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Not just a game: Identity fusion and extremism in gaming cultures

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Extremist ideologies have clearly become increasingly prevalent in the world of video games. What is less clear, however, is the mechanism through which these ideologies make their way into the psyches of gamers. Here we focus on the potential role of identity fusion in the radicalization of video gamers. In three studies, we show that fusion with gaming culture is uniquely predictive of a host of socially pernicious outcomes, including racism, sexism, and endorsement of extreme behaviors. We also show that specific personality attributes (e.g., insecure attachment, loneliness) may interact with fusion with gaming culture to further amplify support for extreme behavior, and that specific gaming communities (e.g., *Call of Duty*) may serve as catalysts that encourage strongly fused gamers to embrace antisocial attitudes and behaviors. These findings contribute to a theoretical understanding of the psychological processes that foment radicalization and guide the development of strategies for discouraging extremist ideologies in gaming spaces.

KEYWORDS

identity fusion, digital games, extremism and radicalization, extremism, video games

Introduction

There are growing concerns that online platforms have become breeding grounds for extremist ideologies (Gaudette et al., 2020). Such concerns are warranted. In fact, the "us vs. them" exclusionary identities inherent in game content and communities are well-suited for the development and perpetuation of extremist ideologies (Kowert and Newhouse, 2022). Even so, the psychological mechanisms through which identities come to organize the activities of gamers have not yet been identified. In this report, we propose that identity fusion with gamer cultures ßßß gamers to internalize and act upon extremist beliefs. We begin with a brief description of the role of identities and identity fusion in extreme behavior.

Gamer cultures, identity fusion, and extremism

Identity fusion is a deep, visceral sense of alignment with an abstracting such as a group, cause, or other people. Identify fusion is distinct from traditional forms of alignment with groups such as group identification (Tajfel and Turner, 1979; Turner et al., 1987). Whereas, group identification emphasizes collective ties to the group only,

identity fusion also emphasizes the personal self and relational ties to other group members (for emperical evidence, see Gómez et al., 2019). The incorporation of these three distinct motivators of pro-group behavior (i.e., the personal self, relational and collective ties) theoretically explains why measures of identity fusion are exceptionally strong predictors of *extreme* pro-group behavior. That is, relative to identification, identify fusion has been shown to be a stronger predictor of the endorsement of fighting and dying for ingroup members (Swann et al., 2009; Gómez et al., 2011b) and choosing self-sacrifice to save imperiled ingroup members in variations of the trolley dilemma (Swann et al., 2010a; Gómez et al., 2011b). Identity fusion is so powerful that it compels people to enact pro-group behaviors even when it is personally costly to do so (e.g., sacrificing one's life for the group; Swann et al., 2010b).

It is important to note that fusion resembles an attitude rather than a personality trait. For example, fusion scores are independent of each of the Big Five Personality traits (extraversion, agreeableness, openness, conscientiousness, neuroticism; Gómez and Vázquez, 2015). Moreover, the tendency to fuse with one's religion was uncorrelated with the tendency to fuse with other abstractions such as one's country (Swann et al., 2012). The tendency for fusion to be attached to specific abstractions to the exclusion of other abstractions likely reflects the fact that fusion requires significant emotional investment and a given individual is only capable of a finite amount of emotional investment.

Gaming spaces may be particularly conducive to identity fusion. By their nature, digital gaming environments are characterized by shared and arguably stressful activities (e.g., working as a group to kill formidable enemies). Shared experiences are particularly effective in facilitating identity fusion, especially when the experiences are challenging (Newson et al., 2016) and engaging. Supporting this, friendships formed within games have been found to be highly intimate with greater levels of self-disclosure and closeness than friendships made in other online spaces (Williams, 2006a; Cole and Griffiths, 2007; Kowert, 2015). These bonds are doubtlessly conducive to identity fusion with gaming culture (i.e., a deep emotional bond with gaming culture).

Identity fusion has been studied in a variety of groups including members of the military (Hart and Lancaster, 2019), nationalist groups (Raffield et al., 2016; Siromahov, 2020), and competitive sports (Bortolini et al., 2018; Newson et al., 2018, 2022; Newson, 2019). Within these varied contexts, fusion has been found to align with several pro-social outcomes, such as the willingness to help others (Swann et al., 2010a; Gómez et al., 2011a; Hart and Lancaster, 2019), and anti-social outcomes, such as hostility, aggression, and violence (Newson et al., 2018, 2022).

The distinctive psychological profile of game players may also foster identity fusion. It is well-documented that many people seek gaming communities for social connection. Historically, online game players have been found to be highly socially motivated (Yee, 2006; Hilvert-Bruce and Neill, 2020) and particularly likely to suffer from loneliness (Kim et al., 2008), social anxiety (Kim et al., 2008), and insecure attachment (Kowert and Oldmeadow, 2014). A major appeal of gaming communities, then, is "*the capacity to offer a sense of attachment (i.e., closeness, belonging, and security) for individuals who need it the most*" (Kowert and Oldmeadow, 2014, p. 564).

The salubrious effects of games notwithstanding, gamer cultures also represent spaces where hateful, harassing, and "toxic" behaviors are commonplace (Consalvo, 2012; Anti-Defamation League, 2019; Kowert and Cook, 2022). This includes chronic racism (Gray, 2012) and misogyny (Jenson and DeCastell, 2013). Extremist ideologies in gaming and game-adjacent spaces are particularly pervasive. In 2019, the ADL reported that 23% of online game players are exposed to discussions about white supremist ideology while gaming. A 2021 report from the Institute for Strategic Dialogue (ISD) also found *Steam* (an online gaming platform) to house a diverse range of public servers created for violent neo-Nazi groups and noted that *Discord* (a third-party chat system often used by gaming groups) actively hosts white nationalist and white supremist groups featuring neo-Nazi content (Institute for Strategic Dialogue, 2021).

Gamer communities therefore represent a double-edged sword. On the one hand, they may provide a sense of connection and purpose for individuals who suffer from loneliness and insecurity (Kim et al., 2008; Kowert and Oldmeadow, 2014). On the other hand, they may expose gamers to hateful speech and social toxicity (Consalvo, 2012) that can increase their susceptibility to extremist propaganda (Braddock et al., 2022). In the worst-case scenario, gamers may be lured into embracing extremist beliefs that lead them down the path to radicalization.

The studies reported in this article were not preregistered. The data have not been made available on a permanent third-party archive; however, requests for data can be sent to the corresponding author.

Current research

To examine the links between identity fusion and extremism among gamers, we conducted a series of three studies. Study 1 explored the correlates of identity fusion among gamers. To this end, we assessed fusion with gaming culture and three broad classes of outcomes: (a) endorsement of extreme behaviors; (b) attitudes that have traditionally been linked to antisocial behaviors; and (c) demographic variables and frequency of engagement in gaming. In Study 1, we predicted that identity fusion with gamer culture would predict the first two classes of outcomes (endorsement of extreme behaviors and antisocial attitudes), even while controlling for (a) gameplay predictors

and relevant demographics (i.e., weekly play time, years gaming, most played genre, and gender) and (b) established political identity predictors (i.e., right wing identity and white nationalist identity).

Building on the findings from Study 1, Study 2 focused on the potential individual differences that could amplify the effects of fusion with gaming culture. Based on evidence that insecure attachment is associated with intragroup marginalization and the endorsement of extreme pro-group actions (Ferenczi et al., 2016), we included a measure of both anxious and avoidant attachment styles. Further, given evidence that emotional comfort is a powerful motivator of online engagement, particularly among the insecurely attached (Kowert and Oldmeadow, 2014), we included a measure of positive and negative gameplay motivations (i.e., motivated to play when feeling happy, excited, stressed, anxious, sad, or lonely) as well as a measure of loneliness. Relatedly, we also added measures of gaming companions and play modality (online vs. offline) to Study 2 to also see if these measures would interact with fusion to predict extreme behaviors. Our hypotheses in Study 2 were 2-fold: (1) the unique predictive effects of identity fusion on the outcomes from Study 1 would replicate while controlling for the established political predictors, and (2) identity fusion would interact with our novel measures (i.e., insecure attachment styles, loneliness, positive and negative gameplay motivations, gaming companions, and play modality) to predict extreme behaviors (i.e., willingness to fight/die for gaming culture and recent aggressive behaviors).

