

## Review Article

# Overviewing Gaming Motivation and Its Associated Psychological and Sociodemographic Variables: A PRISMA Systematic Review

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Nowadays, video games are part of our everyday life, and the number of players is increasing each day passing by. Thus, understanding what motivations drive people to play video games is becoming a very important topic for researchers. That is why this systematic review had the objective to summarize the existing literature about gaming motivation by including papers that used a validated tool to do so while excluding those that did address just the psychopathological aspect of gaming. The systematic review was carried out through the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). A total of 53 papers were included in this systematic review, and the findings revealed that nonaddicted players and addicted players seem both to play for social, achievement, and competition motivations. Male players appeared more oriented to play to compete with others, while female players seemed to use games for relationship and social reasons. Gaming motivation was stronger in younger people.

## 1. Introduction

Despite common belief, video games did not enter our lives rapidly but have been in it for a very long time. A video game is defined as “a game which we play thanks to an audio-visual apparatus and which can be based on a story” [1]. The journey started in the early 1950s with simple games; in these days, it continues with more than a hundred game types on more than twenty platforms [2].

On top of these technological developments, with the rapid increase in Internet usage during the 2000s, today, 4.9 billion people have access to the internet [3]. This situation enabled creators to sell games with ease while paving the way for gamers to access them. According to 2020 statistics, 2.69 billion people have played a video game at least once, and 91% of the revenue of the gaming industry, which is 158\$ billion, is from digital game sales [4].

Given the multidisciplinary nature of the topic, the scientific literature is abundant with research papers from different fields addressing the topic [5, 6]. The main core-researched areas in game studies right now are gaming

addiction addressed both by the psychological and the medical field [7, 8], the use of serious games as efficient learning tools in educational fields or for training purposes [9, 10], games and gamification aspects related to work environments [11, 12], games and the consumer behaviour in terms of engagement and entertainment [13–15], money spent in games [16, 17], games used as simulations to refine or learn skills in certain work fields such as the air industry or in surgery [18, 19], games and aggressive behaviours [20, 21], and, lastly, the motivation behind the use and consumption of games [22, 23]. This latter aspect has received particular attention by researchers which determined an increasing number of published works about this topic in recent years (around 230 sources about this topic per year starting from 2018 up to today on Google Scholar). Nonetheless, there is a huge gap in literature regarding this theme in terms of findings; majority of the papers only address online games [14, 22, 24, 25]; the tools created to assess motivations are either based on only online games [22, 26, 27], thus excluding almost all of the players that do not play online that much, or were created ad hoc for the research. Moreover, there is a lack of

shared consensus regarding the definition of each game motivation (e.g., coping and diversion) [22, 28, 29], or even which ones should be investigated and measured.

For all these reasons, the current literature about game motivation appears to be extremely heterogeneous in its findings but also particularly interesting. For these reasons, this PRISMA is aimed at giving a detailed excursus on what the researchers have discovered up to this point about game motivation, without any specific focus as a game genre, sex, etc. As of now, this paper has a double objective: (1) to do a systematic review of all the motivations that could possibly be behind the action of playing games and the variables associated with them and (2) to list all of the existent and used tools to do so.

## 2. Methods and Procedure

**2.1. Eligibility Criteria.** This systematic review was carried out through the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. All the studies included have the following criteria: (i) being written in English, (ii) papers must address specifically motivation for gaming, (iii) being indexed by Google Scholar (unpublished thesis and dissertation studied are included), (iv) having a validated tool to measure motivations and needs for gaming (ad hoc instruments were included if they were validated through a factor analysis, and statistic data about it were reported in the paper), and (v) not having a clinical sample (studies with both clinical and nonclinical samples were deemed eligible, but only the results related to the nonclinical sample are reported).

Studies were excluded if they were (i) addressing mainly psychological aspects of gaming addiction, (ii) not written in English, (iii) not using a validated survey to measure gaming motivation, and (iv) papers that apart from identifying gaming motivation, later did not investigate these ones with other external associated variables.

**2.2. Information Sources.** Research papers were all retrieved and collected from Google Scholar by using the aforementioned criteria.

**2.3. Search.** Search was conducted throughout all the months of December 2021 and January and February 2022 by using the following keywords: “game motivation” (2540 sources) and “gaming motivation” (1060 sources).

**2.4. Study Collection.** All papers were initially screened by reading the abstract of potential interesting research. Further examination was done by reading the full papers so as to remove those who did not fit the criteria.

**2.4.1. Study Selection.** During the initial process of screening, 139 studies were accepted based on their title and abstract. Consequently, 18 of these studies were dropped due to not actually focusing on gaming motivations but instead psychopathological aspects of gaming addiction ( $n = 7$ ), being qualitative studies or surveys with descriptive statistics only ( $n = 2$ ), not focusing on motivations per se ( $n = 3$ ), and not using proper instruments ( $n = 5$ ). After reading the full

papers, other 68 papers were dropped based on their content that did not fit the criteria to include them in the PRISMA or because, even though the abstract was in English, the full paper was not in such language. In the end, 53 papers were deemed eligible for this PRISMA (Figure 1).

## 3. Results

**3.1. Characteristics of the Studies.** 53 studies were deemed eligible for this PRISMA systematic review about gaming motivation. All the included studies were cross-sectional, and they were using a validated tool to measure the aforementioned motivations.

The following side note is necessary to better understand the reading and eventually organize the information of the following paper;  $n$  refers to the number of studies, while  $k$  refers to the samples.

**3.1.1. Questionnaires Used and/or Developed by the Studies.** The most used survey instrument of these studies was the Motivation to Play in Online Games Questionnaire (MPOGQ; [26]) ( $n = 9$ ) which assesses three main dimensions, and each one composed of more subscales. The three dimensions are achievement<sup>1</sup> (composed by the following subscales: advancement<sup>3</sup>, mechanics<sup>46</sup>, and competition<sup>13</sup>), social<sup>65</sup> (composed by the following subscales: socializing<sup>65</sup>, teamwork<sup>72</sup>, and relationship<sup>59</sup>), and immersion<sup>35</sup> (composed by the following subscales: discovery<sup>18</sup>, role-playing<sup>61</sup>, customization<sup>17</sup>, and escapism<sup>25</sup>).

Other four questionnaires that were fairly used in the analyzed papers were as follows: (a) The Player Experience of Need Satisfaction (PENS, [30]) ( $n = 5$ ), which based on the Self-Determination Theory [31], assesses five main dimensions: presence<sup>54</sup>, competence<sup>12</sup>, relatedness<sup>58</sup>, autonomy<sup>7</sup>, and intuitive controls<sup>41</sup>; (b) the Motive for Online Gaming Questionnaire (MOGQ; [22]) ( $n = 5$ ) which assesses seven main motivations: competition<sup>13</sup>, coping<sup>15</sup>, fantasy<sup>28</sup>, social<sup>65</sup>, skill development<sup>63</sup>, escape<sup>25</sup>, and recreation<sup>57</sup>; (c) the Gaming Motivation Scale (GAMS; [32]) ( $n = 5$ ) which assesses five dimensions: intrinsic motivation<sup>38</sup>, integrated regulation<sup>36</sup>, identified regulation<sup>34</sup>, introjected regulation<sup>40</sup>, external regulation<sup>27</sup>, and amotivation<sup>5</sup>; (d) the Online Gaming Motivations Scale [27] ( $n = 5$ ) which assesses three main motivations: immersion<sup>35</sup>, achievement<sup>1</sup>, and social<sup>65</sup>.

One questionnaire was used a sufficient number of times: the Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33]) ( $n = 3$ ), only developed in spanish, assesses four main dimensions: exploration<sup>26</sup>, achievement<sup>1</sup>, socialization<sup>65</sup>, and dissociation<sup>20</sup>.

