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Psychological and Behavioral Outcomes of League of Legends Rank System in Italy, Turkey, Japan, and South Korea

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ABSTRACT

The phenomenon of online gaming, particularly its effects, has been the subject of numerous scholarly studies. League of Legends (LoL) is a game that has attracted a lot of attention due to its widespread appeal and impact on players and is a leading example of the multiplayer online battle arena (MOBA) genre. This study explores how LoL ranks affect toxicity levels, self-esteem, emotional affection, and the desire to quit the game in multicultural contexts, namely, Italy, Turkey, Japan, and South Korea. Our findings highlight a positive correlation between player rank and toxic behavior, self-esteem, and positive emotional affectivity in all four countries ($N = 1528$). Additionally, it is found that higher ranked players are less likely to quit the game due to toxic behavior. These insights highlight the importance of promoting positive player interactions and implementing intervention strategies to address toxic behavior in competitive online gaming environments, especially for high-ranked players.

1 | Introduction

Over the past decades, video games have seamlessly integrated into the lives of people of all ages and have attracted large audiences [1]. In essence, a video game is defined as an interactive form of entertainment that relies on audiovisual elements and often revolves around a compelling narrative [2]. The interactive experiences come in a variety of genres and feature increasingly sophisticated designs [3]. Some of these sophisticated genres have managed to take the gaming experience to another level by enabling game mechanics where players can play with and against each other simultaneously over the Internet and on

different platforms [4]. It is known that some game genres seen as competitive games have received serious investments under the roof of electronic sports (eSports) and have an audience just like physical sports [5]. Moreover, it has also been proposed that eSports will participate in competitions as a sports branch in the 2023 Olympic Games [6].

1.1 | Multiplayer Online Battle Arena (MOBA)

MOBA, one of the most popular competitive game genres, is a huge part of the game industry with a player base of 150 million

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[7] and an expected revenue of \$490 million in 2024 [8]. The beginnings of MOBA ventures in the digital games industry can be traced back to 1998, marked by the release of an independently created custom map within Blizzard's real-time strategy (RTS) game, *Aeon of Strife* [9]. The crucial turning point in the evolution of MOBA came in 2003 with the release of *Defence of the Ancients (DOTA)*, a custom creation integrated into Blizzard's *Warcraft III: Reign of Chaos* [9]. This custom adaptation served not only as a forerunner but also as a primary milestone, establishing the MOBA paradigm. A key moment came in 2009 when Riot Games launched *League of Legends (LoL)*, the first standalone game within the MOBA genre [10]. Contemporary statistics, as of 2022, indicate an active player base of 152 million participants involved in the LoL community [10]. The conceptual definition of MOBA, as articulated by Xia et al., describes its essence as a "hybrid synthesis of the massively multiplayer online gaming and real-time strategy genres" [11]. Within this interactive digital arena, the fundamental structural ethos revolves around two small teams (mostly 5 vs. 5), taking on different roles and engaging in competitive matches [12]. The culmination occurs with the final destruction of one team's base by the opposing faction, thus bringing these strategically designed digital battles to an end.

1.2 | LoL, Rank System, and Social Dynamics

LoL is one of the leading games in the MOBA genre. It stands out for its variety of game modes, offering a wide range of options. One of the most prominent is the 10-player mode, in which 5 players compete against another group of 5 players [10, 12]. Notably, this mode has no time limit and centers around the objective of players using different strategies to destroy each other's bases [10]. The "Rank" system, which was designed to create a ranking among the players who play this mode and to increase the game activities of the players with different motivations by increasing the competitiveness of the players, is present in many online games, such as LoL [13, 14]. The LoL system has a tiered structure that divides players into 10 different main categories, which are further divided into subcategories. These general categories are determined based on player skill and points earned in victorious matches. Listed from lowest to highest, these categories are Iron, Bronze, Silver, Gold, Platinum, Diamond, Master, Grandmaster, and Challenger [15]. While this distribution suggests that high-ranking players are only a small proportion of the overall population, it also reveals that playing the game better is a challenging task. Furthermore, rank affects players in association with several other factors, the most important of which is social dynamics. One valuable finding highlights that higher ranks contribute significantly to players' sense of accomplishment and fulfillment [16]. These particular achievements are crucial in shaping the player's overall gaming experience and are typically the result of an extensive gaming journey marked by numerous victories and failures. In this context, they take on deep meaning and value for the player and arouse complex emotions associated with their rank. Rank becomes an important symbol of skill and motivation (a source of pride and a treasure to be protected) but also a source of frustration and anxiety about holding an important position [16]. Simultaneously, it has been observed that players who achieve greater success in the game also experience an increased sense of self-esteem, similar

to the phenomenon that occurs in "traditional sports" athletes [17]. This phenomenon appears to be closely linked to the dynamics of the game and how their achievements resonate with their representations in interactions with others.

1.3 | Multiplayer Gaming and Toxicity

Playing multiplayer games has become a widespread form of entertainment, offering players multiple positive outcomes, including social support [18], reduction of loneliness [19], and an increase in overall well-being [20]. However, the competitive nature of multiplayer gaming and its associated contexts creates an environment in which players may experience harmful behaviors. While competition increases enjoyment [21] and contributes to an enriched gaming experience, it has also been associated with an increase in negative behaviors such as "toxic behaviors" [22].

The definition of toxic behavior remains nebulous, largely due to the specific social norms and game rules that guide each gaming community. As a result, gaming communities vary in terms of their social norms and habits [23]. This variability results in a spectrum of behaviors that are categorized as toxic in different contexts and games, based on different norms, rules, and player expectations within each community. In general terms, toxicity includes several negative behaviors, such as verbal or in-game actions intended to provoke and disturb other players (e.g., trolling), the use of aggressive or offensive language [24] directed at other players, and disruptive gameplay that violates game norms or intentionally disrupts the gaming experience of others, such as griefing [25].

Beyond these general behavioral tendencies, toxicity can adopt more specific forms depending on the context of the game and the dynamics of player interaction. A common form of toxicity is communicative aggression, which includes flaming (aggressive insults or verbal attacks), hate speech, spamming, and trash talk (boastful or mocking remarks intended to provoke). These verbal expressions directly contribute to a hostile in-game environment and are particularly prevalent in competitive multiplayer settings [26]. Moreover, in team-based games, players may also engage in sabotaging behavior that disrupts team coordination and motivation. Examples include griefing (deliberately harming the experience of teammates, e.g., by blocking their movement and baiting enemies), feeding (deliberately letting the opponent kill your character), and refusing to cooperate at critical moments in the game. These forms of toxicity fall under the category of disruptive gameplay [22, 27].

To better explain the phenomenon of toxic behavior, especially in the area of video games, we can look at it from two different perspectives—either from a virtual context or from a social perspective:

1. Adopting the perspective that attributes the origins of toxic behavior to the characteristics of virtual environments and their impact on individuals, it is clear that online environments are often associated with negative behavior. This association is partly attributed to the disinhibition effect [28], whereby individuals exhibit more disruptive attitudes

characterized by toxicity in online environments [29, 30]. This increased willingness to engage in such behaviors is a result of the increased anonymity and invisibility in virtual spaces, allowing individuals to express themselves without the usual constraints or inhibitions. The strong effects of these phenomena are particularly noticeable in MOBA games, where players, protected by anonymity, feel less accountable for their toxic actions, leading to an escalation of aggressive behavior [31].

2. A social perspective also suggests that when negative behavior is left unaddressed or when there is no appropriate response within the community, it tends to develop into a normative standard. Subsequently, both existing members and newcomers seeking integration may conform to this established norm as a means of conforming to the dominant community behavior.
3. The anonymity effect, as described in the previous sections, also encourages certain behaviors. Despite online games having many variables inherent to their nature, several studies have shown that the main motivation for players is the competitive aspect [32, 33]. In this context, with the presence of social dynamics, additional consequences of competitiveness become more visible. In contrast to classical sports, where the concept of “fair play” is prevalent and individual identities are overt, the competitive nature of online gaming can develop into an environment in which individuals are able to express their frustrations due to in-game dynamics such as toxic behaviors or quit from the game [34, 35].