Study 3 asked if contextual factors may impact gamer fusion and its relationship to extreme outcomes. Specifically, whether the relations between identity fusion and extreme behavior and attitudes generalized to players of relatively benign games (e.g., *Minecraft*) or were limited to games with more violent content, competitive mechanics, and toxic social environments (e.g., *Call of Duty*). Our hypothesis in Study 3 was that fusion would be more strongly predictive of the antisocial outcomes among Call of Duty gamers compared to Minecraft gamers.

Due to the politically sensitive nature of this work, it is important to note that the authors took several personal safety precautions prior to the administration of this research. First, we ensured that the questions within the survey were non-invasive, self-report measures, we did not expose participants to experimental manipulations or upsetting content, and we guaranteed participants anonymity with their participation, reducing the likelihood they would feel threatened in any way from participating within the study. We also consulted with third parties to prevent the authors' personal information from being made available online apart from their intuitional contact information which is required by the University of Texas internal review board to be made publicly accessible to participants.

Study 1

In Study 1, we were interested in exploring identity fusion with gamer communities and potentially related individual differences. Given the paucity of prior research on this topic, we cast a wide net by including measures of several potentially relevant constructs.

Method

Participants

We ran an a priori power analyses using the GPower software. With 3 predictors in a regression model we would have 90% power to detect an effect size of $f^2 = 0.05$ or larger with at least 288 participants. Using Amazon Mechanical Turk (Mturk), we recruited 310 American video gamers. We excluded participants who failed attention checks or did not complete the survey. After exclusions we had 304 participants (gender: 146 males, 155 females, 3 non-binary; age: 19–77; ethnicity: 22 Asian/Pacific Islander, 29 Black, 3 American Indian, 16 Hispanic, 219 White, 7 Multiracial, 6 Other, 1 Non-response; education: 2 Less than a high school degree, 37 High school degree or equivalent, 57 Some college but no degree, 46 Associate degree, 120 Bachelor degree, 42 Graduate degree).

Procedure

After providing informed consent, participants indicated whether they played video games. Participants who responded "yes" proceeded to complete all the scales below in random order, with the exception that right-wing identity, white nationalist identity and demographic questions were measured after the other scales to avoid the potential priming of these identities.

Measures

Gamer identity fusion

Identity fusion was measured with three different, 3-item scales targeting fusion with gamer identity, fusion with gaming culture, and fusion with other gamers. The three items in each fusion scale were adapted from the 7-item verbal identity fusion scale (Gómez et al., 2011b). All three items were measured on 1-7 Likert scales ranging from "Completely Disagree" to "Completely Agree." An example item from this scale is "*I make gaming culture strong*." Total scores on the three fusion scales were highly correlated with each other and mapped onto one factor. Given this strong overlap, we focused our analyses on the scale that had the highest internal consistency: identity fusion with gaming culture ($M = 3.14$, $SD = 1.80$, $\alpha = 0.95$).

Willingness to fight/die for gaming culture

A key correlate of identity fusion is the willingness to fight/die for the group (Swann et al., 2009). Participants were asked to respond to a single item "*I would fight someone insulting*

or making fun of gaming culture" on a 1-7 Likert scale ranging from "Completely Disagree" to "Completely Agree" ($M = 1.63$, $SD = 1.02$, $\alpha = 0.94$).

Dark triad personality traits

The Dark Triad of personality traits (Machiavellianism, narcissism, and psychopathy) has been linked to antisocial behavior in games (Tang et al., 2020) and the endorsement of extremist beliefs (Pavlović and Wertag, 2021). We measured each of the dark triad traits using a 4-item version of each trait utilized by related research on extremist populations (Forscher and Kteily, 2020). All items were measured on 1 - 7 Likert scales ranging from "Strongly Disagree" to "Strongly Agree." An example item for Machiavellianism ($M = 3.94$, $SD = 1.12$, $\alpha = 0.63$) is "*I like to use clever manipulation to get my way*." An example item for Narcissism ($M = 3.10$, $SD = 1.39$, $\alpha = 0.78$) is "*I know that I am special because everyone keeps telling me so*." An example item for Psychopathy ($M = 2.20$, $SD = 1.12$, $\alpha = 0.72$) is "*Payback needs to be quick and nasty*." Although the internal reliability of the four Machiavellianism items was less than an ideal of $\alpha \geqq 0.70$, we still included this measure as it is a key part of the Dark Triad and it had been used successfully in previous work (Forscher and Kteily, 2020).

Social dominance orientation

Social dominance is a trait associated with far-right extremism (Bai, 2019) and antisocial behavior in gaming spaces, including sexism (Fox and Tang, 2014) and harassment (Tang et al., 2020). We included eight items to measure social dominance orientation adapted from the original 12-item version of the scale from Pratto et al. (1994). All items were measured on 1-7 Likert scales ranging from "Strongly Disagree" to "Strongly Agree" ($M = 2.54$, $SD = 1.52$, $\alpha = 0.93$). An example item from this scale is "*Some groups of people are simply inferior to other groups*."

Right-wing authoritarianism

Authoritarianism is a belief system commonly associated with extremist action (Wintrobe, 2006). As such, we included six items designed to tap right-wing authoritarianism (Forscher and Kteily, 2020). All items were measured on 1-7 Likert scales ranging from "Strongly Disagree" to "Strongly Agree" ($M = 3.38$, $SD = 1.45$, $\alpha = 0.83$). An example item is "*Obedience and respect for authority are the most important virtues children should learn*."

Right-wing identity

Right-wing ideologies have been specifically associated with hate and harassment in gaming spaces, specifically the #GamerGate hate campaigns of 2014 (Aghazadeh et al., 2018). To assess the relationship between gamer fusion and right-wing identity, we created a single-item measure. First, we gave participants a brief text defining what we meant by right-wing identity: "*The right-wing nationalist movement is characterized by a rejection of mainstream politics and media, strong identification with one's own nation and support for its interests, and the belief that your own country is better than all others without question or doubt.* Then, participants were asked to indicate their level of agreement with the statement "*I identify with the right-wing nationalist movement*." Participants indicated their level of agreement to this statement using a 1-7 Likert scale ranging from "Strongly Disagree" to "Strongly Agree" ($M = 2.48$, $SD = 1.94$).

White nationalist identity

While extremist beliefs can take many forms, White Nationalist ideologies have been found to be particularly prevalent in gaming spaces (Anti-Defamation League, 2019; Institute for Strategic Dialogue, 2021). To assess the links between fusion and white nationalism, we created a single-item measure of identity with this movement. We first gave participants a brief text defining what we meant by white nationalism ("T*he alt-right movement is a right-wing, primarily online political movement or grouping based in the U.S. whose members reject mainstream conservative politics and espouse extremist beliefs and policies typically centered on ideas of white nationalism.*"). Then participants were asked to indicate their level of agreement with the statement "*I identify with the alt-right movement*." Participants indicated their level of agreement to this statement using a 1-7 Likert-scale from "Strongly Disagree" to "Strongly Agree" ($M = 1.98$, $SD = 1.59$). Note that although we referred to this identity as "alt-right identity," we later discovered this is a common term used by white nationalists to make their identity and ideology seem more palatable (Gallaher, 2020). As the definition presented to participants was explicitly framed as an endorsement of white nationalism, we will refer to it as that throughout the rest of the paper.