Four questionnaires were used only a couple of times: (a) the gaming attitudes, motivations, and experiences scales (GAMES; [34]) ( $n = 2$ ) which assess nine main motivations: story<sup>70</sup>, violence catharsis<sup>73</sup>, loss-aversion<sup>43</sup>, violent reward<sup>74</sup>, social interaction<sup>65</sup>, grinding<sup>31</sup>/completion<sup>16</sup>, escapism<sup>25</sup>, autonomy<sup>7</sup>/exploration<sup>26</sup>, and customization<sup>17</sup>; (b) the Digital Games Motivation Scale (DGMS; [35]) ( $n = 2$ ) which assesses Digital Games Motivation Scale eight main motivations: narrative<sup>49</sup>, social<sup>65</sup>, escapism<sup>25</sup>, moral self reaction<sup>47</sup>, agency<sup>4</sup>, pastime<sup>50</sup>, performance<sup>51</sup>, and habit<sup>32</sup>; (c) the Videogaming

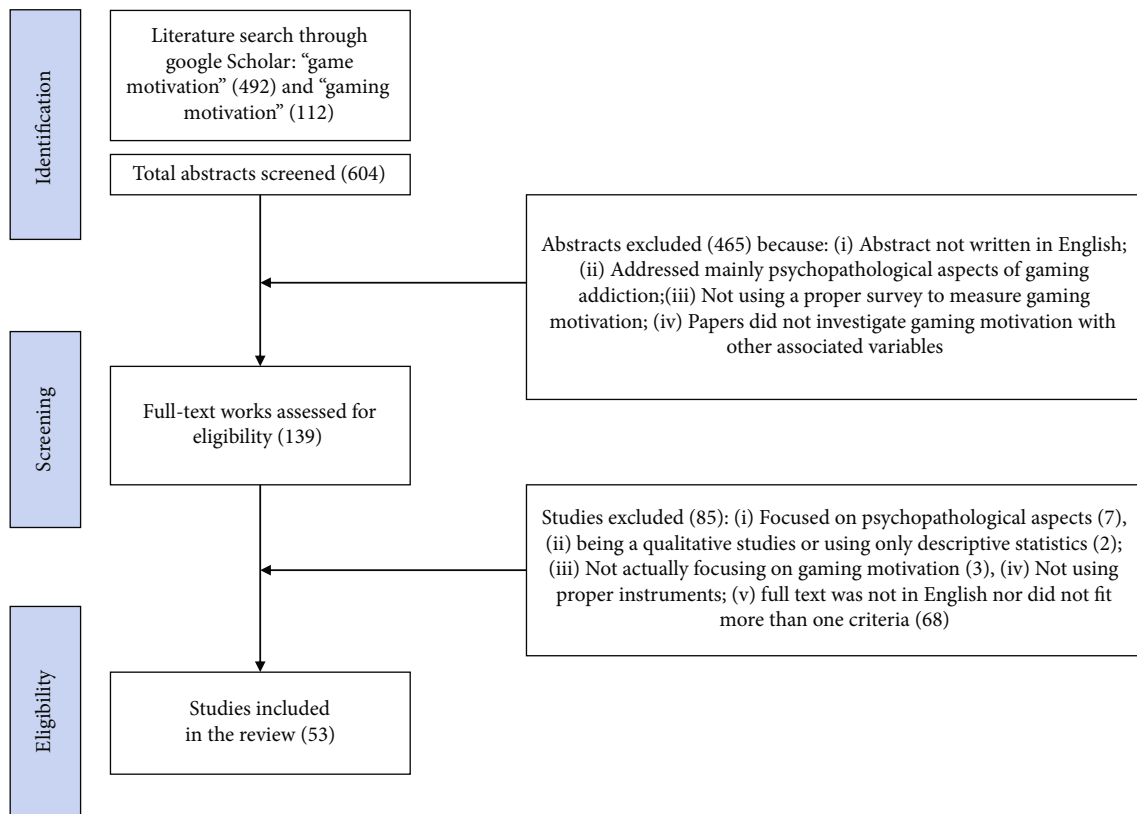


FIGURE 1: Diagram showing the number of papers identified, included, and excluded about gaming motivation papers according to the exclusion criteria.

Motives Questionnaire (VMQ; [28]) ( $n = 2$ ) which assesses eight main gaming motivations: recreation<sup>57</sup>, social interaction<sup>65</sup>, coping<sup>15</sup>, violent reward<sup>74</sup>, fantasy<sup>28</sup>, ognitive development<sup>10</sup>, customization<sup>17</sup>, and competition<sup>13</sup>; (d) the Video Game Uses and Gratifications Scale [29] ( $n = 2$ ) which assesses six dimensions: competition<sup>13</sup>, challenge<sup>9</sup>, fantasy<sup>28</sup>, arousal<sup>6</sup>, social interaction<sup>65</sup>, and diversion<sup>21</sup>.

The following questionnaires ( $n = 13$ ) were created ad hoc for the research and/or need further validation; thus, they were used only one time: (a) the ad hoc questionnaire Motivations to Play [36] ( $n = 1$ ) which assesses five motivations: achievement<sup>1</sup>, socializing<sup>65</sup>, immersion<sup>35</sup>, relaxing<sup>60</sup>, and escaping<sup>25</sup>; (b) the Computer Gaming Motivation Scale [37] ( $n = 1$ ), only developed in Turkish, which assesses five dimensions: concentration<sup>14</sup>, entertainment<sup>24</sup>, learning<sup>42</sup>, escape<sup>25</sup>, and socialization<sup>65</sup>; (c) the Gaming Motive Scale [38] ( $n = 1$ ) which assesss three main motivations, each one composed of some subscales: ego-Centered Motives (fantasy<sup>28</sup>, competence<sup>12</sup>, exploration<sup>26</sup>, and challenge<sup>9</sup>), social motives (community<sup>11</sup>, social capital<sup>66</sup>, competition<sup>13</sup>, and team play<sup>71</sup>), and content-related motives (mechanics<sup>46</sup> and narration<sup>48</sup>); (d) ad hoc Motivation Questionnaire created by the authors [39] ( $n = 1$ ) composed of four dimensions: socializing<sup>65</sup>, competition<sup>13</sup>, low cost<sup>44</sup>, and coping<sup>15</sup>; (e) the Smartphone Gaming Motivations [40] ( $n = 1$ ) which assesses six main motivations: arousal<sup>6</sup>, challenge<sup>9</sup>, fantasy<sup>28</sup>, competition<sup>13</sup>, diversion<sup>21</sup>, and social interaction<sup>65</sup>; (f) the

Electronic Gaming Motive Questionnaire (EGMQ; [41]) ( $n = 1$ ) which assesses four dimensions: coping<sup>15</sup>, self-gratification<sup>62</sup>, enhancement<sup>23</sup>, and social<sup>65</sup>; (g) the Massively Multiplayer Online Motivations Inventory (MMI; [42]) ( $n = 1$ ) which assesses three main motivations: immersion<sup>35</sup>, achievement<sup>1</sup>, and social<sup>65</sup>; (h) the ad hoc Gaming Motivation Scale developed by the authors [43] ( $n = 1$ ) which assesses six main motivations: social external regulation<sup>68</sup>, game external regulation<sup>27</sup>, identified regulation<sup>34</sup>, intrinsic accomplishment<sup>37</sup>, intrinsic hedonic<sup>39</sup>, and amotivation<sup>5</sup>; (i) the Gamification User Types Hexad Scale [44] ( $n = 1$ ) which measures six gaming motivations related to six gamer profiles: philanthropist<sup>51</sup>, socialiser<sup>67</sup>, free spirit<sup>29</sup>, achiever<sup>2</sup>, disruptor<sup>19</sup>, and player<sup>53</sup>; (j) the ad hoc scale VideoGame Play [45] ( $n = 1$ ) which measures different motivations through the engagement dimension; (k) the Ubisoft Perceived Experience Questionnaire (UPEQ; [46]) ( $n = 1$ ) which assesses three main motivations: relatedness<sup>58</sup>, autonomy<sup>7</sup>, and competence<sup>12</sup>; (l) the ad hoc Uses and Gratification Questionnaire [47] which measures 9 different motivations: arousal<sup>6</sup>, diversion<sup>21</sup>, social interaction<sup>65</sup>, fantasy<sup>28</sup>, challenge<sup>9</sup>, hi-tech<sup>33</sup>, ego<sup>22</sup>, competition<sup>13</sup>, and realism<sup>56</sup>; (l) the ad hoc questionnaire to measure MMORPGs' motivations [25] ( $n = 1$ ) which assess achievement<sup>1</sup>, relationship<sup>59</sup>, immersion<sup>35</sup>, escapism<sup>25</sup>, and manipulation<sup>45</sup>.