Toxic behaviors in video games have emerged as a global problem that extends beyond specific game genres or cultural norms. A variety of academic studies highlight the widespread presence of various forms of toxicity across numerous countries. For instance, in Kordyaka et al.'s 2020 study on toxic behavior in video games, the majority of participants in their study on DOTA 2 and LoL were Indian and American individuals [35]. Meanwhile, the 2022 research by Zsila et al. explored toxic behaviors in online multiplayer games and their psychological impact, focusing on a sample of Hungarian gamers across a range of gaming genres [36]. Additionally, the study conducted by Adinolf and Turkey focused on Australian gamers participating in six major eSports games (Counter-Strike: Global Offensive, DOTA 2, Hearthstone, LoL, Overwatch, and Rocket League), elucidating players' perspectives and adaptive mechanisms in response to instances of toxicity [37]. Consequently, there is a need for a comprehensive and cultural perspective to understand the general structure of toxic behaviors in video games and to decrease their effects. Studies found in the literature, while focusing on various cultural and regional influences, also emphasize the universality of this problem.

To better understand these cross-cultural patterns, Hofstede's theory of cultural dimensions provides a useful structure [38]. For example, Japan and South Korea are considered collectivist societies. Social harmony and group identity shape interactions within gaming communities. In contrast, countries such as Italy and Turkey show a mix of individualistic and collectivistic tendencies depending on the context [38]. These cultural orientations influence not only players' in-game behavior but also their

emotional responses to competition and interpersonal conflict. A study from Białas et al. [39] highlights how culture influences preferred play styles, while Colwell and Kato [40] found that Japanese and British adolescents differed in their gaming motivations and emotional engagement. Cook et al. [41] demonstrate that players from honor-valuing cultures such as Pakistan tend to retaliate when insulted, especially by outgroup members, due to cultural norms around defending honor. Meanwhile, those from face-valuing cultures such as Taiwan aim to suppress open confrontation to preserve group harmony, although they may still respond aggressively when provoked. In contrast, participants from dignity cultures like the Netherlands were the most passive overall, displaying lower levels of anger and embarrassment and a reduced tendency to retaliate [41].

Competitive dynamics also intersect strongly with cultural values. Kwak et al. [29] describe how Korean gaming culture, which is deeply influenced by collectivist and achievement-oriented norms, can lead to *wang-tta*, the ostracism of underperforming players, reflecting an emphasis on group success and reputation [42]. In contrast, players from more individualistic societies often display toxicity through open verbal abuse or trash talk, behaviors normalized in highly competitive, individual achievement-oriented contexts [29, 41]. Even within Western cultures, responses to collegiate eSports vary. A comparative study of students in the United States and Italy found that while both groups reported experiencing toxicity and other risks, Italian students more frequently emphasized the social benefits of eSports, such as peer interaction and relationship-building. In contrast, US students highlighted personal benefits like relaxation, stress relief, and critical thinking. Notably, Italian students were also more likely to report that eSports interfered with socializing and academic responsibilities, whereas US students largely did not perceive such interference [43]. These differing perspectives may influence how students in each country react to or manage experiences of toxicity within eSports environments.

Taken together, these findings reveal that toxic behavior in online video games is both a universal and culturally rooted problem. While competition and anonymity drive toxicity globally [44], cultural norms like individualism versus collectivism and different interpretations of sportsmanship determine how toxicity is expressed and perceived. As Mayra [45] has pointed out, more international studies are needed to illuminate the different cultural dynamics that shape the behaviors of players. In this study, we focused on Japan, Turkey, Italy, and Korea to represent a range of sociocultural contexts across East Asia, Southern Europe, and the Middle East. These countries were selected due to their growing eSports ecosystems and distinct cultural orientations (as varying levels of individualism, power distance, and community engagement), which allow for richer cross-cultural comparisons in the expression and management of toxicity.

1.4 | Psychological Theories and Toxic Dynamics

Online competitive multiplayer games, particularly LoL, have grown significantly as social environments. Understanding player behavior in such contexts benefits from the integration of psychological theories, particularly social identity theory (SIT), self-determination theory (SDT), and cognitive dissonance

theory (CDT). Examining these theories can highlight how players can react psychologically and behaviorally to the competition, performance pressure, and social interactions inherent in such a gaming environment.

1.4.1 | SIT

SIT, formulated by Hatch and Schultz [46], argues that individuals construct a significant part of their self-concept from their identification with social groups. This identification can occur in a variety of ways, including in-group favoritism and out-group discrimination, as individuals seek to enhance their self-esteem through positive group associations. In competitive environments such as online gaming, these dynamics can have a crucial effect on player behavior. In this context, given the nature of LoL, group identities are formed in a variety of ways, such as ally team, enemy team, rank, or gaming community. These group affiliations can shape player behavior and toxicity through in-group/out-group dynamics and status-based interactions.

In LoL, each match creates temporary social groups: the player's own team (in-group) and the opposing team (out-group) [47]. Studies show that players express in-group favoritism, as they are less likely to report toxic behavior from teammates than similar behavior from opponents [29]. Conversely, hostility is often directed at the out-group, with players using exclusionary language that reinforces a competitive "us versus them" dynamic. This tendency is reinforced by the immersive and anonymous environment of the game, which diminishes personal identity and increases group identification. The structured division of teams, with each side competing for dominance, creates an environment conducive to out-group derogation and the reinforcement of group boundaries.

The competitive nature of LoL can also lead to "intragroup conflict," although SIT predicts in-group favoritism [29]. When a team is underperforming or facing defeat, players often look for someone within their own group to blame. A poorly performing teammate may be perceived as the "weak link" and become "responsible," receiving harsher criticism than an opponent would for similar mistakes. This dynamic may arise when teammates seek to distance themselves from a perceived failure in order to protect both group and individual self-esteem. Verbal abuse is common in these scenarios and serves to isolate the "responsible" player and reinforce group cohesion among the remaining members [48]. By framing the underperforming player as an outsider in terms of skill or effort, teammates rationalize the loss and maintain a positive group identity and possibly self-esteem. This dynamic reflects a toxic behavior in which in-group hostility helps maintain the belief that "we would have won if not for that person," highlighting how self-esteem maintenance is a critical factor in group dynamics under pressure.

Beyond the team context, LoL has a ranking system that divides players into tiers (Bronze, Silver, Gold, Platinum, Diamond, etc.). These ranks function as social categories that players strongly identify with or aim to achieve. A player's rank often becomes a status symbol and a source of pride or shame. Higher ranked players may see themselves (and similarly ranked peers) as an elite in-group and lower ranked players as an out-group,

stereotyped as unskilled. This can result in different types of toxic language. A study comparing toxic chat in Bronze, Gold, and Diamond games found that higher ranked players tended to use more game-specific jargon and sophisticated insults (taking advantage of their deep knowledge of the game), while lower ranked players resorted to simpler, more generic insults [49]. This shows that experienced players not only see themselves as different from lower ranks but also express toxicity differently, possibly to demonstrate their in-group expertise.

1.4.2 | SDT

SDT is a psychological theory that explains human motivation based on fulfilling the basic needs for autonomy, competence, and relatedness [50]. In the context of gaming, players are driven by intrinsic or extrinsic motivations to satisfy these fundamental needs. The system of LoL offers players both satisfaction, for example, the intrinsic satisfaction of competition and teamwork, and extrinsic rewards, such as rankings, loot, and prestige. However, studies indicate that an excessive focus on extrinsic motivations, such as an obsession with winning or climbing the ranks, can correlate with problematic or unhealthy behaviors [51]. For example, players fixated on extrinsic outcomes may be quicker to blame or criticize teammates, especially when their success is perceived to be at risk. In contrast, players driven by intrinsic motivations, such as the pleasure of strategic play or social interaction, are less likely to engage in toxic behavior.