Sexism

Sexism is a cornerstone of "toxic gamer cultures" (Consalvo, 2012) and white nationalist ideologies (Forscher and Kteily, 2020). To assess the links between fusion and sexism, we used a three-item measure of both benevolent and hostile sexism taken from Forscher and Kteily (2020) that measures sentiments on 1-7 Likert scales from "Strongly Disagree" to "Strongly Agree." Benevolent sexism ($M = 4.15$, $SD = 1.70$, $\alpha = 0.82$) is characterized by a paternalistic, condescending view toward women. An example item of benevolent sexism is "*Women should be cherished and protected by men*." Hostile sexism ($M = 2.84$, $SD = 1.53$, $\alpha = 0.83$) is characterized by general dislike and disregard of women. An example item of hostile sexism is "*Once a woman gets a man to commit to her, she usually tries to put him on a tight leash*."

Racism

Racism is another cornerstone of "toxic gamer cultures" (Gray, 2012) and underpins extremist ideologies (Michael, 2003; Fuchs, 2016). We measured racism with two scales adapted from the motivations to express and inhibit bias scales used by Forscher and Kteily (2020). We changed the target of the items from "Black people" to "minorities" to target general racism beyond antipathy toward Blacks. Both measures used 1-7 Likert scales ranging from "Strongly Disagree" to "Strongly Agree." Extrinsic Racism ($M = 2.42$, $SD = 1.31$, $\alpha = 0.77$) was measured using four items drawn from the external motivation to express bias subscale. Intrinsic Racism ($M = 2.06$, $SD = 1.27$, $\alpha = 0.78$) was measured using four items drawn from the internal motivation to express bias subscale from the same measure.

Recent aggressive behaviors

To examine connections between fusion, extremist ideologies, and extreme pro group behavior, we also included a behavioral measure of recent aggressive behaviors (within the last month) using a six-item self-report scale from Forscher and Kteily (2020). All items were measured on a 1-7 Likert scale ranging from "Not at all" to "Frequently" ($M = 1.74$, $SD = 1.12$, $\alpha = 0.90$). Participants were asked to report their aggressive behaviors regardless of whether they occurred online or offline. An example item from this measure is "*Made a statement because others find it offensive*."

Belief in QAnon

QAnon is a conspiracy theory characterized by the belief that the world is run by a sinister cabal of child-molesting devil-worshiping elites and that Donald Trump is the only one who can thwart the designs of this sinister group. Belief in QAnon was included as an outcome of interest as it has been found to be strongly associated with white nationalist ideologies and beliefs (Anwar et al., 2021). To measure one's belief in QAnon conspiracies, we developed a seven-item measure. All items were measured on Likert scales ranging from "Completely Disagree" to "Completely Agree" ($M = 1.89$, $SD = 1.18$, $\alpha = 0.92$). An example item from this scale was "*Donald Trump is secretly working to overthrow the power of child molesters and devil worshipers who run this country*." Given that we developed this scale ourselves, we ran an exploratory factor analysis on the seven items. We found that all 7-items mapped strongly to 1 factor (factor loadings >0.60). The strong loadings to a single factor combined with the high Cronbach's alpha ($\alpha = 0.92$) suggests that this scale works well as a measure of a single construct.

Experience with games

To determine whether experience with gaming moderated our findings, we assessed three relevant variables. Participants were asked to report how many hours per week they currently played video games. They were also asked how many years they have been playing video games. These two measures were included to determine whether the relationships between fusion and the various outcomes could be related to prolonged exposure to the gaming community in the short-term (i.e., weekly play time) or long-term (i.e., number of years playing games). Responses to both of these open response questions were manually converted to numerical values to create two continuous measures where larger numbers indicated more weekly game play time ($M = 9.91$, $SD = 10.43$) or more years playing video games ($M = 20.14$, $SD = 10.15$), respectively. Finally, participants indicated which game genres they played the most in a multiple-choice question. Participants chose one option from a list of genres, including sandbox, real-time strategy, shooters, multiplayer online battle arena, role-playing, simulation and sports, puzzlers and party games, action-adventure, survival and horror, platformer, and Other (fill-in-the-blank). We measured this categorical variable to assess whether relationships between identity fusion and the outcome measures were limited to, or magnified within, players of a specific genre.

Demographics

Participants were also asked to indicate their gender, age, ethnicity, nationality, education level, political identity, political orientation, religion, and religiosity.

Results

We were primarily interested in the predictive power of fusion with gaming culture on our outcome measures (analyses of the other fusion scales supported the same conclusions that we present below). Our hypotheses in Study 1 were that fusion would uniquely predict the outcome measures when controlling for (a) gameplay predictors and gender and (b) political predictors, so we ran analyses to test these predictions. To determine if fusion with gaming culture had unique predictive power, we ran two sets of multiple regression models. The first set of regressions examined whether fusion effects held when controlling for competing game-related predictors to the model (e.g., specifically most played game genre, years playing games, weekly gameplay time) and gender. We chose gender as a relevant demographic predictor to control as gender differences have historically been found across a range of constructs (Veltri et al., 2014). The second set of regression models controlled for several potentially related political belief variables (e.g., right-wing identity and white nationalist identity).

Multiple predictor models

When controlling for most played game genre, years playing games, weekly play time, and gender, fusion with gaming culture predicted fight/die for gaming culture, narcissism, psychopathy, right-wing authoritarianism, benevolent sexism, hostile sexism,

TABLE 1 Regression results for identity fusion with gaming culture (controlling for gameplay factors and gender).

	β	[95% CI]
Fight/die for gaming culture	0.26***	[0.19, 0.21]
Machiavellianism	0.03	[−0.05, 0.11]
Narcissism	0.23***	[0.13, 0.33]
Psychopathy	0.10**	[0.02, 0.018]
Social dominance orientation	0.06	[−0.16, 0.05]
Right-wing authoritarianism	0.12*	[0.03, 0.22]
Benevolent sexism	0.16**	[0.04, 0.27]
Hostile sexism	0.11	[0.01, 0.22]
Extrinsic racism	0.19***	[0.11, 0.28]
Intrinsic racism	0.05	[0.05, 0.20]
Recent aggressive behaviors	0.13***	[0.11, 0.28]
Belief in QAnon	0.07	[−0.01, 0.15]

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

extrinsic racism, and recent aggressive behaviors. Fusion did not significantly predict Machiavellianism, social dominance, intrinsic racism, or belief in QAnon when game play factors and gender were included in the same model (p's >0.09). The regression betas and confidence intervals for identity fusion predicting these outcomes when controlling for gameplay factors and gender can be seen in Table 1.

When controlling for both right-wing identity and white nationalist identity in the same model as fusion (without the gameplay variables and gender), fusion with gaming culture predicted fight/die for gaming culture, narcissism, psychopathy, hostile sexism, extrinsic racism, and recent aggressive behaviors. In these models, fusion no longer predicted Machiavellianism, social dominance orientation, right-wing authoritarianism, benevolent sexism, intrinsic racism, or belief in QAnon. The regression betas and statistical significance for fusion as well as the political predictors controlling for each other in each multiple regression model can be seen in Table 2.

Notably, fusion was consistent in the outcomes that it predicted and did not predict between the sets of regressions (controlling for gameplay/gender or political predictors, respectively). The two exceptions were right-wing authoritarianism and benevolent sexism, which fusion no longer predicted when in the same model as the political predictors.

Conclusion

Fusion with gamer culture was linked to several factors associated with traditional forms of extremism, including the willingness to fight/die for gaming culture, Dark Triad personality traits, sexism, racism, and aggressive behavior. Supporting our hypotheses, fusion with gaming culture was found to have unique predictive power separate from (a) gameplay variables and gender and (b) established political predictors of these toxic attitudes (i.e., right-wing identity and white nationalist identity).