Table 1 shows the motivational dimensions of each instrument with their respective Cronbach's alpha. A

TABLE 1: Instruments used by the papers in this PRISMA systematic review with all the dimensions and their Cronbrach's alpha.

Motivation type	Measure (references)	Studies using it	Reliability
Escape	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.94
Escapism (immersion)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.65
Escapism	Pokémon Go Motives scale [48]	1	.86
Escape	Reason for playing videogames (RPVG, [49])	1	.83
Escapism	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.82
Escape	Computer Gaming Motivation Scale [37]	1	.846
Escaping	Motivation to play [36]	1	Not reported
Escapism	Digital Games Motivation Scale (DGMS; [35])	2	.881
Escapism	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.82
Escapism	Ad Hoc questionnaire about MMORPGs' motivations [25]	1	.62
Competition	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.95
Competition (achievement)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.75
Competition (social motives)	Gaming Motive Scale [38].	1	.76
Competition	Motivation questionnaire created by authors [39]	1	.74
Competition	Videogaming Motives Questionnaire (VMQ, [28])	2	.76
Competition	Video Game Uses and Gratifications Scale [29]	2	.86
Competition	Smartphone Gaming Motivations [40]	1	.868
Competition	Ad Hoc Uses and Gratification Questionnaire [47]	1	.75
Coping	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.94
Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	1	.794
Coping	Motivation questionnaire created by authors [39]	1	.64
Coping	Videogaming Motives Questionnaire (VMQ, [28])	2	.87
Fantasy	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.92
Fantasy (ego-centered motives)	Gaming Motive Scale [38]	1	.66
Fantasy	Videogaming Motives Questionnaire (VMQ, [28])	2	.82
Fantasy	Video Game Uses and Gratifications Scale [29]	2	.88
Fantasy	Smartphone Gaming Motivations [40]	1	.911
Fantasy	Ad Hoc Uses and Gratification Questionnaire [47]	1	.91
Social	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.94
Social	Massively Multiplayer Online Motivations Inventory (MMI, [42])	5	.76
Socialization	Computer Gaming Motivation Scale [37]	1	.857
Social	Electronic Gaming Motive Questionnaire (EGMQ, [41])	1	.699
Socializing (social)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.80
Teamwork (social)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.71
Relationship (social)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.74
Relationship	Ad Hoc questionnaire about MMORPGs' motivations [25]	1	.76
Community (social motives)	Gaming Motive Scale [38]	1	.71
Social capital (social motives)	Gaming Motive Scale [38]	1	.81
Team play (social motives)	Gaming Motive Scale [38]	1	.87
Social	Online Gaming Motivations Scale [27]	5	.77
Socialization	Massively Multiplayer Online Games Motivation Scale (MMO-MS, [33])	3	.819
Socializing	Motivation to play [36]	1	Not reported
Social	Digital Games Motivation Scale (DGMS; [35])	2	.891
Socializing	Motivation questionnaire created by authors [39]	1	.84
Social	Massively Multiplayer Online Motivations Inventory (MMI, [42])	1	.76

TABLE 1: Continued.

Motivation type	Measure (references)	Studies using it	Reliability
Social interaction	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.83
Social interaction	Video Game Uses and Gratifications Scale [29]	2	.81
Social interaction	Ad Hoc Uses and Gratification Questionnaire [47]	1	.92
Social external regulations	Gaming Motivation Scale developed by authors [43]	1	.93
Social interaction	Smartphone Gaming Motivations [40]	1	.849
Social interaction	Videogaming Motives Questionnaire (VMQ, [28]);	2	.79
Socializers	Gamification User Types Hexad Scale [44]	1	.838
Skill development	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.94
Recreation	Motive for Online Gaming Questionnaire (MOGQ; [22])	5	.92
Recreation	Videogaming Motives Questionnaire (VMQ, [28]);	2	.84
Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
Intrinsic motivation	Gaming Motivation Scale developed by authors [43]	1	.90
Intrinsic hedonic	Gaming Motivation Scale developed by authors [43]	1	.94
Integrated regulation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
Identified regulation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
Identified regulation	Gaming Motivation Scale developed by authors [43]	1	.94
Introject regulation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
External regulation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
Game external regulation	Gaming Motivation Scale developed by authors [43]	1	.90
Amotivation	Gaming Motivation Scale (GAMS, [32])	5	Above .75
Amotivation	Gaming Motivation Scale developed by authors [43]	1	.83
Self-gratification	Electronic Gaming Motive Questionnaire (EGMQ, [41])	1	.842
Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	1	.672
Story	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.92
Narrative	Digital Games Motivation Scale (DGMS; [35])	2	Not reported
Violence catharsis	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.91
Loss-aversion	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.81
Grinding/completion	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.79
Customization	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.88
Customization	Videogaming Motives Questionnaire (VMQ, [28]);	2	.88
Customization (immersion)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.74
Challenge	Video Game Uses and Gratifications Scale [29].	2	.80
Challenge (ego-centered motives)	Gaming Motive Scale [38].	1	.64
Challenge	Smartphone Gaming Motivations [40]	1	.811
Challenge	Ad Hoc Uses and Gratification Questionnaire [47]	1	.72
Arousal	Video Game Uses and Gratifications Scale [29].	2	.85
Arousal	Smartphone Gaming Motivations [40]	1	.896
Arousal	Ad Hoc Uses and Gratification Questionnaire [47]	1	.83
Diversion	Video Game Uses and Gratifications Scale [29].	2	.89
Diversion	Smartphone Gaming Motivations [40]	1	.889
Diversion	Ad Hoc Uses and Gratification Questionnaire [47]	1	.81
Discovery (immersion)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.73
Role playing (immersion)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.87
Advancement (achievement)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.79
Mechanics (achievement)	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	9	.68
Mechanics (content-related motives)	Gaming Motive Scale [38]	1	.64

TABLE 1: Continued.