In addition, intrinsic motivation is increased when players' psychological needs are met. A player who feels autonomous (free to play in their preferred style), competent (progressing and mastering skills), and related (connected to teammates) is more likely to enjoy the game and remain resilient under pressure [52, 53]. Conversely, environments that undermine these needs, like strict strategies that limit autonomy or toxic interactions that reduce relatedness, can lead to frustration and increase the likelihood of toxic behaviors. From an SDT perspective, creating conditions that support autonomy, competence, and relatedness can reduce toxicity and promote a healthier, more positive gaming experience.

1.4.3 | CDT

CDT theorizes that individuals experience psychological discomfort or dissonance when they experience conflicting beliefs, attitudes, or behaviors [54]. This discomfort leads individuals to reduce dissonance by changing their beliefs, justifying their behavior, or reframing situations to restore internal consistency. CDT highlights how people seek a balance between their self-perceptions and experiences, often leading to rationalizations that protect their self-image.

In the context of LoL, CDT often occurs when players are faced with situations that challenge their self-perception. For example, players who consider themselves skilled may experience dissonance after performing poorly or losing a game. To mitigate this discomfort, they often externalize blame, attributing failure to unskilled teammates, unfair strategies, or bad luck [48, 55]. This self-serving bias [56] preserves self-esteem but may contribute to

toxic behaviors, such as blaming teammates in chat, which temporarily relieves stress but fuels a hostile game environment. The player may reinforce this behavior by making comments about others or other factors, which can be explained by Weiner's attribution theory [57]. Also, Naquin and Tynan highlighted these dynamics similarly for the teams [58]. They may initially deny responsibility to avoid emotional discomfort, creating a cycle of blame that is difficult to break.

Furthermore, players often justify their own toxic actions to protect their self-image and possibly self-esteem, using rationalizations such as deserving abuse, normalizing toxicity, or minimizing harm [59, 60]. This goes back to the idea of normalizing toxic culture [34, 59]. If the gaming community as a whole accepts toxic behavior as normal, then the individual will not feel as dissonant and guilty about what they have done. Recognizing this, Riot Games introduced interventions such as showing banned players their toxic chat logs to induce constructive dissonance and encourage self-reflection. Several studies suggest that making players aware of their experiences of resonance and toxicity can be an effective solution to addressing these behaviors [34, 61].

In summary, SIT provides a framework for examining how rank-based social categorization influences player behavior by promoting in-group favoritism and out-group derogation. SDT helps explain how the fulfillment or frustration of psychological needs—competence, autonomy, and relatedness—can contribute to game exasperation and toxicity. CDT offers insights into how players rationalize performance failures to protect their self-esteem, often externalizing blame and reinforcing negative behaviors. While these theories are not directly tested in this study, they provide valuable perspectives for interpreting the dynamics of rank, self-esteem, and toxic behavior. To further illustrate these relationships, a conceptual model was developed that outlines potential mechanisms through which rank influences self-esteem and, in return,

toxic behavior. This framework provides a theoretical basis for understanding in-game toxicity and informs potential strategies for mitigating such behavior. In Figure 1, the conceptual framework outlines how rank influences self-esteem and toxic behavior, with SIT and SDT explaining self-esteem mechanisms, while CDT accounts for the justification of toxic behaviors.

2 | Hypothesis Development and Aim of the Study

The concept of rank is a key metric that represents both skill and player attributes from the player's perspective. This metric also forms the basis of most of the competitive games that have gained popularity today. In competitive games, the proportion of high-ranked players is as small as the number of individuals who reach a professional level in athletics [15]. This is because, as the level of competitiveness in games increases, the complexity and difficulty of the game mechanics also increase, similar to professional physical sports. Consequently, this increase results in a smaller number of players achieving success. Although the impact of in-game rank dynamics on players has been extensively studied, numerous studies in the literature focus on the motivations that drive individuals to engage in such games. In particular, the popularity of these games has correlated with a growing number of studies focused on understanding the phenomenon of toxicity [37, 62]. Despite the complex nature of these dynamics, the existing literature often focuses on them in a one-way perspective (e.g., the correlation between aggression and action games). A more in-depth investigation of player psychology and in-game behavior is imperative, not only because of the inherent nature of the game but also because of the interactions with other players and the psychological dividends that players gain beyond the boundaries of the game itself. Moreover, most gaming studies ignore cultural differences and consider video gamers as a local and homogeneously distributed group. This also results in fewer cross-cultural studies being carried out in

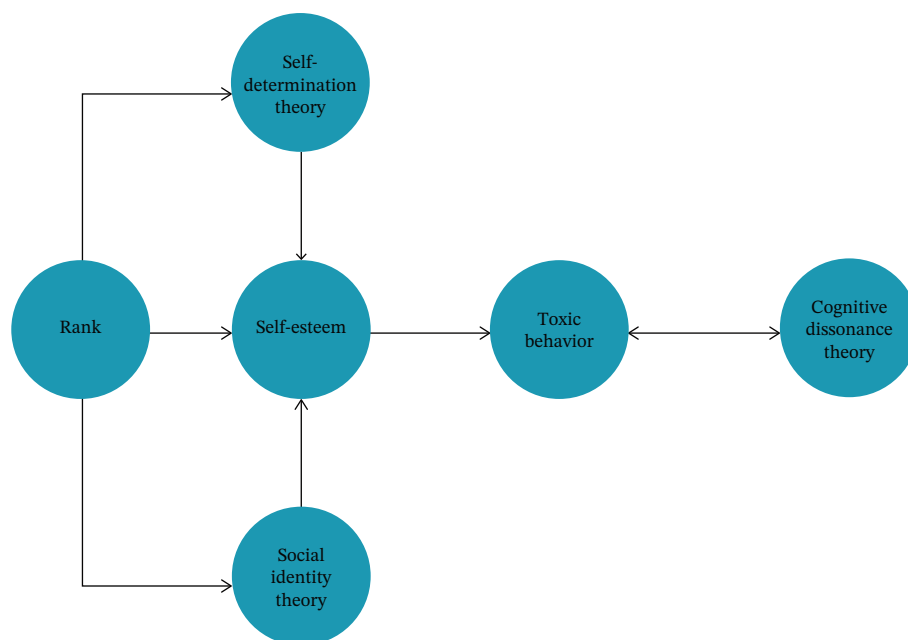


FIGURE 1 | Theoretical framework of related concepts.

the field of game studies. Consequently, a gap in the current literature requires further cross-cultural studies [45].

The adoption of technology and the acceptance of competitive video games as an agonistic discipline under the name of eSports have also led to the recognition that, similar to traditional physical sports, conflicts between players will occur. These conflicts are known to occur similarly to those in traditional sports, but due to the unique dynamics of eSports, they are known to appear in different forms [63, 64]. In this context, this study aims to conceive toxic behavior as an outcome of a complex psychological phenomenon resulting from the interplay between players and game characteristics in one of the most popular competitive video games, namely, LoL. Specifically, we focus on unraveling the reasons why experienced players are more likely to be involved in toxic behavior [34]. Additionally, we aim to comprehend the factors that contribute to their decision to continue playing despite being immersed in a toxic environment.

Self-esteem is the evaluation of an individual's self or personality qualities, as perceived and observed by others [65, 66]. It serves as a measure of an individual's worth or importance [65, 66]. Self-esteem, a phenomenon that influences various social variables in an individual's life [67–69], is also a frequently studied aspect in the field of sports [70, 71]. In a study of 987 participants, Slutzky and Simpkins found that children who participated in team sports had higher levels of self-esteem [71]. Similarly, McHale et al. also found that children who participated in sports demonstrated elevated self-esteem [72]. Furthermore, the level of self-esteem appeared to depend on an individual's sports performance. In that sense, better performance is equal to higher self-esteem [73, 74]. Consequently, an individual's self-esteem is closely linked to their overall performance.