Although these findings in Study 1 revealed links between gamer fusion and several outcomes associated with extremism, little is known regarding whether individual differences could interact together with fusion with gaming culture to enhance its predictive power on key outcomes, such as the willingness to fight/die for the cause. For example, previous research has found that insecure attachment and emotional motivations for play can drive group attachments and motivate online game engagement (Kowert and Oldmeadow, 2014; DeMarco and Newheiser, 2018). Insecure attachment has also been found to predict endorsement of extreme pro-group actions (Ferenczi et al., 2016). We considered it likely that such individual differences could interact with fusion and potentially amplify fusion's predictive effects on our outcomes, in particular those outcomes associated with endorsement of extreme behavior (i.e., willingness to fight and die for gaming culture and recent aggressive behaviors). We tested this hypothesis in Study 2.

Study 2

Method

Participants

We recruited 304 American participants from Amazon Mechanical Turk who indicated that they play video games. We excluded participants who failed attention checks or failed to complete the survey. After exclusions we had 294 participants (gender: 132 males, 161 females, 1 non-binary; age: 19-74; ethnicity: 27 Asian/Pacific Islander, 25 Black, 1 American Indian, 19 Hispanic, 210 White, 9 Multiracial, 3 Other; education: 3 Less than high school degree, 42 High school degree or equivalent, 69 Some college but no degree, 48 Associate degree, 98 Bachelor degree, 34 Graduate degree).

Procedure

Study 2's procedure was identical to Study 1 except for the addition of the new measures. Participants completed a consent and screener question, then completed most measures in randomized order followed by the right-wing and white nationalist identity questions, then demographic questions and finally the debriefing form.

Measures

Study 2 included all the measures from Study 1 that demonstrated a significant relationship between fusion and gaming culture. We also added several additional measures to assess individual differences that may impact the nature of the relationships between identity fusion and extreme outcomes: insecure attachment, loneliness, and social motivations for play.

TABLE 2 Study 1 regression results for identity fusion with gaming culture, white nationalist identity, and right-wing identity.

	Fusion with gaming culture		White nationalist identity		Right-wing identity	
	β	[95% CI]	β	[95% CI]	β	[95% CI]
Fight/die for gaming culture	0.24***	[0.19, 30]	0.07	[−0.02, 16]	0.08*	[0.01, 0.15]
Machiavellianism	0.04	[−0.03, 0.12]	0.11*	[0.00, 0.23]	0.01	[−0.08, 0.10]
Narcissism	0.17***	[0.08, 0.25]	0.04	[−0.09, 0.18]	0.08	[−0.03, 0.18]
Psychopathy	0.12***	[0.05, 0.19]	0.13*	[0.02, 0.24]	0.00	[−0.08, 0.09]
Social dominance orientation	−0.08	[−0.16, 0.01]	0.18**	[0.05, 0.31]	0.30***	[0.19, 0.40]
Right-wing authoritarianism	0.04	[−0.04, 0.12]	0.05	[−0.07, 0.17]	0.40***	[0.30, 0.49]
Benevolent sexism	0.08	[−0.02, 0.19]	0.05	[−0.11, 0.21]	0.30***	[0.18, 0.43]
Hostile sexism	0.13**	[0.04, 0.22]	−0.01	[−0.15, 0.12]	0.33***	[0.22, 0.44]
Extrinsic racism	0.15***	[0.07, 0.23]	0.14*	[0.02, 0.26]	0.11*	[0.02, 0.21]
Intrinsic racism	0.04	[−0.03, 0.12]	0.23***	[0.11, 0.34]	0.12*	[0.03, 0.21]
Recent aggressive behaviors	0.12***	[0.06, 0.19]	0.19***	[0.09, 0.30]	0.05	[−0.03, 0.13]
Belief in QAnon	0.06	[−0.00, 0.12]	0.15**	[0.05, 0.24]	0.27***	[0.20, 0.35]

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Finally, we measured two aspects of play modality (whether play was online/offline and social/alone).

Insecure attachment

To measure insecure attachment styles we used the 12-item Experiences in Close Relationship scale created by Wei et al. (2007). All items were measured on a 1-6 Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The scale has 6 items tapping *Avoidant Attachment Style* ($M = 2.38$, $SD = 1.14$, $\alpha = 0.87$) and 6 items measuring *Anxious Attachment Style* ($M = 2.95$, $SD = 1.21$, $\alpha = 0.83$). An example of an Avoidant item is "*I try to avoid getting too close to my partner*"; a sample Anxious item is "*I need a lot of reassurance that I am loved by my partner*." To avoid the issue of whether participants were in an active romantic relationship or not, we asked them to respond based on their likely typical experiences in romantic relationships.

Positive and negative gameplay motivations

To assess whether players were seeking out online games for emotional comfort, we included 6 items to measure participants' emotional motivations for playing video games (Kowert, 2015). A list of emotions was preceded by the statement "*I play video games when I feel…*" All items were measured on a 1-5 Likert scale ranging from "Strongly Disagree" to "Strongly Agree "The six emotions were: Stressed, Anxious, Sad, Lonely, Happy, and Excited. This measure was used because it differentiates between positive gameplay motivations (happy, excited) and negative gameplay motivations (stressed, anxious, sad, lonely). We averaged the first 2 items to create a composite measure of *Positive Gameplay Motivations* ($M = 2.98$, $SD = 1.05$, $\alpha = 0.88$) and the last 4 items to create a composite measure of *Negative Gameplay Motivations* ($M = 3.75$, $SD = 0.91$, $\alpha = 0.84$).

Loneliness

In addition, we included a measure of loneliness (ULS-8; Hays and DiMatteo, 1987) to determine the degree to which individual gamers report feelings of loneliness in their daily lives. All 8 items were measured on a 1-6 Likert scale ranging from "Strongly Disagree" to "Strongly Agree" ($M = 2.75$, $SD = 1.22$, $\alpha = 0.88$). An example loneliness item is "*There is no one I can turn to*."

Play modality

To gain insight into the social environments the players are engaging in, we created a single-item measure of play modality to tap the degree to which participants played games offline vs. online ("Which statement best describes your play style?"). The scale was measured on a 1-5 Likert scale ranging from "Offline Exclusively" to "Online Exclusively" ($M = 2.98$, $SD = 1.18$).

Gaming companions

We created a single-item measure of gameplay companions to tap the degree to which participants played games by themselves vs. with other people ("Do you primarily play alone or with others?"). The scale was measured on a 1-5 Likert scale ranging from "Exclusively Alone" to "Exclusively with Others" ($M = 2.46$, $SD = 1.05$).

Results

To determine if fusion's unique predictive effects in Study 1 would replicate in Study 2, we ran the same multiple regressions from Study 1 that included the three predictors of identity fusion with gaming culture, right-wing identity, and white nationalist identity, controlling for each other. We wanted to determine

whether the unique predictive effects of fusion replicated when controlling for these established political predictors. They did. As shown in Table 3, all the unique predictive fusion effects from Study 1 replicated in Study 2.

To test our hypothesis that fusion would interact with individual difference variables to amplify endorsement of extreme behaviors, we ran a series of interaction models. We looked at the interaction of fusion and each of the following variables individually: loneliness, avoidant attachment style, anxious attachment style, play modality, gaming companions, positive gameplay motivations, and negative gameplay motivations. We were interested in any interactions that predicted the outcomes measuring endorsement of extreme behavior (i.e., willingness to fight and die for gaming culture and recent aggressive behaviors).