Motivation type	Measure (references)	Studies using it	Reliability
Achievement	Online Gaming Motivations Scale [27]	5	.74
Achievement	Massively Multiplayer Online Games Motivation Scale (MMO-MS, [33])	3	.816
Achievement	Massively Multiplayer Online Motivations Inventory (MMI, [42])	1	.66
Achievement	Motivation to play [36]	1	Not reported
Achievement	Ad Hoc questionnaire about MMORPGs' motivations [25]	1	.67
Achiever	Gamification User Types Hexad Scale [44]	1	.759
Engagement	VideoGame play [45]	1	.96
Immersion	Online Gaming Motivations Scale [27]	5	.75
Immersion	Massively Multiplayer Online Motivations Inventory (MMI, [42])	1	.62
Immersion	Motivation to play [36]	1	Not reported
Immersion	Ad Hoc questionnaire about MMORPGs' motivations [25]	1	.63
Violent reward	Videogaming Motives Questionnaire (VMQ, [28])	2	.93
Violent reward	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.86
Cognitive development	Videogaming Motives Questionnaire (VMQ, [28])	2	.81
Concentration	Computer Gaming Motivation Scale [37]	1	.744
Entertainment	Computer Gaming Motivation Scale [37]	1	.959
Learning	Computer Gaming Motivation Scale [37]	1	.922
Presence	The Player Experience of Need Satisfaction (PENS, [30])	5	Not reported
Relatedness	The Player Experience of Need Satisfaction (PENS, [30])	5	Not reported
Relatedness	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	1	.84
Autonomy	The Player Experience of Need Satisfaction (PENS, [30])	5	Not reported
Autonomy	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	1	.86
Autonomy/exploration	Gaming attitudes, motivations, and experiences scales (GAMES; [34])	2	.78
Exploration (ego-centered motives)	Gaming Motive Scale [38]	1	1
Exploration	Massively Multiplayer Online Games Motivation Scale (MMO-MS, [33])	3	.750
Competence	The Player Experience of Need Satisfaction (PENS, [30])	5	Not reported
Competence	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	1	.82
Competence (ego-centered motives)	Gaming Motive Scale [38]	1	.71
Intuitive controls	The Player Experience of Need Satisfaction (PENS, [30])	5	Not reported
Narration	Gaming Motive Scale [38]	1	.60
Low cost	Motivation questionnaire created by authors [39]	1	.76
Dissociation	Massively Multiplayer Online Games Motivation Scale (MMO-MS, [33])	3	.833
Moral self action	Digital Games Motivation Scale (DGMS; [35])	2	.793
Agency	Digital Games Motivation Scale (DGMS; [35])	2	.791
Pastime	Digital Games Motivation Scale (DGMS; [35])	2	.886
Performance	Digital Games Motivation Scale (DGMS; [35])	2	.875
Habit	Digital Games Motivation Scale (DGMS; [35])	2	.930
Relaxing	Motivation to play [36]	1	Not reported

TABLE 1: Continued.

Motivation type	Measure (references)	Studies using it	Reliability
Philanthropist	Gamification User Types Hexad Scale [44]	1	.893
Free spirit	Gamification User Types Hexad Scale [44]	1	.723
Disruptor	Gamification User Types Hexad Scale [44]	1	.738
Player	Gamification User Types Hexad Scale [44]	1	.698
Hi-tech	Ad Hoc Uses and Gratification Questionnaire [47]	1	.81
Ego	Ad Hoc Uses and Gratification Questionnaire [47]	1	.89
Realism	Ad Hoc Uses and Gratification Questionnaire [47]	1	.84
Manipulation	Ad Hoc questionnaire about MMORPGs' motivations [25]	1	.73

glossary is also present in the appendix to give the definition of each measured motivation.

*3.1.2. Geographical Areas of the Investigated Sample.* Given the fact that the majority of these studies wanted to analyze motivations in a gamer sample that could be as representative as possible of the existing online communities, and most of the included papers in this systematic review ( $n = 21$ ) recruited their sample online through the Internet or other sampling methods. Still, the other studies recruited them through schools or via other methods and, as such, obtained results that are highly specific for certain countries. While considering that two studies [27, 50] sought to compare gamers from different geographical areas, specifically Hong Kong and Taiwan [27] and Germany, Singapore, and the United States [50], the distribution of the used samples is as follows: United States ( $k = 10$ ), Spain ( $k = 5$ ), Malaysia ( $k = 4$ ), Germany ( $k = 3$ ), Turkey ( $k = 3$ ), China ( $k = 2$ ), Norway ( $k = 1$ ), Netherlands ( $k = 1$ ), Singapore ( $k = 1$ ), Hungary ( $k = 1$ ), Belgium ( $k = 1$ ), Australia ( $k = 1$ ), Hong Kong ( $k = 1$ ), Canada ( $k = 1$ ), and Perú ( $n = 1$ ).

*3.1.3. Age Clusters of the Samples.* Gaming is generally considered as an activity majorly done by young people, even though this phenomena is largely changing thanks to smartphone games. Furthermore, it is worth taking into consideration the fact that almost all the samples were recruited either online or through college and schools; thus, there might be a bias in the sampling method. While keeping this in mind, 45 of the sample were put in the cluster called “young people,” which defines a sample with a distribution of the mean age that falls between 18 and 35 ( $k = 45$ ). The second cluster is composed of “underaged” samples; 5 were the samples whose mean of age was under 18 ( $k = 5$ ). In addition, it is necessary to clarify that 5 papers did not report any mean of age but just the age range [47, 51–54], and 3 did not specify the distribution of the age neither with the mean nor the range [26, 30, 55], even if, regarding the paper done by Ryan et al. [30], this can be applied only for the first study that they included in their research. The third cluster, the “adult sample” whose mean of age was above 35, is composed of only two samples ( $k = 2$ ).

Eventually, there is a side note to better explain the higher number of samples if compared to the numbers of papers. Six

papers used more than one sample and divided them based on defined variables ( $n = 6$ ). Wohn et al. [43] divided the two samples based on the game they played, thus writing more than one mean age, the MMO one belonging to the cluster of young age, while social network one belonging to the adult sample; Ratan et al. [50] also had three samples divided based on the country where they collected the data from (Germany, Singapore and the United States) with all of them belonging to the young sample; Sherry et al. [29] used five samples recruited from different school grades; the same goes for the study done by Greenberg et al. [47] which used also five samples coming from different school grades, but in the latter case, no means of age were given: finally, the study done by López-Fernández et al. [28] also used two sample of young players, one underage and one of young adults.

*3.1.4. Theoretical Metamodel to Interpret the Results in Literature.* While keeping in mind the heterogeneity of the current literature and its few existing and important models about gaming motivation, we tried to clusterize all the evidence gathered by researchers by putting them inside a new metamodel, mostly data-driven (Figure 2). This model could be considered inspired by Lewin’s field theory [56]. Behaviours are just a function of the interaction between people (and their psychological aspects) and the environment they are put in. Moreover, Maslow’s theory [57] showed that all human beings act to satisfy not only their physiological needs but also their psychological ones (e.g., relatedness, competence, and self-realization). People are motivated to do something because they have a psychological drive (or need) that pushes them towards that direction. These needs can be considered primordial in terms of human nature, but some of them are the creation of being born and belonging to a certain cultural context and a certain society. Basically, our metamodel can be divided in more layers, and it suggests that motivation can be put on a psychological level together with other theoretical (e.g., online self-worth; [58]) and empirical factors. The “psychological layer,” specifically motivation, can have an influence on the behaviours present in the “behavioral layer.” This direct relationship is moderated by the elements of the “socio-demographic layer,” which can also have a direct effect on the other two single-layers. As an example, younger people, especially students, have more free time compared to