In recent decades, many video games have been classified as sports due to their unique dynamics and competitive structure [5, 75]. The increasing popularity of eSports, especially in recent years, has led video game players to normalize competition through different platforms, whether physically in the same place or online. This normalization has placed them in the same category as traditional sports competitions [5]. Several traditional sports clubs have therefore set up eSports teams [76], indicating that this industry is being taken seriously at the same level as traditional sports. It is plausible to anticipate that competitive video games, as their physical counterpart, could have positive effects on the self-esteem of individuals, with success defined in this study in the most popular MOBA video game, namely, LoL, as the rank achieved. The game gains a higher relevance in the shaping and defining of the self-concept of players with high rank levels, thus influencing the validation of self-esteem.

Furthermore, building from the theoretical background, it becomes clear that the interplay between rank and toxic behavior in competitive gaming is psychologically complex and shaped by multiple mechanisms. SIT suggests that players' identification with rank-based or team-based social groups can both enhance in-group favoritism and provoke out-group hostility, thereby reinforcing toxic behavior as a means of maintaining group status or self-esteem [46]. SDT further clarifies how unsatisfied psychological needs may lead players to express frustration through toxicity, especially when extrinsic motivators such as rank are

important [50]. Lastly, CDT explains how players justify toxic actions as coping mechanisms to balance performance failures with their self-image, often by externalizing blame [54]. Taken together, these perspectives can indicate that toxic behaviors in high-ranking players may not simply stem from competitive frustration but from deeper psychological strategies to maintain self-esteem, regulate dissonance, and protect identity in a high-pressure, socially evaluative gaming environment.

Accordingly, the objective of this study is to quantitatively examine, within a cross-sectional timeframe, how competitive rank in LoL is associated with self-reported toxicity, gaming-contingent self-esteem, emotional affect, and the desire to quit the game across four cultural contexts (Italy, Turkey, Japan, and South Korea), by estimating the magnitude and consistency of these relationships. Following this, the hypotheses of our research can be listed.

2.1 | Hypothesis 1 (H1)

In the context of LoL, there is a positive association between the players' rank and their self-reported self-esteem.

It is known that the level of self-esteem of athletes involved in traditional sports is related to their success [73, 74, 77]. We expect the same dynamic to be realized in competitive video games. In this context, toxic behavior is more prevalent in higher ranks due to increased exposure and success pressure, leading to the normalization of such behavior.

2.2 | Hypothesis 2 (H2)

In the context of LoL, there is a positive correlation between self-reported toxic behavior and players' rank.

Players who reach higher ranks in LoL are expected to experience a high positive emotional engagement as a result of their high importance of the game relative to other players, due to factors such as self-esteem and a sense of accomplishment [78]. In this context, in higher rank players, where matches are more competitive and challenging and where achieving a high rank requires numerous successes, players are expected to experience higher levels of positive emotions (positive and negative affect schedule [PANAS]).

2.3 | Hypothesis 3 (H3)

Higher ranks are positively associated with players' levels of positive emotions in the context of LoL.

Players with high ranks attribute a great deal of importance to victory and rank, and therefore, leaving the game under any circumstances is an inevitable psychological loss for them [79]. Similarly, athletes in traditional sports show similar attachments to their achievements [80, 81]. It is expected that these players will be able to ignore many negative aspects of the game, e.g., toxicity, in order not to risk their position in the game. High-rank players are less likely to quit the game due to receiving toxicity compared to low-rank players in the context of LoL.

2.4 | Hypothesis 4 (H4)

In the context of LoL, there is a negative association between players' rank and their tendency to quit the game due to toxicity.

3 | Method

3.1 | Participants and Procedure

In conducting this research, we adopted a multichannel approach to recruit participants. An invitation containing a link to a Google survey form was distributed through various platforms, including online forums; social media sites like Facebook, Discord, and KakaoTalk; and numerous mailing lists, ensuring widespread accessibility. Four different data collection processes in four different countries were carried out in the native languages of the countries. Maximum anonymity was taken as a basis in all processes. Before beginning the survey, participants were presented with a disclaimer detailing the study's aims and guaranteeing complete confidentiality of their responses. The study was conducted according to the Declaration of Helsinki and later amendments and the American Psychological Association (APA) research guidelines. IRB approval was deemed unnecessary based on national regulations on privacy and informed consent, namely, Law Decree DL-101/2018 (Italy), Act on the Protection of Personal Information (APPI) (Japan), Personal Data Protection Law no. 6698 Article 7 and 28 (KVKK) (Turkey), and Personal Information Protection Act (PIPA) (South Korea). Each participant has to complete an informed consent form before starting the data collection. Data was not recorded for those participants who did not provide their informed consent or complete the survey, thus guaranteeing them the possibility of canceling any answer given up to that moment. Moreover, the inclusion criteria of the study consist of individuals who have played competitive (ranked) LoL matches within the past 6 months, consistent with the cross-sectional design of the study, who are 18 years of age or older, and who are fluent in the language of the country where the study is being conducted. Overall, we were able to recruit 1528 LoL competitive players. Their demographic characteristics are shown in Table 1.

3.2 | Instruments

3.2.1 | Demographic Information Form

The study involved participants answering a questionnaire designed to collect a range of demographic information. This questionnaire covered a range of topics, including age, gender, marital status, and educational level.

3.2.2 | Toxicity in Game and Gaming Activity

This part was designed to measure the toxic behaviors that the participants exhibited or were exposed to in the game. At the beginning of the section, participants were presented with definitions of toxic behaviors, such as verbal abuse and griefing, to enhance their understanding. This section consists of items such as "Have you ever been toxic toward another player in the past year?", "Have you ever been subjected to toxic behavior in the past year?", and

TABLE 1 | Demographics of the sample.

	Italy (N = 370)	Turkey (N = 272)	Japan (N = 605)	S. Korea (N = 281)
Age: Min–max	18–38	18–41	18–46	18–38
Age: Average (s.d.)	22.70 (4.09)	21.88 (3.86)	26.09 (5.04)	25.65 (3.42)
Cisgender women (%)	12.4	11	7.7	18.5
1. Iron (%)	5.9	5.1	4.6	3.6
2. Bronze (%)	17.8	8.1	21.8	10.3
3. Silver (%)	18.4	21.3	24.6	27.4
4. Gold (%)	23.0	27.2	31.6	30.6
5. Platinum (%)	17.3	19.5	9.4	14.9
6. Diamond (%)	10.0	10.3	6.0	5.7
7. Master + Grandmaster + Challenger (%)	7.6	8.5	2.0	7.5

"Have you ever quit League of Legends because of extreme behavior?". Using these items, we assessed players' "acted toxicity" and "desire to quit" as reactions to the toxicity they either exhibited or perceived. The items were presented in a binary format, with responses categorized as either "Yes" or "No."

Part of the gaming activity includes two ad hoc items. These items provided information and thoughts about the participants' game activities and their rank. Some examples of these items are: "What is your current rank?" and "Did you play the ranking game last year?".

The ad hoc items used to measure toxicity and gaming activity were developed collaboratively by the authors based on previous studies. All items were initially created in English through discussion between the authors. They were then translated by authors who are native speakers of the languages of the countries in which the data were collected. Following this, each translation was then checked by an external native speaker. This process ensured the validity of the items in terms of both quality and linguistic compatibility across countries.