As shown in Figures 1–3, fusion interacted with 3 individual difference variables to predict willingness to fight/die for gaming culture: loneliness ($B = 0.06$, $p = 0.006$, 95% CI [0.02, 0.10], total model R^2 adj $= 0.26$), avoidant attachment style ($B = 0.09$, $p < 0.001$, 95% CI [0.04, 0.14], total model R^2 adj $= 0.30$), and anxious attachment style ($B = 0.06$, $p = 0.002$, 95% CI [0.02, 0.10], total model R^2 adj $= 0.26$). Fusion did not interact with any other individual difference variables to predict willingness to fight/die for gaming culture (i.e., play modality, gaming companions, positive gameplay motivations, negative gameplay motivations; p's > 0.05).

As shown in Figure 4, fusion interacted with avoidant attachment style to also predict recent aggressive behaviors ($B = 0.07$, $p = 0.023$, 95% CI [0.01, 0.13], total model R^2 adj $= 0.14$). However, fusion did not interact with any other individual difference variables to predict recent aggressive behaviors (i.e., loneliness, anxious attachment style, play modality, gaming companions, positive gameplay motivations, or negative gameplay motivations (p's > 0.15).

Conclusion

As in Study 1 and in line with our first hypothesis of Study 2, fusion with gamer culture was uniquely predictive of fight/die for gaming culture, narcissism, psychopathy, hostile sexism, extrinsic racism, and recent aggressive behaviors, even when controlling for established political predictors of right-wing and white nationalist identities. Replicating this finding suggests that there is something distinctive about gaming culture and those who strongly align themselves with it.

Partially supporting our second hypothesis, our findings also revealed that three individual-difference variables (loneliness, avoidant attachment, anxious attachment) interacted with fusion with gaming culture to predict greater willingness to fight/die for gaming culture. Likewise, avoidant attachment style interacted with fusion to also predict recent aggressive behaviors. Strongly fused gamers who are lonelier or have insecure attachment styles were particularly strong proponents of extreme behavior in defense of gaming culture. However, we did not find significant effects of fusion predicting either behavior outcome in interactions with positive gameplay motivations, negative gameplay motivations, gaming companions, or play modality. This suggests that trait-level individual differences such as insecure attachment style and loneliness are more pivotal to predicting extreme behavior when combining with fusion in the gaming context, as opposed to state-level differences such as emotional motivations for gameplay or the physical presence of others (e.g., gaming companions and play modality).

Building from this, Study 3 was designed to investigate whether certain gaming spaces were especially conducive to links between fusion and extreme behaviors. One possibility is that highly competitive and/or violent gaming spaces may be more prone to extremist radicalization and mobilization than other gaming spaces (Schlegel, 2020). To test this possibility, we compared the relationship between identity fusion and extreme behaviors in a highly competitive game (*Call of Duty*) vs. a relatively benign game (*Minecraft*). We hypothesized that the relationships between fusion and extremism would be stronger within *Call of Duty* communities, due to higher levels of hostility and toxicity in the community as compared to *Minecraft*.

Study 3

Method

Participants

We aimed to recruit at least 300 American participants from Amazon Mechanical Turk who indicated that they play video games and played either Minecraft or Call of Duty for at least a few hours per week. These games were chosen as contrasting gaming spaces as *Call of Duty* is a first-person shooter battlefield game known to have high levels of community toxicity (Anti-Defamation League, 2019) whereas *Minecraft* is a sandbox video game known to be highly social and cooperative (Wald, 2020). We collected data from 338 *Minecraft* gamers and 327 *Call of Duty* players. We excluded participants who failed attention checks or failed to complete the survey. After exclusions we had 330 participants who play Minecraft (gender: 163 males, 160 females, 7 non-binary; age: 18–80; ethnicity: 20 Asian/Pacific Islander, 25 Black, 1 American Indian, 33 Hispanic, 233 White, 14 Multiracial, 4 Other; education: 4 Less than high school degree, 35 High school degree or equivalent, 79 Some college but no degree, 43 Associate degree, 118 Bachelor degree, 51 Graduate degree) and 315 participants who play Call of Duty (gender: 184 males, 129 females, 2 non-binary; age: 19–80; ethnicity: 18 Asian/Pacific Islander, 38 Black, 2 American Indian, 37 Hispanic, 207 White, 7 Multiracial, 6 Other; education: 1 Less than high school degree, 42 High school degree or equivalent, 74 Some college but no degree, 47 Associate degree, 110 Bachelor degree, 41 Graduate degree).

TABLE 3 Study 2 regression results for identity fusion with gaming culture, white nationalist identity, and right-wing identity.

	Fusion with gaming culture		White nationalist identity		Right-wing identity	
	β	[95% CI]	β	[95% CI]	β	[95% CI]
Fight/die for gaming culture	0.23***	[0.18, 0.28]	0.18***	[0.11, 0.25]	0.04	[−0.02, 0.10]
Machiavellianism	0.11**	[0.04, 0.18]	0.06	[−0.03, 0.16]	0.02	[−0.06, 0.11]
Narcissism	0.14**	[0.05, 0.21]	0.20***	[0.08, 0.31]	−0.04	[−0.13, 0.06]
Psychopathy	0.13***	[0.06, 0.21]	0.24***	[0.14, 0.34]	−0.02	[−0.10, 0.07]
Right-wing authoritarianism	0.04	[−0.03, 0.12]	0.03	[−0.08, 0.13]	0.37***	[0.28, 0.46]
Benevolent sexism	0.10	[−0.01, 0.21]	0.00	[−0.14, 0.14]	0.27***	[0.15, 0.40]
Hostile sexism	0.20***	[0.10, 0.29]	0.08	[−0.05, 0.21]	0.32***	[0.20, 0.43]
Extrinsic racism	0.15***	[0.08, 0.23]	0.22***	[0.11, 0.32]	0.07	[−0.03, 0.16]
Intrinsic racism	0.05	[−0.03, 0.12]	0.35***	[0.25, 0.45]	0.07	[−0.02, 0.16]
Recent aggressive behaviors	0.13***	[0.06, 0.19]	0.25***	[0.16, 0.33]	0.09*	[0.02, 0.17]
Belief in QAnon	0.11***	[0.04, 0.17]	0.03	[−0.06, 0.11]	0.38***	[0.31, 0.46]

