helping and hurting behaviors as the character, such as the chili versus chocolate sauce allotment task used in the study by Yoon and Vargas (2014).

Interestingly, the effect sizes in the current study are also smaller than those found in prior enclothed cognition research (see Table 5), which has focused on the impact of wearing uniforms on the wearer's psychological processes such as thoughts, feelings, and behaviors (Adam & Galinsky, 2012; López-Pérez et al., 2016; Peluchette & Karl, 2007). Past research on enclothed cognition involves methods that activate participants' schema regarding the clothing item, such as asking the participants to write an essay to reflect on their thoughts about the clothing or how they identify with the clothing (Adam & Galinsky, 2012; López-Pérez et al., 2016). Thus, future research on cosplay may benefit

from incorporating similar procedures by asking the participants to either write or answer surveys about their thoughts on the character and how they identify with the character.

Despite the lack of predicted effects found in the current study, one interesting result that was obtained was a significantly greater likelihood for participants in the villain condition to misidentify their character's moral orientation compared to those who were in the hero condition. It is possible that imaginative resistance, an inability or unwillingness to engage in an imaginative task that contradicts one's understanding of morality (Liao et al., 2014), was experienced by participants in the villain condition, leading to an inability or conscious refusal to identify the villainous characters as villains when dressing as one. Interestingly, among participants in the villain condition, those who scored higher on openness in the villain condition were more likely to correctly report that they were dressed as a villain. One potential explanation for the positive association between openness and likelihood to correctly identify moral orientation is that participants lower on openness may have resisted being identified as villains due to having less imaginative capacity to engage in the villain's antisocial and morally deviant tendencies, compared the relative ease of identifying with a heroic character's upright moral qualities (Barnes & Black, 2016; Black & Barnes, 2017; 2020; Gendler, 2000; Walton, 1994; Yablo, 2009). Given that people higher on openness tend to be more imaginative and that imagination is crucial to comprehending narratives, past research has found that openness is associated with greater degree of engagement with literature (Mar et al., 2009). It is therefore possible that individuals low on openness to experience may have been less willing or able to engage imaginatively with villains.

An established association between openness and morality may contribute to another possible explanation for the greater likelihood of misidentification of moral orientation in the villain condition compared to the hero condition in this study. Openness has been found to be associated with stronger moral identity, which is the degree of emphasis on personal moral values (Abbasi-Asl & Hashemi, 2019). In the context of the current study, participants who are high on openness in the villain condition may have strong moral identity that can effectively serve as anchor for them, allowing them to comfortably dress as a villain, knowing their own moral identity is secure. Further research on this association between low openness to experience and the tendency to misidentify the moral orientation of the villain one is dressed as is needed to explore whether a strong moral identity can serve as a moral safe base for people, allowing them to be more willing to role play as a villainous character or identify with villainous characters.

Cosplaying as a form self-expression has recently gained popularity in the mainstream culture (Rahman et al., 2012), but the psychological effects on the cosplayer have been understudied. While the current study did not find significant effects of dressing as a character on helping and hurting behaviors, moral judgement, or self-concept, limitations in the current research provide a valuable foundation to several research directions that can better capture the psychological effects of cosplaying, and future research is also needed to further explore the variables that facilitate imaginative engagement and adoption of deviant moral identities when cosplaying or role playing as a villain.

References

Abbey, A., Cozzarelli, C., McLaughlin, K., & Harnish, R. J. (1987). The Effects of Clothing and Dyad Sex Composition on Perceptions of Sexual Intent: Do Women and Men Evaluate These Cues Differently 1. *Journal of Applied Social Psychology*, *17*(2), 108-126.

Abbasi-Asl, R., & Hashemi, S. (2019). Personality and Morality: Role of the Big Five Personality Traits in Predicting the Four Components of Moral Decision Making. International Journal of Behavioral Sciences, 13(3), 123-128.