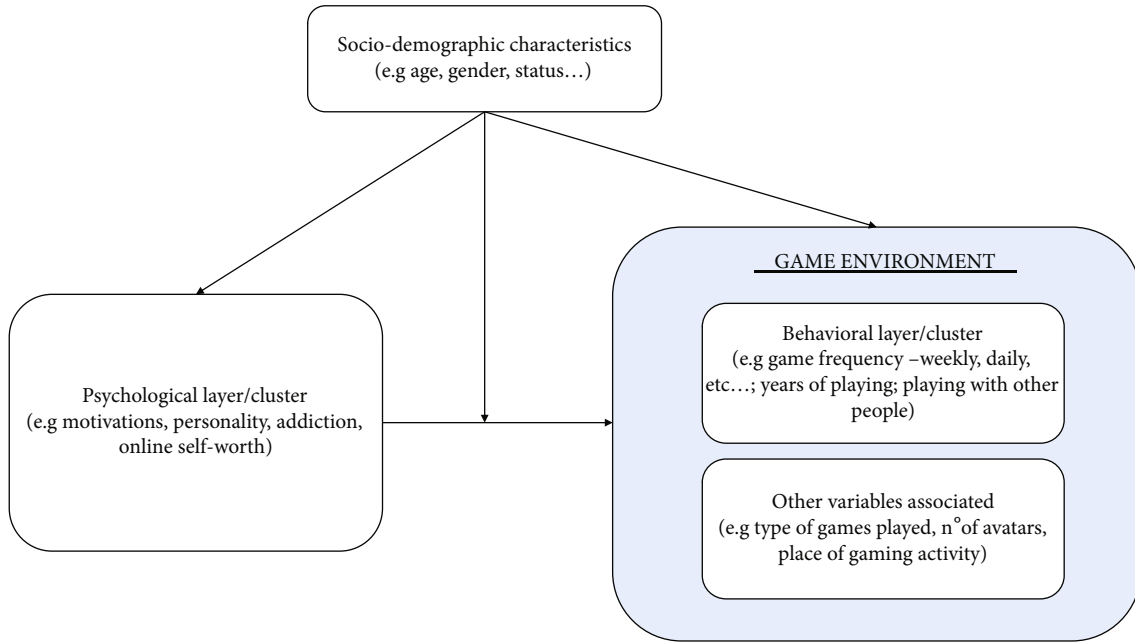


FIGURE 2: Theoretical metamodel suggested to understand how each cluster is connected to each other.

adults, and consequently, this means that this time could be spent in playing video games (i.e., behaviour) making their gaming motivation higher and specific (i.e., psychological). Another example, being a male player in a certain culture can determine different needs and motivations for playing as also different behaviours in the context they are in. According to data gathered by ESA [59], boys in the U.S prefer to play with other people, to have fun with a preference for sports and shooter and RPG games; girls prefer to play to relax and unwind on their own with a preference for puzzle games. Statistics showed that different countries tend to like different types of games, and this implies that different cultures may have an influence on gender and age preferences in terms of games and motivation. As an example, Japanese people seem to prefer life simulators or RPG [60], Italian people prefer sport and competitive games such as FIFA [61, 62], while Americans prefer shooter games [59, 63]. Even the places where games gather to play might be different depending on culture and context. For instance, Internet cafés (places where gamers can play online games through a rented pc) are extremely popular in medio-oriental and oriental countries (e.g., China and Turkey; [64–66]) but less popular in European countries, and they are mainly frequented by students. Therefore, the place where people can gather to share a common interest can have an impact on which type of game is the most popular and played in a country.

**3.1.5. Investigated Variables.** Gaming motivation is a multidisciplinary topic that can be covered by a wide variety of academic fields (e.g., marketing, business, cyber environments, psychology, and medicine), and, as such, there is a great variety of variables investigated.

The first group is labeled as “sociodemographic variables,” and the two main investigated ones are gender

( $n = 22$ ) and age ( $n = 15$ ), directly followed by status/occupation (e.g., being a worker, a student, and being married) ( $n = 4$ ) and self description as a gamer or not ( $n = 3$ ). Fewer studies also investigated the relation to spoken language [67], ethnicity [68], and the type of household [36].

The second group can be called “behavioral variables” since it focuses on specific behaviours associated with gaming motivations. Of this entire group, only one variable was investigated frequently, and it was gaming frequency ( $n = 22$ ), also called weekly gaming in some papers. Other analyzed behaviours were as follows: “years of playing” ( $n = 5$ ), sometimes also called “gaming experience”, which defines the years that participants spent playing a specific game or gaming; “daily play time” ( $n = 6$ ), which are the hours spent playing per day or the average longest game session in hours in a day, and “playing or talking with other people” ( $n = 5$ ); four variables were investigated just a couple of times: “future play” ( $n = 2$ ) defines as how much the participants were willing to keep playing the game; “time spent playing in the weekend” ( $n = 2$ ); “players behavior in World of Warcraft” ( $n = 2$ ), where the studies assessed an ensemble of specific actions done in World of Warcraft. Lastly, the following variables were assessed just one time: “Gaming duration” [69], intended as the longest gaming session the player ever had; “Pay to play” [70], which defines the money spent to play the game; “Daily usage of Information and Communication Technologies” [54]; “Continued play” [30], intended as the intentional behaviour of keep playing the same game”; “gaming during spare time” [34]; progression game, intended as a specific index calculated by the game [71]; “days played” [46].

The third group gathers all the variables associated with psychological aspects, and, as such, it is named “psychological variables.” Gaming addiction ( $n = 17$ ) was the main



investigated association in many papers. The second most assessed one was personality traits ( $n = 6$ ). All the others were assessed either a couple of times or just one single time, meaning that they might need more research. Specifically, the five variables investigated only two times are as follows: need for cognition ( $n = 2$ ), the three psychological needs of the Self-Determination Theory [31, 72] ( $n = 2$ ), loneliness ( $n = 2$ ), values [38, 55], and enjoyment ( $n = 2$ ). As already stated before, all the left variables in this group were investigated each one only by one paper, and it includes a great variety of psychological aspects. Regarding the topic of self-esteem, one paper in particular [58] investigated gaming motivations to assess the construct of “Online Self Worth” by creating a specific scale, while the other paper [30] simply assessed self-esteem with an already existent tool. The remaining studies of this group focused on the association between gaming motivations and avatar identification [73], loss of control [41], boredom [41], success for gaming intended as ego or task-oriented scores in games [45], willingness to change gaming habits [70], passion [74], the flow state while playing the game [75], status seeking in games [75], attitude towards online games [55], emotional intelligence [53], personal gender variables attributes such as having negative masculine attributes or positive feminine attributes [76], social capital [48], life satisfaction [48], physical presence [46], self expansion [51], self-described attitude [34], mood [30], and self engulfment [51].

The fourth, and last, group is composed of “variables associated to the Gaming environment” that do not fit any group mentioned above since they relate to game aspects or particular settings where the gamers play their games. The genre of game played (e.g., MMORPG, action, FPS, and MMO) was taken into consideration the most times with 7 studies, while style of play (e.g., playing PvP or playing solo) was assessed in two papers. The following ones were instead analyzed each one only by one paper: place where the game is played (Internet café or home) [71], type of server used [105], gaming platform used [137], physical health related to Pokémon Go [48], and the number of avatars possessed [33]. All statistical results are reported in Table 2.

**3.1.6. Game Assessed in the Papers.** Among the 53 studies, 18 did not specify what type of genre or games they were doing their research on, and 6 stated that they investigated players that play more than one genre. 14 of the papers specifically addressed gaming motivations associated with the MMORPG genre, while the MOBA genre was considered by 4 papers. MMO was the main topic of only 4 papers. Games are also getting extremely popular on smartphones, as such 3 papers assessed motivation for playing smartphone games specifically. The following genres or games were very specific or niche, and, as such, each one was addressed by just one paper: Pokémon Go [48], social network games [43], Esport games [122], Ubisoft games [46], Travian [39], and Super Mario 64 [30]. To be more precise, the study done by Ryan et al. [30] was composed of more studies, and each one focused on a different game. This PRISMA review included the first one, which used Super Mario 64, and the fourth one, which used

MMO players. Wohn et al. [43] also compared two different samples of gamers: social network and MMO players.

**3.2. Study Results.** The following sections will present the results of each group of identified variables: “sociodemographic variables,” “behavioural variables,” “psychological variables,” and “other variables”. Each variable was analyzed through different statistical methods, and the results will be reported according to what was obtained through them. Only robust results (i.e., observed in more than one study) will be reported in this section; therefore, those results obtained just one time will be reported only in Tables 2 and 3, while the main findings are reported in the 3 in the appendix.