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

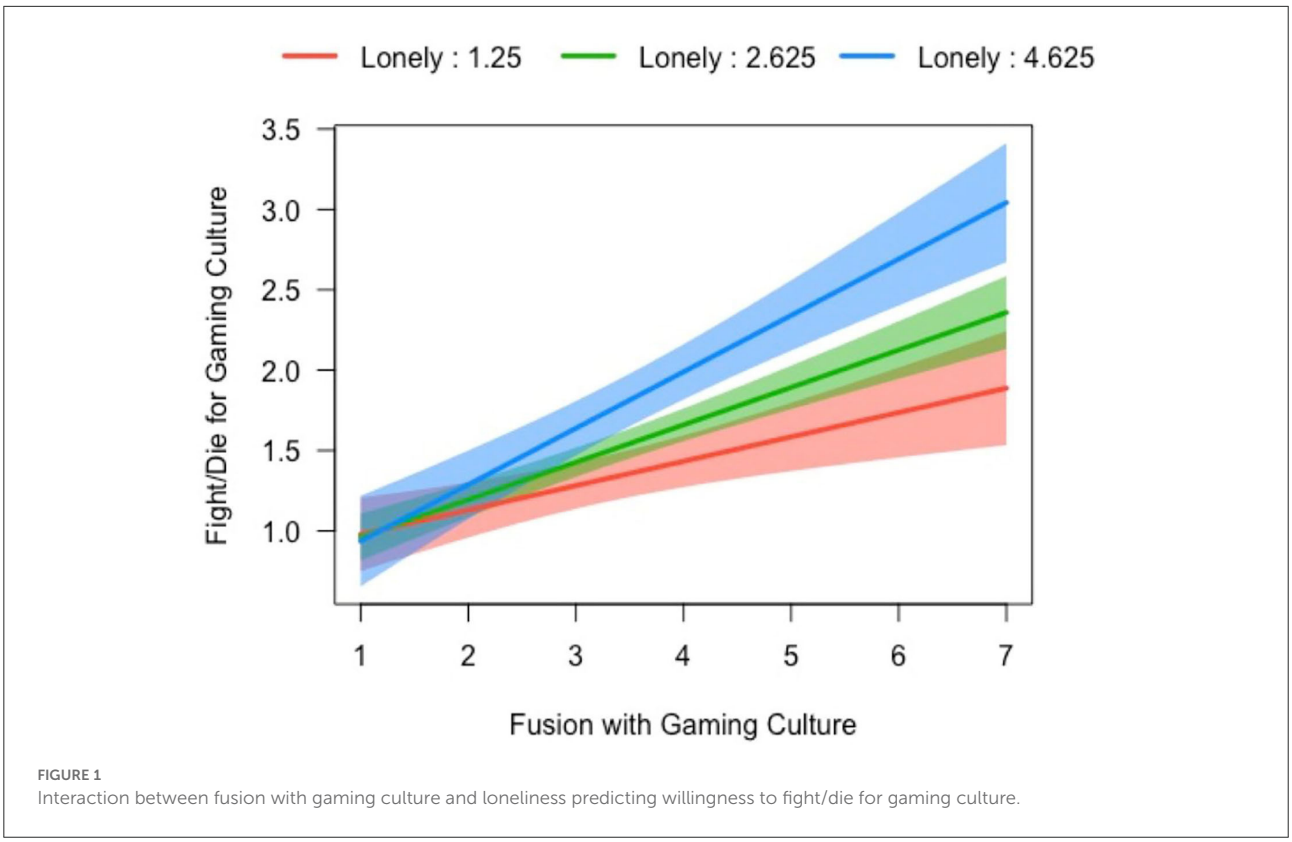

FIGURE 1
Interaction between fusion with gaming culture and loneliness predicting willingness to fight/die for gaming culture.

Procedure

The procedure for Study 3 was virtually identical to the previous two studies except for the addition of the new measures as well as a new screener question. After consenting to take the survey, participants were asked the initial screening question "Do you play video games?" followed by an additional screening question asking, "Do you play any of the following games for at least a few hours a week?." They were shown a list of similar games and were required to select *Minecraft* or *Call of Duty* (depending on which version of the survey they were taking) to be able to proceed. Then they completed most measures in randomized order followed by the right-wing and white nationalist identity questions, then demographic questions and finally the debriefing form.

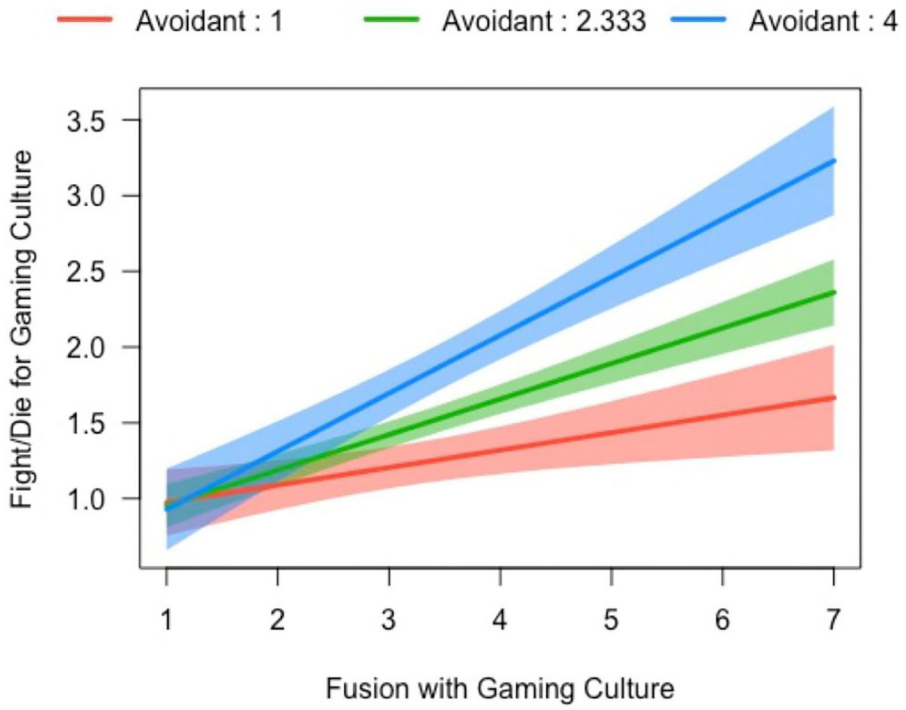

FIGURE 2
Interaction between fusion with gaming culture and avoidant attachment style predicting willingness to fight/die for gaming culture.

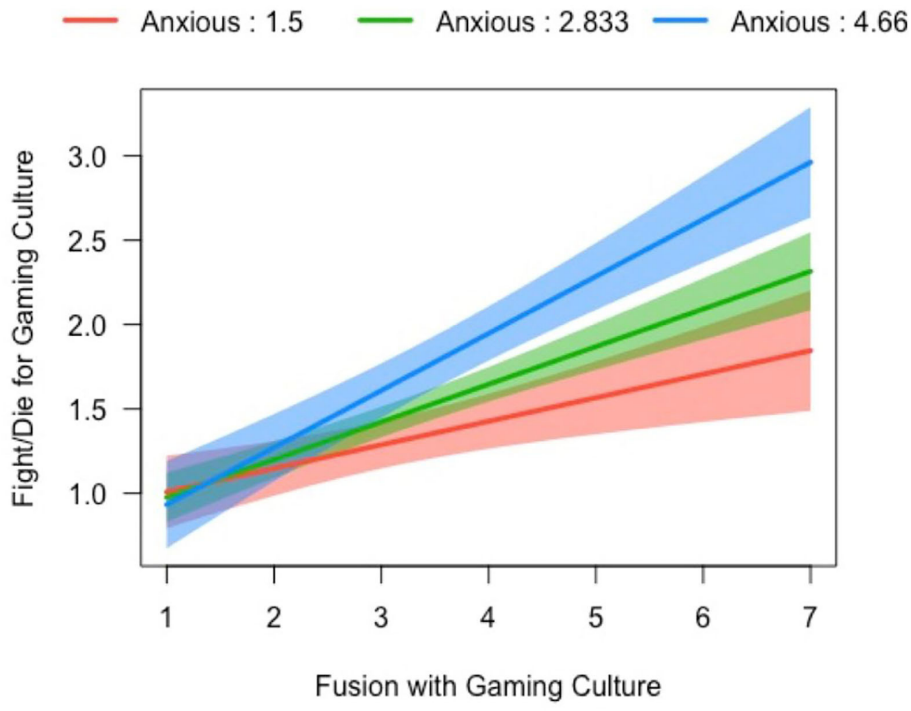

FIGURE 3
Interaction between fusion with gaming culture and anxious attachment style predicting willingness to fight/die for gaming culture.