Adam, H., & Galinsky, A. D. (2012). Enclothed cognition. *Journal of experimental social psychology*, *48*(4), 918-925.

Adam, H., & Galinsky, A. D. (2019). Reflections on enclothed cognition: Commentary on Burns et al. *Journal of Experimental Social Psychology*, *83*, 157-159.

Adomaitis A, Johnson KKP: Casual versus formal uniforms: flight attendants' self-perceptions and perceived appraisals by others. Clothing and Textiles Research Journal. 2005, 23 (2): 88-101.

Appel, M. (2011). A story about a stupid person can make you act stupid (or smart): Behavioral assimilation (and contrast) as narrative impact. Media Psychology, 14(2), 144-167.

Aquino, K., Freeman, D., Reed II, A., Lim, V. K., & Felps, W. (2009). Testing a social-cognitive model of moral behavior: the interactive influence of situations and moral identity centrality. *Journal of personality and social psychology*, *97*(1), 123.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of personality and social psychology*, *63*(4), 596.

Bago, B., & De Neys, W. (2019). The intuitive greater good: Testing the corrective dual process model of moral cognition. *Journal of Experimental Psychology: General*, *148*(10), 1782.)

Baines, J. (2006). Public ceremonial performance in ancient Egypt: exclusion and integration. *Archaeology of performance: theaters of power, community, and politics*, 261-302.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, *52*(1), 1-26.

Baril, G. L., & Wright, J. C. (2012). Different types of moral cognition: Moral stages versus moral foundations. *Personality and Individual Differences*, *53*(4), 468-473.

Barnes, J. L., & Black, J. E. (2016). Impossible or improbable: The difficulty of imagining morally deviant worlds. *Imagination, Cognition and Personality*, *36*(1), 27–40.

Beaman, A. L., Klentz, B., Diener, E., & Svanum, S. (1979). Self-awareness and transgression in children: Two field studies. *Journal of Personality and Social Psychology*, *37*(10), 1835.

Bergman, R. (2002). Why be moral? A conceptual model from developmental psychology. *Human development*, *45*(2), 104-124.

Black, J. E., & Barnes, J. L. (2017). Measuring the unimaginable: Imaginative resistance to fiction and related constructs. *Personality and Individual Differences*, *111*, 71–79.

Black, J. E., & Barnes, J. L. (2020). Morality and the imagination: Real-world moral beliefs interfere with imagining fictional content. *Philosophical Psychology*, *33*(7), 1018-1044.

Blasi, A., Kurtines, W. M., & Gewirtz, J. L. (1994). Moral identity: Its role in moral functioning. *Fundamental research in moral development, 2*, 168-179.

Cahoon, D. D., & Edmonds, E. M. (1987). Estimates of opposite-sex first impressions related to females' clothing style. *Perceptual and Motor Skills*.

Civile, C., & Obhi, S. (2017). Students wearing police uniforms exhibit biased attention towards individuals wearing hoodies. *Frontiers in psychology*, *8*, 62.

Coben, L. A. (2006). *Archaeology of performance: theaters of power, community, and politics*. Rowman Altamira.

Cohen, J (1988). *Statistical Power Analysis for the Social Sciences (2nd. Edition)*. Hillsdale, New Jersey, Lawrence Erlbaum Associates

Csapo, E. (2010). *Actors and icons of the ancient theater*. John Wiley & Sons.

Csapo, E., & Miller, M. C. (Eds.). (2007). *The origins of theater in ancient Greece and beyond: from ritual to drama*. Cambridge University Press.

Diener, E. (1979). Deindividuation, self-awareness, and disinhibition. Journal of Personality and Social Psychology, 37(7), 1160.

Douglas, Y., & Hargadon, A. (2000, May). The pleasure principle: immersion, engagement, flow. In *Proceedings of the eleventh ACM on Hypertext and hypermedia* (pp. 153-160).

Easterling, P., & Hall, E. (Eds.). (2002). *Greek and Roman Actors: Aspects of an ancient profession*. Cambridge University Press.