**3.2.1. Results Related to the Sociodemographic Variables.** Gender was the most investigated variable of the sociodemographic group of variables ( $n = 22$ ). Six studies ( $n = 6$ ) used the  $F$  of Fisher to compare the gender groups, while 6 studies ( $n = 6$ ) used  $t$ -test. Three studies ( $n = 3$ ) used Pearson’s  $r$  to study the correlation between gender and gaming motivations. Three studies used multiple linear regression ( $n = 3$ ), 2 reported the results by using the  $d$  of Cohen ( $n = 2$ ), and the last 3 used Path Analysis/Structural Equation Modeling ( $n = 3$ ).

Two studies confirmed that male players show higher results on intrinsic motivation, integrated regulation, identified regulation, and external regulation [70, 116], with one study also affirming that males score higher on introjected regulation as well [70]. One study [43] found a significant gender effect only for external regulation motivation where female players of both social network gamers and MMO players reported higher levels if compared to males.

As for the other studies assessing gender related to motivations not related to the external and internal motivation framework of interpretation (other researchers used dimensions such as as competition and social), 6 studies found that, in general, males score higher than females in all or almost all game motivations [28, 29, 38, 47, 50, 54], even though Demetrovics et al. [22] found contradicting results showing that women tend to score higher on recreation, social, coping, fantasy, skill development, and escape except competition. In fact, 5 studies confirmed that female players tend to score higher than males on the relationship motivation [22, 25–27, 67], 3 studies found that females score higher on social motivation [22, 29, 47], 3 studies found that females score higher on escapism [22, 25, 67], and 2 on fantasy [22, 67]. The study made by Yee [26] found no gender differences regarding the social component, implying that male players socialize just as much as female players. Only 2 studies found that males score higher than females on escapism [36, 54]. Billieux et al. [71] found that women showed greater interest in discovery and exploration, at least in *WoW*. Yee [25] also observed that females had higher scores on immersion motivation.

Greenberg et al. [47] found that both sexes tend to play for competition and challenge purposes. 9 studies confirmed that male tend to score higher on the competition motivation [22, 26–28, 38, 39, 47, 67, 71], with the exception of Greenberg et al. [44] who found a peculiarity with 5th grade

TABLE 2: Main characteristics of the studies included reference, sample size, gender distribution, age mean/age distribution, country where the data were collected, motivation dimensions and motivation measures used, gaming dimensions/variable and gaming description/instrument used, and main results.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/variable	Gaming-related measure/variable description	Results
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Socialization	Online Gaming Motivation Scale (MPOGQ; [26])	Competition focused	Gaming Online Self Worth [58].	$r = .30, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Socialization	Online Gaming Motivation Scale (MPOGQ; [26])	Validation seeking	Gaming Online Self Worth [58].	$r = .29, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Socialization	Online Gaming Motivation Scale (MPOGQ; [26])	Reward Orientation	Gaming Online Self Worth [58].	$r = .39, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Socialization	Online Gaming Motivation Scale (MPOGQ; [26])	Detached	Gaming Online Self Worth [58].	$r = -.05, (n.s)$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Immersion	Online Gaming Motivation Scale (MPOGQ; [26])	Competition focused	Gaming Online Self Worth [58].	$r = .30, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Immersion	Online Gaming Motivation Scale (MPOGQ; [26])	Validation seeking	Gaming Online Self Worth [58].	$r = .21, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Immersion	Online Gaming Motivation Scale (MPOGQ; [26])	Reward Orientation	Gaming Online Self Worth [58].	$r = .35, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Immersion	Online Gaming Motivation Scale (MPOGQ; [26])	Detached	Gaming Online Self Worth [58].	$r = -.04$ (n.s)
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Achievement	Online Gaming Motivation Scale (MPOGQ; [26])	Competition focused	Gaming Online Self Worth [58].	$r = .36, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Achievement	Online Gaming Motivation Scale (MPOGQ; [26])	Validation seeking	Gaming Online Self Worth [58].	$r = .27, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Achievement	Online Gaming Motivation Scale (MPOGQ; [26])	Reward orientation	Gaming Online Self Worth [58].	$r = .29, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Achievement	Online Gaming Motivation Scale (MPOGQ; [26])	Detached	Gaming Online Self Worth [58].	$r = -.08, p < .05$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Competition focused	Gaming Online Self Worth [58].	$r = .52, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Validation seeking	Gaming Online Self Worth [58].	$r = .52, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Reward Orientation	Gaming Online Self Worth [58].	$r = .46, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Detached	Gaming Online Self Worth [58].	$r = -.13, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Competition focused	Gaming Online Self Worth [58].	$r = .21, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Validation seeking	Gaming Online Self Worth [58].	$r = .45, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Reward Orientation	Gaming Online Self Worth [58].	$r = .55, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Detached	Gaming Online Self Worth [58].	$r = -.08$ (n.s)
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Competition focused	Gaming Online Self Worth [58].	$r = .56, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Validation seeking	Gaming Online Self Worth [58].	$r = .72, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Reward Orientation	Gaming Online Self Worth [58].	$r = .31, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Detached	Gaming Online Self Worth [58].	$r = -.15, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Competition focused	Gaming Online Self Worth [58].	$r = .52, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Validation seeking	Gaming Online Self Worth [58].	$r = .40, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Reward orientation	Gaming Online Self Worth [58].	$r = .41, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Detached	Gaming Online Self Worth [58].	$r = -.11, p < .05$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Competition focused	Gaming Online Self Worth [58].	$r = .22, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Validation seeking	Gaming Online Self Worth [58].	$r = .38, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Reward orientation	Gaming Online Self Worth [58].	$r = .01, p < .01$
Beard & Wickham [58].	600	401 (65.0%) M 199 (32.7%) F	30.16, SD =9.15	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Detached	Gaming Online Self Worth [58].	$r = .03$ (n.s)
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .19, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .31, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .25, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .29, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .28, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Gaming frequency	Hours played per week	$r = .12$ (n.s)
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = .56, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = .25, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = .32, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = .05$ (n.s)
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = .29, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Autonomy	PENS [30]	$r = -.16, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r = .47, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r =-.21, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Identified regulation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r =.24, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r =.00$ (n.s)
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r =.21, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Competence	PENS [30]	$r =-.13, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r =.18, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r =.19, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Integrated regulation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r =.21, p < .05$
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	Introjected regulation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r =.04$ (n.s)
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD =8.26	Online	External regulation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r =.29, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Lafrenière et al. [32].	276	193 M 83 F	26.15, SD = 8.26	Online	Amotivation	Gaming Motivation Scale (GAMS; [32])	Relatedness	PENS [30]	$r = .28, p < .05$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Hours gaming	Average number of hours gaming during a typical week	$r = -.449, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Social	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Hours gaming	Average number of hours gaming during a typical week	$r = .069, p < .05$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Hours gaming	Average number of hours gaming during a typical week	$r = .393, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Self gratification	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Hours gaming	Average number of hours gaming during a typical week	$r = .325, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Gaming Motive Questionnaire (EGMQ, [41])	Gaming problems	Gaming Addiction Scale (GAS, [77])	$r = .365, p < .001$ $\beta = .43, p < .001$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Self gratification	Gaming Motive Questionnaire (EGMQ, [41])	Gaming problems	Gaming Addiction Scale (GAS, [77])	$r = .592, p < .01$ $\beta = .25, p < .001$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Gaming problems	Gaming Addiction Scale (GAS, [77])	$r = .434, p < .05$ $\beta = .03 (n.s)$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Social	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Gaming problems	Gaming Addiction Scale (GAS, [77])	$r = .365, p < .01$ $\beta = 0.04$ (n.s)
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Loss of control	Authors asked three self - reported item about losing control while gaming	$r = -.281, p < .01$ $\beta = .25, p < .001$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Loneliness	UCLA Loneliness scale [78]	$r = .062$ (n.s) $\beta = 0.30$ (n.s)
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Social	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Loneliness	UCLA Loneliness scale [78]	$r = .035$ (n.s) $\beta = 0.20$ (n.s)
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Loneliness	UCLA Loneliness scale [78]	$r = .248, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Gratification	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Loneliness	UCLA Loneliness scale [78]	$r = .180, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Social	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of external stimulation)	Boredom Proneness Scale - Short Form (BPS - SF, Vodanovich, Wallace, Kass)	$r = .093, p < .01$ $\beta = -.079, p < .05$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of external stimulation)	Boredom Proneness Scale-Short Form (BPS-SF, Vodanovich, Wallace, Kass)	$r = .130, p < .01$ $\beta = .113, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Enhancement	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of internal stimulation)	Boredom Proneness Scale-Short Form (BPS-SF, Vodanovich, Wallace, Kass)	$r = -.092, p < .01$ $\beta = .110, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of external stimulation)	Boredom Proneness Scale-Short Form (BPS-SF, Vodanovich, Wallace, Kass)	$r = .188, p < .01$ $\beta = .110, p < .01$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Coping	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of internal stimulation)	Boredom Proneness Scale-Short Form (BPS-SF, Vodanovich, Wallace, Kass)	$r = -.017$ (n.s) $\beta = .080, p < .05$
Myrseth et al. [41].	853	740 (86.8%) M 113 (19.7%) F	19.4, SD = .09	Norway	Self gratification	Electronic Gaming Motive Questionnaire (EGMQ, [41])	Boredom (lack of internal stimulation)	Boredom Proneness Scale-Short Form (BPS-SF, Vodanovich, Wallace, Kass)	$r = -.103, p < .01$ $\beta = .168, p < .001$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD = 7.72, 18-65	Online	Competition	Electronic Gaming Motive Questionnaire (EGMQ, [41]) MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = -.40, p < .05,$ $t = -6.90, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD = 7.72, 18-65	Online	Fantasy	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .22, p < .05,$ $t = 3.79, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD = 7.72, 18-65	Online	Story	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .22, p < .05,$ $t = 3.70, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Escapism	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .27, p < .05,$ $t = 4.50, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Customization	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .65, p < .05,$ $t = 11.20, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Grinding/ Competition	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .40, p < .05,$ $t = 6.76, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Relationship	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Gender	Female or male	$\beta = .39, p < .05,$ $t = 6.57, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Fantasy	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Language spoken	Native English or not	$\beta = .23, p < .05,$ $t = 5.48, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Escapism	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Language spoken	Native English or not	$\beta = .24, p < .05,$ $t = 5.65, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Competition	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.02, p < .05,$ $t = -9.09, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Fantasy	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.02, p < .05,$ $t = -5.87, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Arousal	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.01, p < .05,$ $t = -5.15, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Story	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.02, p < .05,$ $t = -8.12, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Escapism	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.01, p < .05,$ $t = -3.51, p < .05$
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Customization	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.02, p < .05,$ $t = -8.06, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Tekofsky et al. [67]	2400	2073 M 327 F	26.17, SD=7.72, 18-65	Online	Relationships	MOPG [26], GAMES [34], Video Game Uses, and Gratifications Instrument [29]	Age	Participants were asked of their age	$\beta = -.01, p < .05,$ $t = -5.21, p < .05$
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Escape	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 6.746, p < .001,$ mean (m =1.86, sd =0.97, f =2.29 sd =0.98)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Competition	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 10.900, p < .001,$ mean (m =2.47, sd =1.19, f =1.87, sd =0.98)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Coping	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 2.124, p < .05,$ mean (m =2.48, sd =1.08, f =2.61, sd =1.01)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Social	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 5.357, p < .001,$ mean (m =3.00, sd =1.21, f =3.35, sd =1.18)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Fantasy	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 7.244, p < .001,$ mean (m =2.28, sd =1.11, f =2.78, sd =1.24)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Recreation	Motive for Online Gaming Questionnaire (MOGQ; [22])	Gender	Female or male	$t = 4.400, p < .001,$ mean (m =4.10, sd =0.93, f =4.30 sd =0.82)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD=5.81, 19- 24	Online	Escape	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14- 17, (b) 18-21, and (c) 22-54	$F = 9.719, p < .001;$ mean (a =1.99, sd =1.07; b =1.91, sd =.98; c =1.82, sd =.93)