3.2.3 | PANAS

PANAS was used in this study to measure the emotional affection of the participants. PANAS was developed by Watson et al. in 1988 [82]. This scale was created in a 5-point Likert form and contains a total of 20 items, which are divided into 10 positive and 10 negative items. Watson et al. indicated that the PANAS showed reliability and validity, with Cronbach's alpha coefficient ranging from 0.86 to 0.9056. In the present study, the Italian version of PANAS validated by Terraciano et al. was used for data collection with Italian participants [83]. In the Italian version of the scale, the internal reliability coefficient was reported as $\alpha = 0.7657$. Moreover, the version of PANAS validated

by Gençöz in 2000 was used for the Turkish participants [84]. This version showed a reliability of 0.86 for positive items and 0.83 for negative items and obtained a result close to the original version [84]. The version of PANAS used for Korean participants, unlike the original, contains 11 negative items and 9 positive items. In their study, conducted by Lee et al. in 2003, this situation was reported by the authors to be due to the negative meaning of the item “Alert” in Korean culture [85]. This version revealed a reliability of 0.88 for positive items and 0.87 for negative items [85]. Lastly, the Japanese validation of PANAS used in the data collection in Japan was conducted by Sato et al. in 2011 [86]. This version includes 10 positive and 10 negative items, like the original PANAS. This version showed a reliability of 0.87 for positive items and 0.88 for negative items [86].

3.2.4 | Gaming-Contingent Self-Worth (GCSW) Scale

The scale consists of 29 items, divided into four subscales: validation seeking, reward orientation, competition focus, and detachment. Scores from these subscales are combined using a 5-point Likert scale. Gaming-Contingent Self-Worth (GCSW) Scale shows internal consistency with a Cronbach's alpha coefficient of 0.94 for all items [87]. In our study, we adapted 13 items from the GCSW Scale for use with LoL. These included seven items from the validation-seeking subscale and six from the detachment subscale. Some sample items include “Not being able to play as well as others has nothing to do with my self-esteem,” “Being criticized by other players during the game affects my self-esteem,” and “My self-esteem has nothing to do with what others think of my gaming skills.” GCSW was created specifically to focus on role-playing games. Consequently, certain items in the scale are tailored to the unique characteristics and mechanics of RPGs. These elements did not seamlessly translate to the context of LoL, prompting us to utilize only those items that were applicable and relevant to the dynamics and gameplay of LoL.

4 | Results

As a first step, we computed descriptive statistics (Table 2) for the variables collected across the four countries and assessed normal distribution for metric ones. Overall, none of the variables exhibited a nonnormal distribution (Table A1, in the appendix), prompting us to proceed as planned with the utilization of Pearson's correlation analyses and ANOVA.

As evident from Table 3, across all four countries involved in the study, self-reported toxicity by players appears to be positively associated with rank, albeit with variations in the effect size of the relationship. Notably, in Italy, the effect size seems to be relatively large, while in Japan, South Korea, and Turkey, the association appears relatively small. A positive and statistically significant association was also observed between validation seeking and the rank achieved by players. In this case, in Italy and South Korea, the association seems to be of typical magnitude, while it is smaller in Japan and Turkey. The association between rank achieved and positive affectivity is positive in all four nations, with a typical effect size. No association was identified between rank and negative affectivity in any country.

TABLE 2 | Descriptive statistics of the variables.

Variables	Italy (N = 370)	Turkey (N = 272)	Japan (N = 605)	S. Korea (N = 281)
Current rank	3.88 (1.64)	4.12 (1.54)	3.45 (1.32)	3.90 (1.43)
Acted toxicity (yes)	40.3%	57%	21.7%	55.9%
GCSW—validation seeking	15.90 (5.63)	15.46 (4.61)	19.57 (4.79)	18.73 (5.92)
PANAS positive	30.56 (8.06)	31.20 (7.86)	29.64 (7.08)	31.30 (6.72)
PANAS negative	18.44 (7.64)	19.43 (6.69)	23.46 (8.01)	28.96 (10.23)
Desire to quit	3.43 (0.90)	3.01 (1.50)	2.27 (1.37)	2.74 (1.32)

TABLE 3 | Correlation coefficients between variables.

Variables	Italy LoL players' rank	Turkey LoL players' rank	Japan LoL players' rank	S. Korea LoL players' rank
Acted toxicity (yes)	0.27***	0.12*	0.13***	0.14*
GCSW—validation seeking	0.20***	0.12*	0.12***	0.26***
PANAS positive	0.23***	0.21***	0.16***	0.22***
PANAS negative	−0.01	−0.11	−0.02	−0.03
Desire to quit	−0.12*	−0.14*	−0.04	−0.16*

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

Finally, a negative association was found between the desire to quit the game and rank in three of the four countries.

Despite the normal distribution of the variables of interest, indicating the appropriateness of parametric analysis such as Pearson's correlation, our approach involved exploring potential nonlinear relationships using ANOVA and Fisher's least significant difference (LSD) Test. Additionally, we visually depicted the changing patterns of the dependent variables concerning competitive rank (see Figure 2).

In line with our expectations, significant variations across different ranks were observed for validation seeking (Italy: $F[] = 3.67$, $p = 0.001$, $\eta^2 = 0.06$; Turkey: $F[6; 271] = 2.33$, $p = 0.03$, $\eta^2 = 0.05$; Japan: $F[6; 604] = 2.98$, $p = 0.007$, $\eta^2 = 0.03$; South Korea: $F[6; 280] = 7.79$, $p < 0.001$, $\eta^2 = 0.15$), PANAS positive (Italy: $F[6; 369] = 5.37$, $p < 0.001$, $\eta^2 = 0.08$; Turkey:

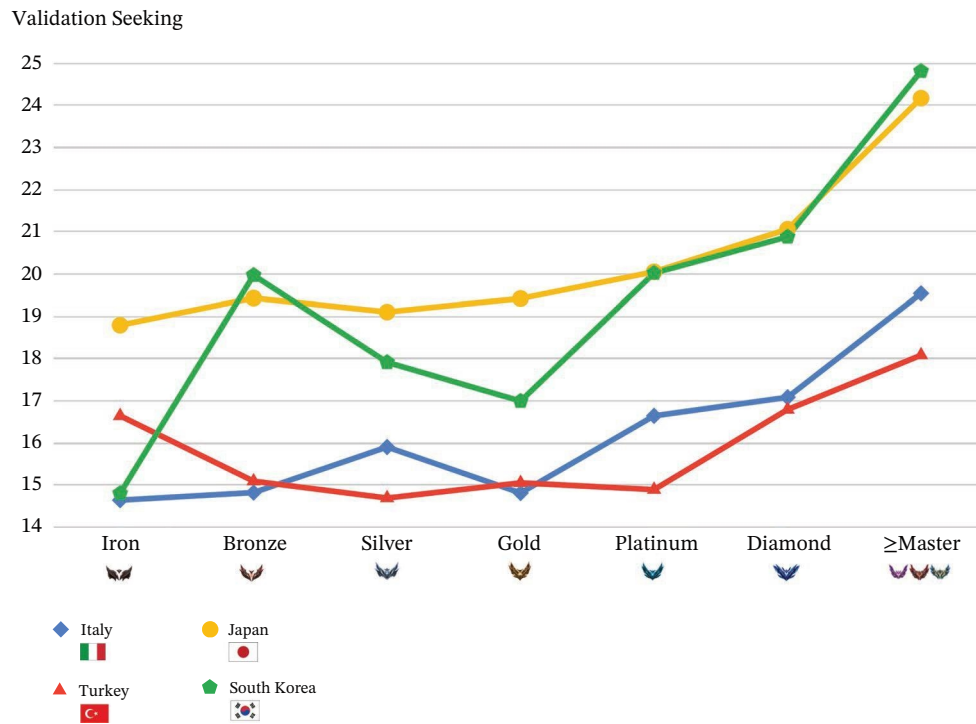


FIGURE 2 | Validation seeking patterns in Italy, Turkey, Japan, and South Korea by competitive ranks in LoL.

$F[6; 271] = 2.17, p = 0.04, \eta^2 = 0.05$; Japan: $F[] = 3.58, p = 0.002, \eta^2 = 0.04$; South Korea: $F[] = 5.41, p < 0.001, \eta^2 = 0.11$), and desire to quit (Italy: $F[] = 2.83, p = 0.01, \eta^2 = 0.08$; Turkey: $F[] = 2.11, p = 0.05, \eta^2 = 0.05$; South Korea: $F[] = 7.47, p < 0.001, \eta^2 = 0.11$) across all countries, except for desire to quit in Japanese players.