Edmonds, E. M., & Cahoon, D. D. (1986). Attitudes concerning crimes related to clothing worn by female victims. *Bulletin of the Psychonomic Society*, *24*(6), 444-446.

Feltz, A., & May, J. (2017). The means/side-effect distinction in moral cognition: A meta-analysis. *Cognition*, *166*, 314-327.

Field, A., Miles, J., & Field, Z. (2013). Comparing several means: ANOVA (GLM 1). *Discovering statistics using IBM SPSS statistics. Sage, Los Angeles*, 429-477.

Fischer, P., Kastenmüller, A., & Greitemeyer, T. (2010). Media violence and the self: The impact of personalized gaming characters in aggressive video games on aggressive behavior. *Journal of Experimental Social Psychology*, *46*(1), 192-195.

Frank MG, Gilovich T: The dark side of self and social perception: black uniforms and aggression in professional sports. Journal of Personality and Social Psychology. 1988, 54 (1): 74-85.

Geczy, A. (2016). The psychology of cosplay. *Journal of Asia-Pacific Pop Culture*, *1*(1), 18-36.

Gendler, T. S. (2000). The puzzle of imaginative resistance. *Philosophy*, *97*(2), 55–81.

Gower, J. C. (1985). Properties of Euclidean and non-Euclidean distance matrices. *Linear Algebra and its Applications*, *67*, 81-97.

Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person× situation perspective. *Journal of personality and social psychology*, *93*(4), 583.

Guéguen, N. (2012). Color and women attractiveness: When red clothed women are perceived to have more intense sexual intent. *The Journal of social psychology*, *152*(3), 261-265.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Happ, C., Melzer, A., & Steffgen, G. (2013). Superman vs. BAD man? The effects of empathy and game character in violent video games. Cyberpsychology, behavior, and social networking, 16(10), 774-778.

Hardy, S. A., & Carlo, G. (2011). Moral identity: What is it, how does it develop, and is it linked to moral action?. *Child Development Perspectives*, *5*(3), 212-218.

Hatvany, T., Burkley, E., & Curtis, J. (2018). Becoming part of me: Examining when objects, thoughts, goals, and people become fused with the self-concept. *Social and Personality Psychology Compass*, *12*(1), e12369.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Hertz, S. G., & Krettenauer, T. (2016). Does moral identity effectively predict moral behavior?: A meta-analysis. Review of General Psychology, 20(2), 129.

IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). The Big Five Inventory--Versions 4a and 54. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), Handbook of personality: Theory and research (pp. 114-158). New York, NY: Guilford Press.

Johnson, R. R. (2001). The psychological influence of the police uniform. *FBI L. Enforcement Bull.*, *70*, 27.

Johnson, R. D., & Downing, L. L. (1979). Deindividuation and valence of cues: effects on prosocial and antisocial behavior. *Journal of Personality and Social Psychology*, *37*(9), 1532.

Johnson, K., Lennon, S. J., & Rudd, N. (2014). Dress, body and self: Research in the social psychology of dress. *Fashion and Textiles*, *1*(1), 20.

Jones, M. G., Lee, T., Chesnutt, K., Carrier, S., Ennes, M., Cayton, E., ... & Huff, P. (2019). Enclothed cognition: putting lab coats to the test. *International Journal of Science Education*, *41*(14), 1962-1976.

Kaufman, G. F., & Libby, L. K. (2012). Changing beliefs and behavior through experience-taking. Journal of personality and social psychology, 103(1), 1.

Lapsley, D. K., & Hill, P. L. (2008). On dual processing and heuristic approaches to moral cognition. Journal of Moral Education, 37(3), 313-332.

Ley, G. (2006). *A Short Introduction to the Ancient Greek Theater: Revised Edition*. University of Chicago Press.