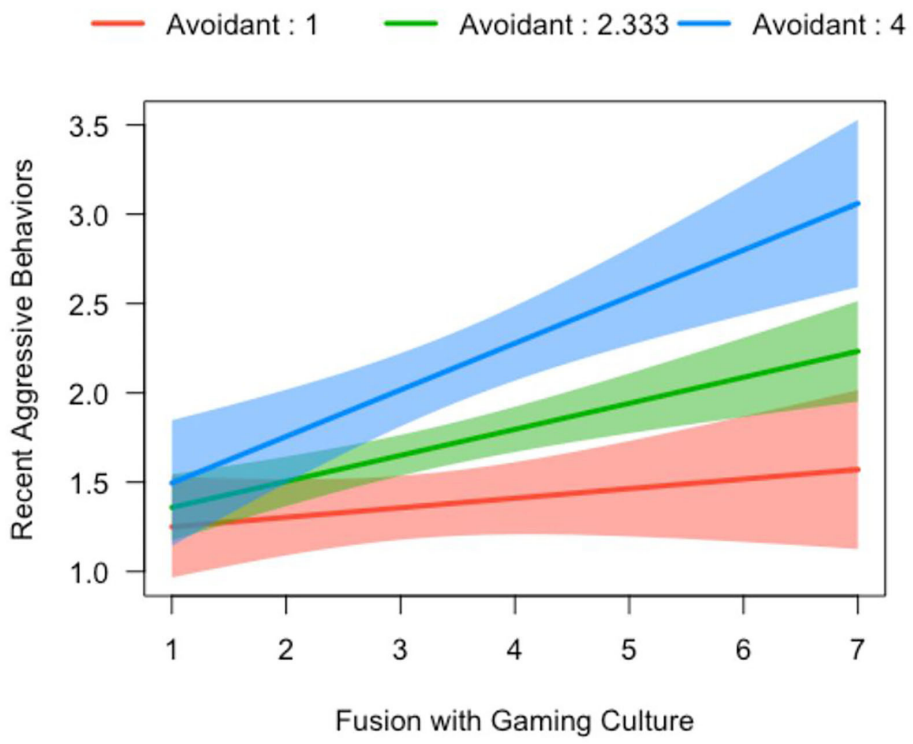

FIGURE 4
Interaction between fusion with gaming culture and anxious attachment style predicting recent aggressive behaviors.

Measures

We included all the measures from Studies 1 and 2 that were uniquely predicted by fusion with gaming culture in multiple predictor models controlling for right-wing and white nationalist identity (fight/die for gaming culture, Dark Triad personality traits, hostile sexism, extrinsic racism, recent aggressive behaviors). In Study 3 we also included a measure of identity fusion with the game itself (i.e., fusion with Call of Duty or fusion with Minecraft), in-game toxicity, game competitiveness, and prosocial measures (e.g., life satisfaction, self-esteem, online bonding, and relatedness). These new measures are discussed in more detail below. Overall means and standard deviations are given below but see Table 4 for descriptive statistics separated by gaming community (*Minecraft* and *Call of Duty*).

Identity fusion with game

To measure whether fusion with one's game of choice (*Minecraft* or *Call of Duty*) had a unique impact different from fusion with gaming culture, we added a measure of fusion with game using the same 3-item fusion scale but targeting *Minecraft* or *Call of Duty* ($M = 3.68$, $SD = 1.69$, $\alpha = 0.91$). All three items were measured on a 1-7 Likert scales ranging from "Completely Disagree" to "Completely Agree." An example item from this scale is "*I make [Minecraft/Call of Duty] strong.*"

In-game toxicity

To determine whether gamers who played *Minecraft* or *Call of Duty* perceived their gaming community as socially toxic we included a measure of in-game toxicity (Depping et al., 2018). This measure was included to quantify any differences in the nature of the social communities of these games. All items were measured on a 1-5 Likert scale from "Strongly Disagree" to "Strongly Agree." The scale has 8 items preceded by the statement "The people I play with are sometimes..." followed by the following options: angry, offensive, mean, good-natured, sympathetic, friendly, hurtful, and toxic. The three positive items (good-natured, sympathetic, friendly) were reverse coded then all 8 items were averaged ($M = 2.55$, $SD = 0.85$, $\alpha = 0.88$).

Game competitiveness

To determine whether gamers who played *Minecraft* or *Call of Duty* perceived their gaming community as more competitive or cooperative, we included a single 1-7 Likert-type item where participants responded to the statement "I would say that the gaming environment of [*Minecraft*/*Call of Duty*] is..." on a scale from "Cooperative" to "Competitive" ($M = 4.39$, $SD = 1.94$).

Life satisfaction

Life satisfaction was measured using the Riverside Life Satisfaction Scale (Margolis et al., 2019). We included this

TABLE 4 Means (SD) and *t*-tests comparing Minecraft and Call of Duty players.

	Minecraft players	Call of Duty players	
	Mean (SD)	Mean (SD)	*t*-test
Fusion with gaming culture	4.12 (1.69)	4.07 (1.78)	$t_{(637)} = 0.32$
Fusion with game (Minecraft/call of duty)	3.76 (1.63)	3.61 (1.75)	$t_{(635)} = 1.14$
Right-Wing Identity	2.53 (1.90)	2.55 (1.85)	$t_{(643)} = 0.17$
White Nationalist Identity	2.22 (1.68)	2.20 (1.69)	$t_{(641)} = 0.16$
In-Game Toxicity	2.33 (0.78)	2.78 (0.87)	$t_{(628)} = 7.02^{***}$
Game Competitiveness	3.47 (1.78)	5.35 (1.59)	$t_{(640)} = 14.15^{***}$
Fight/die gaming culture	1.90 (1.23)	1.96 (1.29)	$t_{(637)} = 0.64$
Machiavellianism	4.01 (1.15)	4.01 (1.14)	$t_{(642)} = 0.00$
Narcissism	3.60 (1.32)	3.55 (1.30)	$t_{(642)} = 0.42$
Psychopathy	2.44 (1.16)	2.57 (1.19)	$t_{(640)} = 1.37$
Hostile sexism	3.26 (1.76)	3.33 (1.68)	$t_{(643)} = 0.54$
Extrinsic racism	2.63 (1.32)	2.73 (1.39)	$t_{(637)} = 0.87$
Recent aggressive behaviors	1.97 (1.29)	2.09 (1.35)	$t_{(638)} = 1.21$
Life satisfaction	4.38 (1.41)	4.27 (1.45)	$t_{(640)} = 0.98$
Self-esteem	5.10 (1.30)	5.13 (1.38)	$t_{(635)} = 0.31$
Online bonding	3.66 (1.52)	3.61 (1.56)	$t_{(639)} = 0.42$
Relatedness	5.04 (1.04)	5.00 (1.03)	$t_{(642)} = 0.52$

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

measure to see if fusion with games/gaming culture predicted overall satisfaction with life. All items were measured on a 1-7 Likert scale from "Strongly Disagree" to "Strongly Agree" ($M = 4.33$, $SD = 1.43$, $\alpha = 0.89$). An example item is "I like how my life is going."

Self-esteem

Self-esteem was measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). We included this measure to see if fusion with games/gaming culture were related to self-esteem. All items were measured on a 1-7 Likert scale ranging from "Strongly Disagree" to "Strongly Agree" ($M = 5.11$, $SD = 1.34$, $\alpha = 0.93$). An example item is "*On the whole, I am satisfied with myself*."

Online bonding

Bonding social capital is indicative of close, tight-knit, and long-lasting friendship bonds (Putnam, 2000). To measure players' degree of online bonding social capital, we used the bonding subscale of the social capital scale developed by Williams (2006b). We included this measure to see if fusion with games/gaming culture predicted a perception of social bonding among gamers. All ten items were measured on a 1-7 Likert scale ranging from "Strongly Disagree" to "Strongly Agree" ($M = 3.64$, $SD = 1.54$, $\alpha = 0.93$). An example item was "*There are several people online I trust to help solve my problems.*"

Relatedness

As social connectedness is a critical component to extremist action (Horgan, 2008), we included a measure of relatedness to see if fusion with games/gaming culture predicted a sense of relatedness to other players. This was assessed using the relatedness items of the Basic Psychological Need Satisfaction Scale (Gagne, 2003). All seven items were measured on a 1-7 Likert-type scale ranging from "Not True" to "Very True," with a midpoint value at 4-Somewhat True ($M = 5.02$, $SD = 1.03$, $\alpha = 0.81$). An example item is "*I get along with people I come into contact with.*"

Results

For Study 3 we first ran *t*-tests to compare the strengths of the means for each measure between *Minecraft* and *Call of Duty* players to see if there were significant mean-level differences between the two gaming communities. Interestingly only two variables showed significant differences in their mean scores between groups. *Minecraft* players reported less in-game toxicity ($M = 2.33$) than *Call of Duty* gamers [$M = 2.78$, $t_{(628)} = 7.02$, $p < 0.001$]. Additionally, *Minecraft* players reported that their gaming community was less competitive ($M = 3.47$) than *Call of Duty* players [$M = 5.35$, $t_{(640)} = 14.15$, $p < 0.001$]. All other mean differences between *Minecraft* and *Call of Duty* gamers were non-significant ($ps > 0.171$). Descriptive Statistics and *t*-tests for each variable can be found in Table 4.