Post hoc analysis highlighted that levels of validation seeking tend to remain stable and then increase dramatically from Gold and Platinum ranks onwards, reaching the highest level of validation seeking in the Master and above ranks. Notably, players at the Master rank and beyond consistently display the highest scores for positive affect (PANAS Pos.) across all countries. Additionally, players ranked Master and above demonstrate the lowest desire to quit playing LoL in response to toxicity from other players in all countries except Japan. However, country-specific differences exist, with heightened “resilience” observed exclusively among players ranked Master and above in Turkey and South Korea, while in Italy, increased “resilience” begins at the Diamond rank.

To better model toxicity behavior in all four countries, we employed linear discriminant analysis (LDA). One of the main advantages of using LDA in the present study is its ability to account for unbalanced class distributions [88]. This is an important consideration given the differences in the percentage of reported toxic behaviors across the four countries studied. LDA is specifically designed to identify a linear combination of predictor variables that best separates the classes by maximizing the ratio of between-class variance to within-class variance. This approach enhances the discriminative power of the model by ensuring that the separation between the two classes is as clear and distinct as possible, even in the presence of unequal class sizes or country-specific variations.

TABLE 4 | Outputs of the linear discriminant analysis.

Groups	Accuracy (%)	Recall (%)	Precision (%)
Global	64.0	64.0	60.0
Italy	75.7	75.7	76.6
Turkey	61.1	61.1	59.5
Japan	74.7	74.7	56.0
S. Korea	66.1	66.1	66.2

As shown in Table 4, the combination of rank, validation seeking, and PANAS positive successfully predicted acted toxicity with an overall accuracy of 64% in the global sample. To gain a deeper understanding of potential country-specific patterns, LDA was also conducted separately for each country. The models for Italy and Japan yielded the highest classification accuracies (75.7% and 74.7%, respectively), whereas the models for South Korea (66.1%) and Turkey (61.1%) showed comparatively lower accuracy.

As shown in Table 5, rank emerges as the most influential predictor of reported acted toxicity in three out of the four countries analyzed, highlighting a robust and consistent relationship between a player’s competitive status and toxic behavior. In contrast, the remaining predictors appear to play a more limited and country-specific role.

5 | Discussion

Competitive video games cover a wide range of genres. They are characterized by different mechanisms that enable either

TABLE 5 | Outputs of the linear discriminant analysis.

	Linear discriminant coefficients				
	Global	Italy	Turkey	Japan	S. Korea
Rank	0.93	0.93	0.83	0.86	0.14
GCSW—validation seeking	0.14	−0.21	0.46	−0.01	1.10
PANAS positive	0.28	0.34	0.04	−0.54	−0.01

individual or team-based play, but all share the common element of competitive play [89–91]. These games usually involve competitions where one side emerges as the winner and are frequently played online. Although lacking physical activity, competitive video games share many similarities with traditional sports [92]. Both involve strategy, teamwork, skill development, and communication [92–94]. Moreover, they also share many common grounds in terms of psychological dynamics [95, 96]. For example, the performance stress that occurs in traditional athletes is also seen in individuals who play competitive games [97, 98].

Given these similarities, it is possible that competitive video games could influence various psychological variables in a similar way to traditional sports. Therefore, our study is aimed at exploring the relationship between rank levels, emotional affection, self-esteem, and toxic behaviors among players of LoL, one of the most popular competitive MOBA games. In addition, we aimed to evaluate the extent to which toxic behaviors impact players' decisions to quit the game. In this context, we have developed a few hypotheses to develop a robust study. The first (H1) of these hypotheses was "In the context of LoL, there is a positive association with the players' rank and their self-reported self-esteem." Our findings revealed a positive relationship between self-esteem and rank. This suggests that players with higher ranks tend to experience higher levels of self-esteem, and we can conclude that H1 is accepted. Following the literature, success in traditional sports is related to self-esteem [73, 74]. Considering the similarity of their competitive nature, it is not surprising to expect that there is a relationship between success and self-esteem in competitive video games. Also, this expectation is reinforced by the fact that competitive video games are nowadays also seen as a sports category [6]. Consequently, psychological variables in traditional sports should be considered in studies on competitive video games. The importance of competitive games to players, along with the role of rank as a skill indicator, is crucial [99]. In traditional sports, high achievement is often linked to self-esteem [73, 74]. Therefore, the relationship between self-esteem and rank could be a key factor for players in competitive games. Figure 2 shows patterns of GCSW validation seeking in four different countries.

The next hypothesis (H2) in our research was "In the context of LoL, there is a positive correlation between self-reported toxic behavior and players' rank." Our results showed that there is a positive relationship between rank and level of toxicity. This result indicates that higher rank levels are associated with increased self-reported toxic behaviors among LoL players. Hence, we accepted our H2. Also, this result highlights

that toxicity behavior is a concept that needs to be further investigated. The term toxicity, which is one of the psychological variables that affect competitive video games, is emerging in different ways in many games and among different player communities [34].

Toxicity in competitive video gaming could arise from the complex interplay between a player's psychological state and the competitive nature of the gaming environment. As a consequence of this interaction, the numerous mechanics within the game are likely to have psychological effects on the player. These mechanics can vary in many ways, ranging from success in the game to social interaction [35, 100]. However, predicting the psychological effects on competitive players is a difficult phenomenon in this context. This is because, although their attributions to games focus on winning or completing the goal, the underlying psychological variables may differ. In this context, this study created a model based on the effects of traditional sports on athletes to understand the psychological variables of competitive video gamers. Toxic behavior can occur due to many different factors in competitive video games, especially in MOBAs. The most researched ones in the literature are competitiveness [16] and players feeling dissatisfied with their team's performance [16, 29]. Players often perceive competitiveness and a sense of poor team performance as significant triggers for engaging in toxic behaviors. In MOBAs, the ranking system serves as a powerful motivator for competition, potentially stimulating more intense reactions and emotional investment in performance from players. This is expected to be more dominant, especially in higher ranked players, mainly since higher ranked players have a more intense emotional investment and self-esteem perspective than lower ranked players. Moreover, this is related to many different variables but may include performance expectations, the desire to win, and the freedom of anonymity in online games [101]. Figure 3 shows patterns of acted toxicity in four different countries.

The third hypothesis (H3) of our study was "Higher ranks are positively associated with players' levels of positive emotions in the context of LoL." Our findings revealed a positive association between higher ranks and positive emotional affect. These results suggest that the positive affection of playing in a high ranking is higher than playing in a low ranking. In light of these findings, we accepted H3. To understand this phenomenon, it is necessary to look at traditional sports as well. There are several ways to explain the fact that individuals' emotions are affected by events [102]. Especially in athletes, it has been revealed by studies in the literature that the level and achievements they reach cause many positive emotions to emerge. This may also be a phenomenon felt by