Liao, S. Y., Strohminger, N., & Sripada, C. S. (2014). Empirically investigating imaginative resistance. *British Journal of Aesthetics*, *54*(3), 339-355.

Lieberman, J. D., Solomon, S., Greenberg, J., & McGregor, H. A. (1999). A hot new way to measure aggression: Hot sauce allocation. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, *25*(5), 331-348.

López-Pérez, B., Ambrona, T., Wilson, E. L., & Khalil, M. (2016). The effect of enclothed cognition on empathic responses and helping behavior. *Social Psychology*.

Lovrick, P., & Siu, W. N. (2011). *Chinese Opera: Images and Stories*. UBC Press.

Manesi, Z., Van Lange, P. A., & Pollet, T. V. (2016). Eyes wide open: Only eyes that pay attention promote prosocial behavior. *Evolutionary Psychology*, *14*(2), 1474704916640780.

Mar, R. A., Oatley, K., & Peterson, J. B. (2009). Exploring the link between reading fiction and empathy: Ruling out individual differences and examining outcomes.

Mauro, R. (1984). The Constable's New Clothes: Effects of Uniforms on Perceptions and Problems of Police Officers 1. *Journal of Applied Social Psychology*, *14*(1), 42-56.

Mazzoli, V., Acuti, D., Donvito, R., & Ko, E. (2019). Dressing your soul: The role of brand engagement in self-concept. *Mercati & competitività-Open Access*, (1).

Mendoza, S. A., & Parks-Stamm, E. J. (2020). Embodying the police: the effects of enclothed cognition on shooting decisions. *Psychological reports*, *123*(6), 2353-2371.

Miller, K. A., Jasper, C. R., & Hill, D. R. (1991). Costume and the perception of identity and role. *Perceptual and Motor Skills*, *72*(3), 807-813.

Miller, K. A., Jasper, C. R., & Hill, D. R. (1993). Dressing in costume and the use of alcohol, marijuana, and other drugs by college students. *Adolescence*, *28*(109), 189-199.

Napier, S. J. (2007). *From impressionism to anime: Japan as fantasy and fan cult in the mind of the West*. Palgrave Macmillan.

Nickels, E. (2008). Good guys wear black: uniform color and citizen impressions of police. *Policing: An International Journal of Police Strategies & Management*.

Peluchette, J. V., & Karl, K. (2007). The impact of workplace attire on employee self-perceptions. *Human Resource Development Quarterly*, *18*(3), 345-360.

Peña, J., Hancock, J. T., & Merola, N. A. (2009). The priming effects of avatars in virtual settings. *Communication Research*, *36*(6), 838-856.

Plante, C. N. (2018). “Who I want to Be”: Self-Perception and Cosplayers’ Identification with their Favorite Characters.

Rahman, O., Wing-Sun, L., & Cheung, B. H. M. (2012). “Cosplay”: Imaginative self and performing identity. Fashion Theory, 16(3), 317-341.

Rammstedt, B. & John, O. P. (2007). Measuring personality in one minute or less: A 10 item short version of the Big Five Inventory in English and German. Journal of R esearch in Personality, 41, 203-212.

Rehm, J., Steinleitner, M., & Lilli, W. (1987). Wearing uniforms and aggression: A field experiment. *European Journal of Social Psychology*.

Rengifo, M., & Laham, S. M. (2022). Big Five personality predictors of moral disengagement: A comprehensive aspect-level approach. Personality and Individual Differences, 184, 111176.

Rest, J. R. (1986). *Moral development: Advances in research and theory.* New York: Praeger.

Reynolds, S. J., & Ceranic, T. L. (2007). The effects of moral judgment and moral identity on moral behavior: an empirical examination of the moral individual. *Journal of applied psychology*, *92*(6), 1610.

Roberts, S. C., Owen, R. C., & Havlicek, J. (2010). Distinguishing between perceiver and wearer effects in clothing color-associated attributions. *Evolutionary Psychology*, *8*(3), 147470491000800304.