We then ran factor analyses and correlations between fusion with gaming culture and fusion with game (*Minecraft/Call of Duty*). Fusion with gaming culture and fusion with *Minecraft* both loaded well to the same factor and were highly correlated ($r = 0.66$, $p < 0.001$); likewise fusion with gaming culture and fusion with *Call of Duty* also mapped well to the same factor and were highly correlated ($r = 0.74$, $p < 0.001$). Fusion with gaming culture mapped more strongly to this factor, so we used that fusion measure as our primary predictor.

Then, as the primary test of our hypothesis that fusion would be more strongly predictive of the antisocial outcomes among *Call of Duty* players compared to *Minecraft* players, we ran multiple regressions with fusion with gaming culture as the predictors and the same antisocial outcomes from Studies 1 and 2 for both *Minecraft* and *Call of Duty* players, as well as the new prosocial outcomes added to Study 3. We controlled for right-wing and white nationalist identities. The outcome of these analyses is shown in Table 5.

TABLE 5 Regression results for identity fusion with gaming culture (controlling for right-wing and white nationalist identities) for Minecraft and Call of Duty players.

	Minecraft players		Call of Duty players	
	β	[95% CI]	β	[95% CI]
Fight/die gaming culture	0.23***	[0.16, 0.30]	0.26***	[0.19, 0.33]
Machiavellianism	0.03	[−0.04, 0.11]	0.08*	[0.01, 0.15]
Narcissism	0.17***	[0.09, 0.25]	0.17***	[0.09, 0.25]
Psychopathy	0.03	[−0.04, 0.11]	0.10**	[0.03, 0.17]
Hostile sexism	0.01	[−0.10, 0.12]	0.07	[−0.03, 0.17]
Extrinsic racism	0.02	[−0.06, 0.10]	0.12**	[0.04, 0.20]
Recent aggressive behaviors	0.05	[−0.03, 0.12]	0.11**	[0.03, 0.19]
Life satisfaction	0.05	[−0.04, 0.14]	−0.04	[−0.13, 0.05]
Self-esteem	0.06	[−0.03, 0.14]	−0.02	[−0.11, 0.06]
Online bonding	0.36***	[0.26, 0.45]	0.28***	[0.19, 0.37]
Relatedness	0.10**	[0.03, 0.16]	0.02	[−0.04, 0.09]

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Conclusion

We found that fusion with gaming culture uniquely predicted more antisocial and extreme outcomes among *Call of Duty* than *Minecraft* players, including willingness to fight/die for gaming culture, all three Dark Triad measures, extrinsic racism, and recent aggressive behaviors. In contrast, *Minecraft* players' fusion with gaming culture only predicted willingness to fight/die for gaming culture and narcissism. Fusion among *Minecraft* players also predicted two prosocial outcomes (online bonding and relatedness), whereas among *Call of Duty* players only one (online bonding) was predicted. Notably, these effects emerged despite similar means for most measures between *Minecraft* and *Call of Duty* players. Apparently, although players in different gaming communities have similar levels of anti-social and pro-social sentiments, fusion with gaming culture is associated social toxicity and social positivity differently depending on the gaming environment.

Discussion

Although it is increasingly clear that online platforms have become breeding grounds for extremist ideologies, the psychological mechanisms that are responsible for this phenomenon remain unclear. Three studies provide converging evidence that identity fusion may play a key role in the radicalization of gamers. Study 1 revealed that identity fusion with gamer culture was uniquely associated with several markers of extremism, including the willingness to fight/die for gaming culture, Dark Triad personality traits, sexism, racism, and aggressive behavior, even while controlling for gameplay variables, gender, and established political predictors of these outcomes. Study 2 confirmed that there are individual differences among players that predispose them to fusion and extremism. Specifically, strongly fused gamers who were lonely or had insecure attachment styles were particularly strong proponents of extreme behavior in defense of gaming culture, and strongly fused gamers who had avoidant attachment styles also admitted to committing recent aggressive behaviors. Study 3 provided evidence that the gaming environment influenced the relationship between fusion with gaming culture and extreme outcomes. That is, enthusiasts of a relatively violent and competitive game with a toxic environment (*Call of Duty)* displayed a stronger relationship between fusion with gaming culture and antisocial outcomes compared to players of a less violent, less competitive game with a less toxic community (*Minecraft)*. Despite gamer identities being adaptive at the individual level (e.g., reduce loneliness, foster feelings of belonging, etc.; for more on this see Kowert, 2020), the current work demonstrates that fusion within toxic gaming spaces is associated with deleterious interpersonal and/or societal phenomena.

The contributions of this work notwithstanding, it has several limitations. First, participants were limited to American players. Further research should examine cultural differences that may exist between American players and the rest of the global gaming population. Second, while MTurk did allow for an assessment of the general impact of gamer fusion on extremism, it is unlikely that it captured players who are most likely to be mobilized to extremism through out-of-game or offline action. Further research is needed that specifically targets members of the gaming community who are especially vulnerable to offline recruitment. Future work could also consider the role

of out-group threat, which is a known predictor of extreme behaviors among strongly fused individuals (Fredman et al., 2017; Newson et al., 2018). Third, although our comparison of *Call of Duty* vs. *Minecraft* players was instructive, the key element contributing to the unique outcomes associated with these two games remains unclear. This is particularly the case as the narrative content of *Call of Duty* has heavy themes of American exceptionalism and militarism (Robinson, 2014; Ciută, 2016; Bos, 2018). Even though links between first-person shooter games and militarism has not been found in previous research (Festl et al., 2013), it is possible that the narrative themes of this game may be playing a role in these findings. Future research should consider contrasting gaming communities with similar levels of toxicity but differ in their use of violent content (for example, *Halo Infinite* vs. *FIFA* players) as well as militant verse non-militant games (for example, *Call of Duty* vs. *Team Fortress 2*). Additionally, our political identity measures (i.e., right-wing identity and white nationalist identity) tapped the underlying construct with only a single item. We did this to have a simple parsimonious measure of the construct that would be straightforward to our participants, but future work should include additional items tapping the same constructs. Finally, this work focused exclusively on the role of in-game spaces. However, gaming cultures do not exclusively live within the game space itself. Game adjacent spaces such as *Discord* and *Twitch*, fandom spaces, and online forums, all provide avenues where social relationships between game players can occur. Future research should not only further examine the gaming spaces but also game adjacent spaces.

In conclusion, we suggest that examining the impact of games through the lens of identity fusion provides insight into the role of identity in the propagation of extremist ideologies, radicalization, recruitment, and mobilization. Further documentation of the role of identity in extremism will not only contribute to a theoretical understanding of the processes underlying gaming but also pave the way for the development of safeguards designed to discourage toxicity in gaming spaces.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the Institutional Review Board (IRB) at the University of Texas at Austin. The patients/participants provided their written informed consent to participate in this study.

Author contributions

RK had the original idea for the research project and contributed to planning, methodology, and writing. AM contributed to the planning of the research, methodology, analysis, and writing. BS contributed to the planning, methodology, and writing. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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