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Competition	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=31.527, p < .001$ ; mean (a =2.60, sd =1.24; b =2.43, sd =1.19; c =2.23, sd =1.09)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Coping	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=19.595, p < .001$ ; mean (a =2.62, sd =1.16; b =2.52, sd =1.07; c =2.36, sd =.98)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Social	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=17.327, p < .001$ ; mean (a =3.18, sd =1.23; b =3.02, sd =1.19; c =2.89, sd =1.20)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Fantasy	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=17.788, p < .001$ ; mean (a =2.47, sd =1.16; b =2.32, sd =1.14, (c) =2.20, sd =1.08)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Recreation	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=11.386, p < .001$ ; mean (a =4.03, sd =1.00; b =4.12, sd =0.91; c =4.21, sd =0.86)
Demetrovics et al. [22].	3818	3459 (90.6%) M 359 (9.4%) F	20.9, SD =5.81, 19-24	Online	Skill development	Motive for Online Gaming Questionnaire (MOGQ; [22])	Age	three groups: (a) 14-17, (b) 18-21, and (c) 22-54	$F=13.867, p < .001$ ; mean (a =2.34, sd =1.17; b =2.29, sd =1.14; c =2.12, sd =1.11)
Kuss et al. [79].	265	189 M 76 F	21, SD =6.5	Netherlands	Relationship	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Weekly gaming	Hours played per week	$r =.459, p < .05$
Kuss et al. [79].	265	189 M 76 F	21, SD =6.5	Netherlands	Advancement	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Weekly gaming	Hours played per week	$r =.230, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Kuss et al. [79].	265	189 M 76 F	21, SD = 6.5	Netherlands	Escapism	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Weekly gaming	Hours played per week	$r = .437, p < .05$
Kuss et al. [79].	265	189 M 76 F	21, SD = 6.5	Netherlands	Mechanism	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Weekly gaming	Hours played per week	$r = .417, p < .05$
Kuss et al. [79].	265	189 M 76 F	21, SD = 6.5	Netherlands	Competition	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Weekly gaming	Hours played per week	$r = .340, p < .05$
Kuss et al. [79].	265	189 M 76 F	21, SD = 6.5	Netherlands	Escapism	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Excessive Gaming	Problem Video Game Playing Questionnaire (PVP, [80])	$\beta = .35, p < .05$
Kuss et al. [79].	265	189 M 76 F	21, SD = 6.5	Netherlands	Mechanism	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Excessive Gaming	Problem Video Game Playing Questionnaire (PVP, [80])	$\beta = .21, p < .05$
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Gender	Female or male	$r = -.335, p < .01,$ $\beta = -.16, 594;$ $F = 7.291, p < .01$
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Need for cognition	Need for cognition (NFC, [81])	$r = .168, p < .05$
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Ego Orientation Scores	Success for Gaming Scale (TEOSQ modified, [82])	$r = .264, p < .01$
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Task Orientation Scores	Success for Gaming Scale (TEOSQ modified, [82])	$r = .266, p < .01,$ $\beta = 1.044; F = 4.355,$ $p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Play with others	Ad hoc item created by the authors	$r = .345, p < .01,$ $\beta = 5.256; F = 5.613,$ $p < .05$
Hoffman & Nadelson [45].	189	47 (24.7%) M 142 (75.3%) F	24.4, SD = 6.19	United States	Engagement	Video Game Play [45]	Hours of play	Hours played weekly	$r = .198, p < .01,$ $\beta = 3.213;$ $F = 61.375, p < .001$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean ( $F = 3.63,$ $sd = 1.84; M = 4.30,$ $sd = 1.73$ ), $F = 9.545, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean ( $F = 2.54,$ $sd = 1.86; M = 3.51,$ $sd = 1.89$ ), $F = 17.641, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean ( $F = 2.71,$ $sd = 1.74; M = 3.42,$ $sd = 1.81$ ), $F = 10.387, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean ( $F = 2.95,$ $sd = 1.74; M = 3.76,$ $sd = 1.81$ ), $F = 13.275, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean ( $F = 2.49,$ $sd = 1.68; M = 3.65,$ $sd = 1.85$ ), $F = 26.429, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gameplay time	Duration of gameplay in years (more than 4 y; less than 3 y)	Mean ( $<3 = 3.53,$ $sd = 1.60; >4 = 4.54,$ $sd = 1.79$ ), $F = 27.734, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gameplay time	Duration of gameplay in years (more than 4 y; less than 3 y)	Mean ( $<3 = 2.67,$ $sd = 1.60; >4 = 3.66,$ $sd = 2.03$ ), $F = 22.253, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gameplay time	Duration of gameplay in years (more than 4 y; less than 3 y)	Mean ( $<3 = 2.76,$ $sd = 1.53; >4 = 3.56,$ $sd = 1.93$ ), $F = 16.093, p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gameplay time	Duration of gameplay in years (more than 4 y; less than 3 y)	Mean ( $<3 = 3.08,$ $sd = 1.56; >4 = 3.86,$ $sd = 1.93$ ), $F = 15.554, p < .05$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Gameplay time	Duration of gameplay in years (more than 4y; less than 3y)	Mean (<3 = 2.89, sd = 1.59; >4 = 3.66, sd = 2.02), F = 13.727, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 4.60, sd = 1.66; N = 3.48, sd = 1.75), F = 35.375, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 3.79, sd = 1.89; N = 2.53, sd = 1.75), F = 37.860, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 3.72, sd = 1.76; N = 2.57, sd = 1.67), F = 36.382, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 4.11, sd = 1.75; N = 2.77, sd = 1.63), F = 50.131, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 3.84, sd = 1.83; N = 2.67, sd = 1.77), F = 34.020, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Amotivation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Internet game play (yes or no)	Mean (Y = 3.65, sd = 1.75; N = 3.11, sd = 1.65), F = 8.241, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Console gameplay (yes or no)	Mean (Y = 4.84, sd = 1.70; N = 3.77, sd = 1.72), F = 28.404, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Console gameplay (yes or no)	Mean (Y = 3.99, sd = 1.96; N = 2.88, sd = 1.80), F = 26.489, <i>p</i> < .05
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Console gameplay (yes or no)	Mean (Y = 3.84, sd = 1.90; N = 2.93, sd = 1.69), F = 19.638, <i>p</i> < .05