Roohi, S., & Forouzandeh, A. (2019). Regarding color psychology principles in adventure games to enhance the sense of immersion. *Entertainment Computing*, *30*, 100298.

Rosenberg, R. S., & Letamendi, A. M. (2013). Expressions of fandom: Findings from a psychological survey of cosplay and costume wear. *Intensities: The Journal of Cult Media*, *5*(9), 11.

Rosenberg, R. S., & Letamendi, A. M. (2018). Personality, behavioral, and social heterogeneity within the cosplay community. *Transformative Works and Cultures*, *28*.

RStudio Team (2020). RStudio: Integrated Development for R. RStudio, PBC, Boston, MA URL http://www.rstudio.com/.

Rudd, N. A. (1991). Textiles and clothing in higher education: Strengthening linkages and conceptual identity. In S. Kaiser & M. Damhorst (Eds.), *Critical linkages in textiles and clothing subject matter: Theory, method and practice* (pp. 24-32). Monument, CO: International Textiles and Apparel Association.

Saleem, M., Anderson, C. A., & Barlett, C. P. (2015). Assessing helping and hurting behaviors through the Tangram help/hurt task. *Personality and Social Psychology Bulletin*, *41*(10), 1345-1362.

Saleem, M., Barlett, C. P., Anderson, C. A., & Hawkins, I. (2017). Helping and hurting others: person and situation effects on aggressive and prosocial behavior as assessed by the Tangram task. *Aggressive behavior*, *43*(2), 133-146.

San Diego Comic Convention. (2021, April 13). *Con Front Page*. Comic-Con Front Page. https://www.comic-con.org/cci.

Shedlosky-Shoemaker, R., Costabile, K. A., & Arkin, R. M. (2014). Self-expansion through fictional characters. *Self and Identity*, *13*(5), 556-578.

Shtulman, A., & Tong, L. (2013). Cognitive parallels between moral judgment and modal judgment. *Psychonomic bulletin & review*, *20*(6), 1327-1335.

Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior. *Annu. Rev. Psychol.*, *58*, 345-372.

Thompson, B. N., & Goldstein, T. R. (2019). Disentangling pretend play measurement: Defining the essential elements and developmental progression of pretense. *Developmental Review*, *52*, 24-41.

Van Rompay, T. J., Vonk, D. J., & Fransen, M. L. (2009). The eye of the camera: Effects of security cameras on prosocial behavior. *Environment and Behavior*, *41*(1), 60-74.

Wade, K. K., & Stafford, M. E. (2003). Public school uniforms: Effect on perceptions of gang presence, school climate, and student self-perceptions. *Education and Urban Society*, *35*(4), 399-420.

Walton, K. L. (1994). Morals in fiction and fictional morality. *Supplement to the proceedings of the Aristotelian society*, *68*, 27–50.

White, R. E., & Carlson, S. M. (2016). What would Batman do? Self-distancing improves executive function in young children. Developmental science, 19(3), 419-426.

White, R. E., Kross, E., & Duckworth, A. L. (2015). Spontaneous self-distancing and adaptive self-reflection across adolescence. Child Development, 86, 1272–1281. doi:10.1111/cdev.12370

White, R. E., Prager, E. O., Schaefer, C., Kross, E., Duckworth, A. L., & Carlson, S. M. (2017). The "Batman Effect": Improving perseverance in young children. Child development, 88(5), 1563-1571.

Winge, T. (2006). Costuming the imagination: Origins of anime and manga cosplay. *Mechademia*, *1*(1), 65-76.

Witmer, B. G., & Singer, M. J. (1998). Measuring presence in virtual environments: A presence questionnaire. *Presence*, *7*(3), 225-240.

Yablo, S. (2009). Coulda, woulda, shoulda. In S. Yablo (Ed.), *Thoughts: papers on mind, meaning, and modality* (pp. 103–150). Oxford University Press.