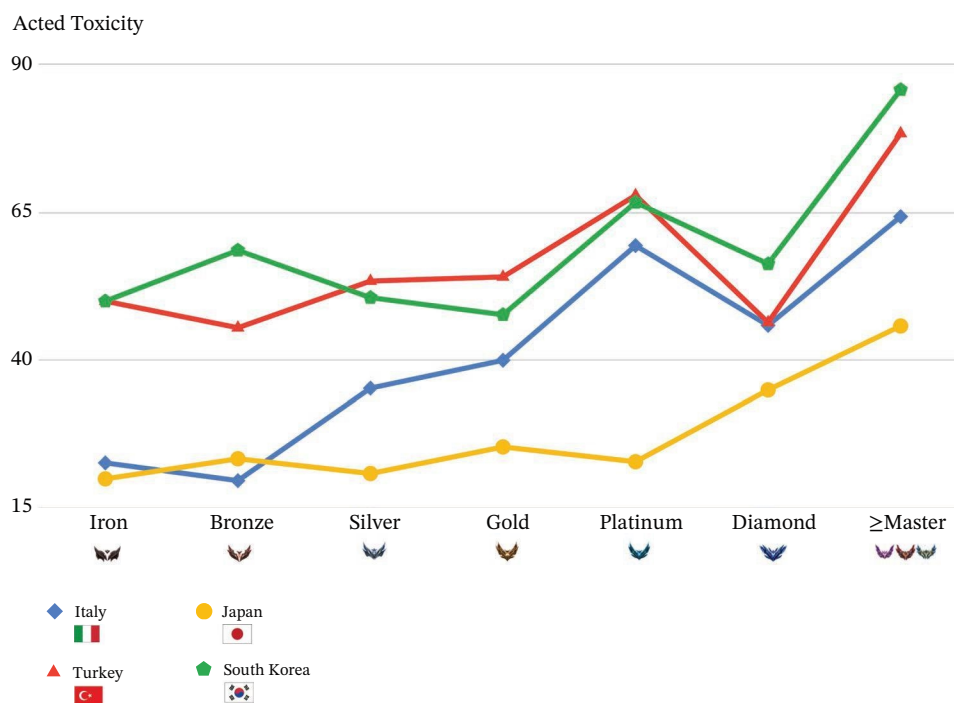


FIGURE 3 | Acted toxicity patterns in Italy, Turkey, Japan, and South Korea by competitive ranks in LoL.

players who play at high levels in competitive video games as well as in traditional sports [103, 104]. This can be due to the relief of being high-ranked and having a high ranking, which constitutes a very small percentage of a large community [105]. Figure 4 shows patterns of positive affection in four different countries.

The last hypothesis (H4) of this study was “In the context of LoL, there is a negative association between players’ rank and their tendency to quit the game due to toxicity.” Our study outcomes pointed out that players with high ranks tend to be more resilient to quitting the game in the face of toxic behavior. This means that high-ranked players are less likely than lower ranked players to quit the game even when exposed to toxic behavior. Considering these results, we accepted H4. The fact that players do not quit even when exposed to toxic behavior can be explained by the need for esteem. The need for “esteem,” one of the highest needs according to Maslow’s hierarchy of needs theory, is the need to feel successful and prestigious [106]. This pursuit often leads individuals to overlook various other aspects of their lives as they struggle to maintain the status they have achieved [106].

Individuals may make extra efforts to maintain this status. It is very likely to expect the same to happen in competitive video games. This situation can be explained by the fact that individuals with higher ranks can build up a greater tolerance to toxicity. This resilience enables them to maintain their focus and preserve the rank they have worked hard to gain. It should be noted that players’ ranks are related to their self-esteem, so it may not be possible for high-ranking players to quit the game (due to the importance the game has to their sense of self), even if they are exposed to toxicity. Moreover, it is known that various similar situations can be observed in traditional sports. Despite retirement or injury, elite athletes often struggle to leave their sporting careers due to the desire to maintain their

status and self-esteem within the competitive world [107, 108]. This is also in parallel with our results. Figure 5 shows patterns of desire to quit due to toxicity received in four different countries; Japan’s results are excluded in this figure as they are not significant.

It is important to note that the results of the study follow the same trend in different cultures. The study reveals a remarkable similarity in the psychological aspects of gamers, with a focus on those with higher rankings. These results are similar despite the different levels of popularity and participation in eSports and competitive gaming in various cultures [109–111]. In addition, this consistency points to a certain universality in the psychological dynamics of competitive gaming, particularly in the case of LoL. These findings are crucial as they highlight a common psychological framework with other competitive games and provide insights into player behavior. Furthermore, it indicates that certain traits and responses are unique to the competitive gaming experience and cultural differences.

The implications of our study are useful for creating functional intervention programs that can be used in many areas of competitive video games. For example, it is important to understand the complex patterns of toxic behavior in order to create systems for detecting and punishing players who engage in toxic behavior. In addition, it is possible for game developers to guide the design of the game by understanding the content and mechanics that cause players’ toxic behavior. Moreover, because there is no specific categorization for online games by institutions such as Pan-European Game Information, our study may serve an important role in determining the age range for any future classification and categorization. In addition, psychological support programs for elite athletes in traditional sports are known to have positive effects [112, 113]. In

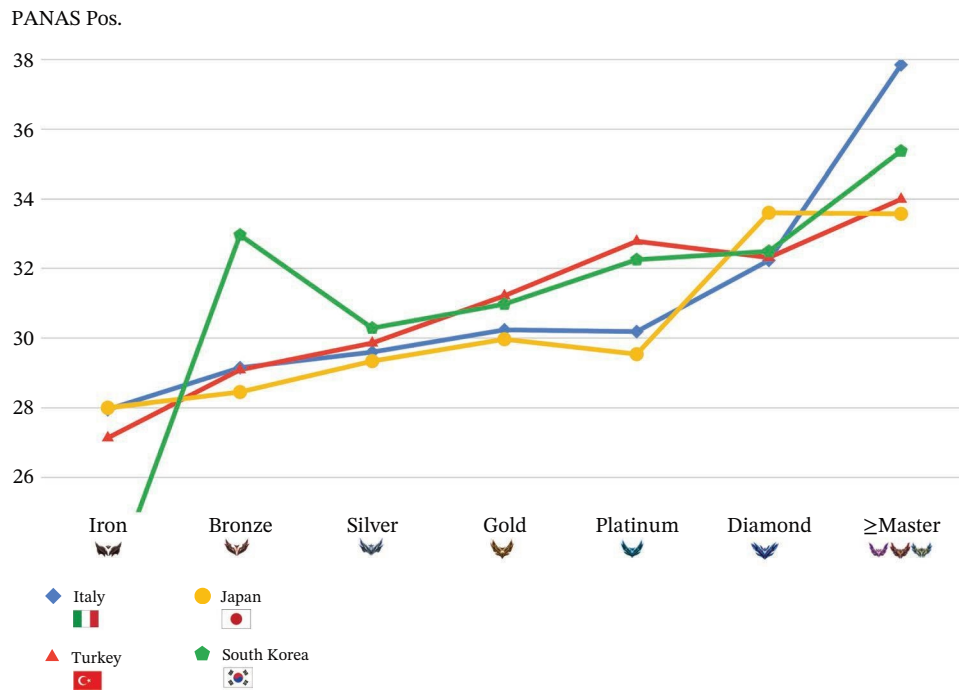


FIGURE 4 | PANAS positive patterns in Italy, Turkey, Japan, and South Korea by competitive ranks in LoL.

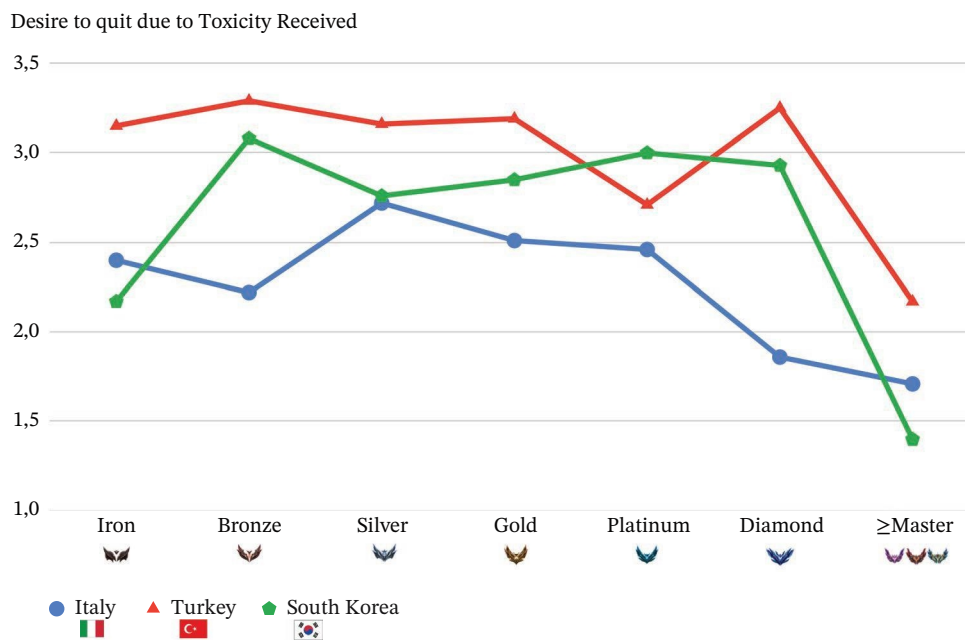


FIGURE 5 | Desire to quit due to toxicity received patterns in all countries (Japan is excluded because the results are not significant).

the same way, the application of these psychological support programs on high-rank and eSports players may have positive effects on both performance improvement and managing the pressure they are under.