Yoon, G., & Vargas, P. T. (2014). Know thy avatar: The unintended effect of virtual-self representation on behavior. Psychological science, 25(4), 1043-1045.

Zhang, S., Gomies, M., Bejanyan, N., Fang, Z., Justo, J., Lin, L. H., ... & Tasoff, J. (2020). Trick for a treat: The effect of costume, identity, and peers on norm violations. *Journal of Economic Behavior & Organization*, *179*, 460-474.

***Table* 1.** *Descriptive Statistics and Correlations between Descriptive and Outcome Variables*

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Age	122	18.69	1.318	1									
2. Gender	122	1.72	.468	-.209*	1								
3. Extra[a]	101	6.00	2.040	.186	-.117	1							
4. Agree[a]	101	4.73	1.794	-.057	-.120	.186	1						
5. Consc[a]	101	4.72	1.550	-.082	.053	-.047	.196*	1					
6. Neuro[a]	101	5.28	2.093	-.124	-.246*	-.117	-.172	-.152	1				
7. Open[a]	101	5.26	1.917	-.119	.053	-.394**	-.070	.102	.097	1			
8. Moral	122	39.12	7.883	.018	-.311**	.102	.213*	.079	-.031	-.031	1		
9. Pro	122	5.44	3.438	.133	-.210*	-.029	-.044	-.012	-.012	-.049	.136	1	
10. Anti	122	2.07	2.310	-.075	.178	-.046	.046	-.012	.005	.068	-.201*	-.817**	1

Note. $*p < .05$; $**p < .01$. Extra = Extraversion; Agree = Agreeableness; Consc = Conscientiousness; Neuro = Neuroticism; Open = Openness; Moral = Moral Judgement; Pro = Prosocial Behavior; Anti = Antisocial Behavior

[a] All Big Five personality traits measured at baseline

Table 2.1. Descriptive Statistics for All Hypotheses

Group	*H1a* [a]			*H1b* [b]			*H2* [c]			*H3*[d]		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Control	35	2.09	2.306	35	5.34	3.678	28	39.07	8.406	28	3.39	2.936
Hero	41	1.66	2.446	41	6.15	3.539	33	37.00	5.362	33	3.24	3.153
Villain	46	2.41	2.176	46	4.89	3.107	40	40.1	9.323	40	2.58	2.96
Total	122	2.07	2.31	122	5.44	3.438	101	38.8	7.996	101	3.02	3.010

[a] dv measurement = difficult puzzle count
[b] dv measurement = easy puzzle count
[c] dv measurement = moral judgement
[d] dv measurement = pre and post intervention difference in agreeableness

Table 2.2. Descriptive Statistics for Hypotheses 1 and 2 (excluding participants who misidentified the moral orientation of their character)

Group	*H1a* [a]			*H1b* [b]			*H2* [c]		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Control	35	2.09	2.306	35	5.34	3.678	28	39.07	8.406
Hero	40	1.70	2.462	40	6.05	3.530	32	37.00	5.448
Villain	29	2.38	2.624	29	5.21	3.489	26	39.12	9.171
Total	104	2.02	2.449	104	5.58	3.555	86	38.31	7.684

[a] dv measurement = difficult puzzle count
[b] dv measurement = easy puzzle count
[c] dv measurement = moral judgement
[d] dv measurement = pre and post intervention difference in agreeableness

Table 3. Bootstrapped Direct, Indirect, and Total Effects

Path	**Direct Effects**			**Indirect Effect**			**Total Effects**		
	B	*SE*	*95% CI*	*B*	*SE*	*95% CI*	*B*	*SE*	*95% CI*
SC→ChAg	-0.408	0.365	-1.132, 0.315						
ChAg→ProBe	0.144	0.114	-0.083, 0.37						
SC→ProBe (mediator is ChAg for indirect effect)	-0.339	0.414	-1.161, 0.483	-0.059	0.072	-0.219, 0.073	-0.397	0.423	-1.22, 0.422
SC→ChAg	-0.409	0.365	-1.132, 0.315						
ChAg→AntiBe	-0.013	0.011	-0.034, 0.008						
SC→AntiBe (mediator is ChAg for indirect effect)	0.057	0.039	-0.019, 0.134	0.0053	0.006	-0.006, 0.019	0.062	0.038	-0.014, 0.138

Note. SC = Study Condition; ProBe = Prosocial Behavior; ChAg = Change in Agreeableness; AntiBe = Antisocial Behavior; CI = Bootstrapped Confidence Interval.

***Table* 4.** *Descriptive Statistics and Post-Hoc Correlations for Villain Group*

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8
1. Gender	46	1.78	.417	1							
2. Fami	46	6.87	1.733	-.194	1						
3. Extra[a]	40	6.08	2.153	.102	-.092	1					
4. Agree[a]	40	4.85	1.657	-.229	.064	.492**	1				
5. Consc[a]	40	4.78	1.732	.025	-.068	-.050	-.030	1			
6. Neuro[a]	40	5.50	1.922	-.335*	.034	-.195	-.016	-.112	1		
7. Open [a]	40	5.05	1.797	.114	-.242	-.419**	-.221	.243	.089	1	
8. Inter	46	.63	.488	.142	-.216	-.270	-.099	-.127	-.221	.316*	1

Note. *$p < .05$; **$p < .01$. Fami = Familiarity with Media Franchise; Extra = Extraversion; Agree = Agreeableness; Consc = Conscientiousness; Neuro = Neuroticism; Open = Openness; Inter = Interpretation of character's moral orientation.

[a] All Big Five personality traits measured at baseline

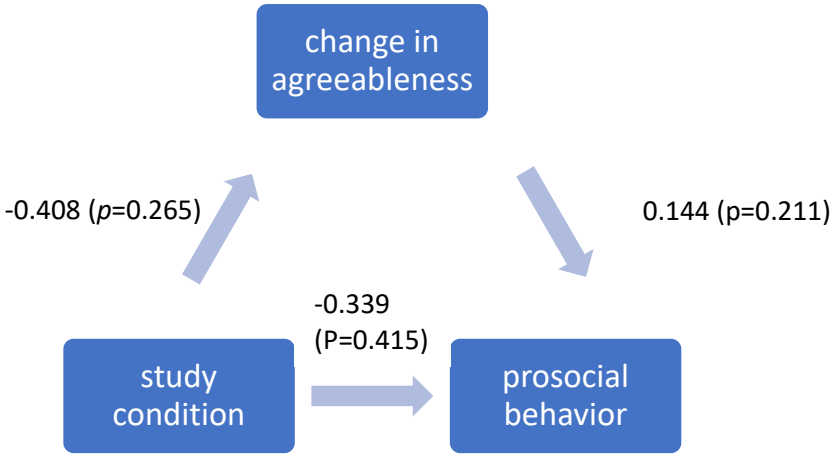
Table 5. Effect Size (η_p^2) Comparison between Similar Studies

Experiments	**Outcome variable**	***N***	**Effect (η_p^2)**
Current Study Hypothesis 1a	hurtful behavior via Tangram task)	122	0.039
Current Study Hypothesis 1b	helpful behavior via Tangram task)	122	0.016
Current Study Hypothesis 2	moral judgement	101	0.025
Current Study Hypothesis 3	change in agreeableness after manipulation	101	0.015
(Yoon & Vargas, 2013) Heroic/villainous video game avatar: Study 1	sauce poured (in grams)	194	0.28
(Yoon & Vargas, 2013) Heroic/villainous video game avatar: Study 2	sauce poured (in grams)	125	0.17
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 1	empathic concern	150	0.19
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 1	personal distress	150	0.03
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 1	help reaction time (in ms)	150	0.16
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 2	empathic concern	100	0.31
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 2	personal distress	100	0.1
(López-Pérez et al., 2016) Wearing/identifying with nurse's/cleaner's scrub: Study 2	help reaction time (in ms)	100	0.86