However, our findings and interpretations about quitting LoL contradict the results of Monge and O'Brien, who focused on unranked game environments [114]. In their study, participants exposed to toxic behavior were significantly more likely to propose surrender votes, a behavior that indicates a propensity to quit the game, and this toxic exposure was also correlated with impaired in-game performance [114]. By comparison, our study of competitive ranked

games shows that high-ranking players are significantly more resilient and less likely to quit the game despite being exposed to toxic behavior. This suggests that the competitive context and social status associated with a higher rank may act as a buffer, increasing players' engagement and ability to cope with negativity. In contrast to Monge and O'Brien's study, which showed that in an unranked setting, toxicity may affect both performance and player attachment, our study suggests that in a ranked environment, the psychological benefits of high rank (e.g., increased self-esteem and positive affect) may counterbalance the negative effects of toxicity. Thus, the relationship between toxicity and quitting appears to be highly context-dependent.

In an effort to develop a model of self-reported acted toxicity that could hold cross-national relevance, we used LDA to identify the most informative predictors across cultural contexts. The analysis revealed that rank (a proxy for competitive standing) plays a central role in distinguishing between toxic and nontoxic players at the global level. This finding is reinforced by the fact that rank emerged as the most powerful predictor in three out of the four countries examined, suggesting a consistent and substantial association between competitive status and the likelihood of engaging in toxic behavior. Although some common patterns emerged across countries, the LDA revealed country-specific differences in the set and direction of predictors associated with acted toxicity. This divergence from univariate results is not unexpected. Unlike univariate analyses, which assess the individual relationship between each predictor and the outcome, LDA is a multivariate technique that considers the interrelationships among all predictors simultaneously. As such, the weight and direction (i.e., sign) of a predictor in the LDA model depend on its contribution to the overall discrimination between classes in the presence of the other variables. A variable that shows a positive association with toxicity in a univariate analysis may appear with a negative coefficient in the multivariate model if, when combined with other predictors, it helps better separate the two classes in that direction. Additionally, cultural and contextual factors unique to each country may influence how specific traits interact, further justifying the observed differences in predictor patterns across national models.

Competitive ranking systems in high-ranking gaming environments follow a highly asymmetric structure. In games such as LoL, the highest competitive tiers are intentionally designed to include only a very small proportion of the player population, while the majority of players remain clustered in mid or lower ranks. This distribution is not unique to digital games but mirrors patterns observed in traditional competitive domains, such as elite sports, where only a limited number of individuals reach the highest performance levels. Uneven rank distributions across countries should therefore be understood as a structural property of competitive ecosystems rather than as a methodological shortcoming. Within this context, the associations observed between rank, toxicity, and psychological outcomes reflect dynamics that emerge under conditions of high performance pressure and social evaluation. Players who reach elite ranks operate in environments characterized by heightened expectations, stronger identity investment, and increased exposure to competitive stressors, which may amplify both positive outcomes, such as self-esteem and emotional engagement, and negative behaviors, such as toxicity. Importantly, these dynamics can manifest consistently across cultures despite differences in the absolute proportion of elite players, suggesting that the psychological mechanisms associated with high competitive status may be more robust than the numerical representation of elite ranks within each country.

Future studies may also consider using gaming-specific emotional measures, since PANAS serves as a more general emotional assessment tool. Furthermore, it would be important for the literature to investigate different types of competitive games to understand the mental health and emotional investments of players. In addition, the understanding and causation of toxic behavior among players require the exploration of a variety of psychological and behavioral characteristics. One such characteristic that continues to attract significant

research interest is player motivation, which is central to understanding why individuals engage in gaming. The nature of a player's motivation can be intricately linked to their in-game attitude. Understanding this phenomenon through the lens of motivational theories, as well as considering players' personality traits, can enhance the generalizability and practical applicability of future research efforts. Moreover, future studies should conduct more detailed analyses by combining data from in-game reporting systems and toxic behavior reports with players' feedback data. However, it is important to acknowledge certain limitations in this study. The study is exploratory and cross-sectional, which means it does not provide direct evidence of a causal relationship between the variables. Additionally, the criterion of some variables was measured using ad hoc items, which may lead to potential measurement bias. This approach may not have been ideal in terms of validity. Lastly, a limitation of the present study is the potential overrepresentation of highly engaged or addicted gamers in the sample. Participants were recruited primarily through online platforms (e.g., Discord and Facebook), which may introduce selection bias by attracting individuals who are more active in gaming communities and potentially more competitive or extreme in their behavior. This self-selection process could affect the generalizability of the findings to the wider gaming population. In addition, as the study relied on self-report measures, responses may have been influenced by social desirability bias [115, 116], with participants underreporting toxic behaviors in order to present themselves more favorably. Future research should consider using implicit measures, including social desirability scales or cross-validating self-report data with in-game behavioral logs or peer ratings, to provide a more objective and comprehensive assessment of toxic behaviors. In particular, integrating objective behavioral indicators derived from gameplay telemetry or in-game reporting systems would allow future studies to validate self-reported toxicity patterns and examine potential discrepancies between perceived and enacted toxic behaviors. Such multimethod approaches would strengthen the robustness and ecological validity of findings in competitive gaming research and could further be complemented by computational or mathematical modeling approaches, such as probabilistic or logistic formulations, to formally examine rank-related toxicity patterns.

6 | Conclusion

Our study presents insights into the relationship between rank, self-esteem, and toxic behavior in competitive video gaming, with a focus on "LoL." The findings point to a positive correlation between player rank and self-esteem, underscoring the importance of rank. In this context, higher ranking players reported higher levels of self-esteem, toxic behaviors, and positive emotional affect. These associations suggest that players who achieve higher ranks in LoL tend to experience greater self-esteem, show more frequent toxic behaviors, and report more positive emotional engagement with the game. Additionally, our analysis shows that players with higher rankings experience a greater level of positive emotional affect, as measured by PANAS scores. Lastly, we found that higher ranked players had a significantly lower desire to quit the game, even when faced with toxicity.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix A

TABLE A1 | Normality checks through skewness and kurtosis values across countries.

Variables	Italy (N = 370)	Turkey (N = 272)	Japan (N = 605)	S. Korea (N = 281)
Current rank	0.17 (−0.77)	0.05 (−0.44)	0.40 (−0.31)	0.40 (−0.05)
GCSW—validation seeking	0.23 (−0.65)	0.42 (−0.12)	−0.24 (−0.25)	0.22 (−0.68)
PANAS positive	−0.25 (−0.05)	−0.16 (0.26)	0.21 (0.07)	−0.44 (0.48)
PANAS negative	1.16 (1.30)	0.67 (0.10)	0.41 (−0.28)	0.45 (−0.50)
Desire to quit	0.59 (−0.98)	−0.03 (−0.99)	0.79 (−0.75)	0.17 (1.15)

Note: (...) = kurtosis values are reported within curved brackets.