(Happ et al., 2013) Empathic/neutral text * heroic/villainous character	**hostile perception bias**	**60**	**0.12**
(Happ et al., 2013) Empathic/neutral text * heroic/villainous character	violence acceptance	60	0.27
(Saleem et al., 2015) Empathy inducing essay	helpful behavior via tangram task	272	0.04
(Saleem et al., 2015) Empathy inducing essay	hurtful behavior via tangram task	272	0.03
(Saleem et al., 2015) Provocation through negative feedback on written essay	hurtful behavior via tangram task	272	0.19
(Saleem et al., 2015) Provocation through negative feedback on written essay	helpful behavior via tangram task	272	0.08
(Saleem et al., 2017) Image prime	helpful behaviors via Tangram task	132	0.04
(Saleem et al., 2017) Image prime	hurtful behaviors via Tangram task	132	0.04

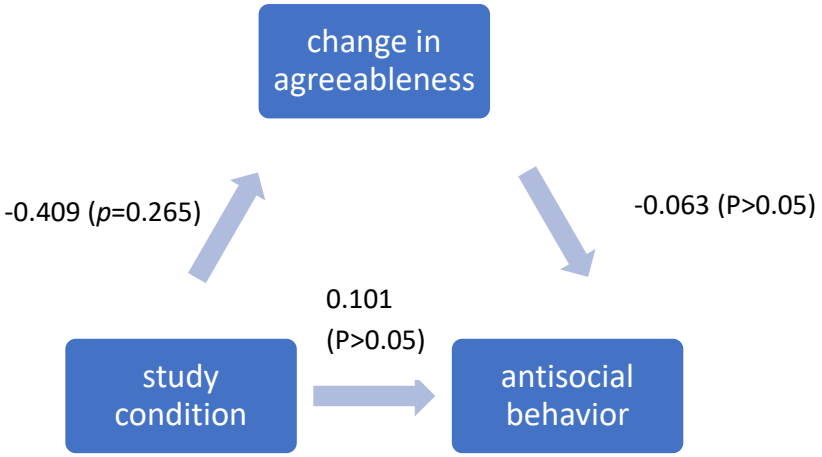
Note. *Standard used for the comparison of effect sizes (η^2) between studies – small = 0.01; medium = 0.06; large = 0.14 (Field et al., 2005)

Figure 1. Mediation by Change in Agreeableness on Effects of Costume Condition on Prosocial Behaviors



*VAF (unstandardized indirect effect/unstandardized total effect) = 14.8%
*Covariate: Gender

Figure 2. Mediation by Change in Agreeableness on Effects of Costume Condition on Antisocial Behaviors



*VAF (unstandardized indirect effect/unstandardized total effect) = 8.5%
*Covariate: Gender

Appendix

Costumes for experimental conditions

Media franchise	Characters	Hero/ Villain	Costume descriptions
Batman	Batman	Hero	Batman onesie with yellow logo in the chest, batman hood, and a detachable cape. Comes in two sizes (small and large).
	Joker	Villain	Onesie of Joker's suit and a detachable cape. Participants were not given any face coverings nor wigs, signatures of Joker's character.
Harry Potter	Harry Potter	Hero	Harry Potter's Gryffindor robe, tie, glasses, and wand (if participants prefer to hold on to it).
	Voldemort	Villain	Voldemort's robe, bald cap (face not covered), and wand (if participants prefer to hold on to it).
Star Wars	Luke Skywalker	Hero	Luke Skywalkers' beige tunic, pull-on pants with attached boot tops, belt, and blue lightsaber.
	Darth Vader	Villain	Darth Vader's black tunic in onesie form, detachable black cape, helmet (without the mask), and red lightsaber.

**Note.* All face coverings of the costumes were omitted to avoid the confounding effects of masquerading and occluded vision during study tasks.