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Console gameplay (yes or no)	Mean (Y = 4.47, sd = 1.94; N = 3.08, sd = 1.58), F = 48.704, $p < .05$ Mean (Y = 4.09, sd = 1.95; N = 2.97, sd = 1.75), F = 28.194, $p < .05$ Mean (Y = 4.46, sd = 1.81; N = 3.54, sd = 1.60), F = 21.729, $p < .05$ Mean (Y = 3.56, sd = 2.02; N = 2.72, sd = 1.63), F = 15.411, $p < .05$ Mean (Y = 3.47, sd = 1.89; N = 2.83, sd = 1.60), F = 9.635, $p < .05$ Mean (Y = 3.96, sd = 1.91; N = 2.82, sd = 1.42), F = 33.260, $p < .05$ Mean (Y = 3.60, sd = 1.99; N = 2.90, sd = 1.62), F = 10.947, $p < .05$ Mean (Y = 4.78, sd = 1.86; N = 3.61, sd = 1.55), F = 38.470, $p < .05$ Mean (Y = 3.98, sd = 2.11; N = 2.68, sd = 1.55), F = 41.607, $p < .05$ Mean (Y = 3.75, sd = 1.98; N = 2.83, sd = 1.56), F = 22.336, $p < .05$
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Console gameplay (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Mobile game play (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Mobile game play (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Mobile game play (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Mobile game play (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External Regulation	Gaming Motivation Scale (GAMS, [32])	Gaming platform	Mobile game play (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Pay to play	Money spent or buy an item (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Pay to play	Money spent or buy an item (yes or no)	
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Pay to play	Money spent or buy an item (yes or no)	

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Pay to play	Money spent or buy an item (yes or no)	Mean (Y = 4.22, sd = 1.91; N = 3.01, sd = 1.57), F = 39.867, $p < .05$ Mean (Y = 4.03, sd = 1.93; N = 2.80, sd = 1.68), F = 38.091, $p < .05$ Mean (A = 3.47, sd = 1.65; B = 4.28, sd = 1.61; C = 5.02, sd = 1.94), F = 19.059, $p < .01$ ; post hoc: C > B > A Mean (A = 2.73, sd = 1.69; B = 3.23, sd = 1.76; C = 4.28, sd = 2.29), F = 14.802 $p < .01$ ; post hoc: C > B, C > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Pay to play	Money spent or buy an item (yes or no)	Mean (A = 2.73, sd = 1.73; B = 3.19, sd = 1.59; C = 3.87, sd = 2.25), F = 5.890 $p < .01$ ; post hoc: C > B, C > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 2.89, sd = 1.73; B = 3.78, sd = 1.61; C = 4.23, sd = 2.07), F = 14.818 $p < .01$ ; post hoc: C > A, B > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 2.73, sd = 1.78; B = 3.67, sd = 1.79; C = 3.77, sd = 2.04), F = 10.885 $p < .01$ ; post hoc: C > A, B > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 2.73, sd = 1.73; B = 3.19, sd = 1.59; C = 3.87, sd = 2.25), F = 5.890 $p < .01$ ; post hoc: C > B, C > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 2.89, sd = 1.73; B = 3.78, sd = 1.61; C = 4.23, sd = 2.07), F = 14.818 $p < .01$ ; post hoc: C > A, B > A
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 2.73, sd = 1.78; B = 3.67, sd = 1.79; C = 3.77, sd = 2.04), F = 10.885 $p < .01$ ; post hoc: C > A, B > A

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Amotivation	Gaming Motivation Scale (GAMS, [32])	Duration of longest playing time	In hours: (a) < 2 h, (b) 3-6 h, (c) > 7 h	Mean (A = 3.46, sd = 1.75; B = 3.68, sd = 1.64; C = 2.78, sd = 1.72), F = 6.313 $p < .01$ ; post hoc: A > C, B > C  Mean (Y = 3.17, sd = 1.59; M = 3.95, sd = 1.80; N = 4.56, sd = 1.70), F = 16.327, $p < .01$ ; post hoc: N > M > Y
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 2.38, sd = 1.51; M = 2.89, sd = 1.85; N = 3.75, sd = 1.95), F = 15.308, $p < .01$ ; post hoc: N > M, N > Y
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 2.46, sd = 1.41; M = 2.85, sd = 1.59; N = 3.70, sd = 1.70), F = 14.834, $p < .01$ ; post hoc: N > M, N > Y
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 2.83, sd = 1.69; M = 3.23, sd = 1.71; N = 3.95, sd = 1.83), F = 11.357, $p < .01$ ; post hoc: N > M, N > Y
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 2.79, sd = 1.72; M = 2.88, sd = 1.80; N = 3.77, sd = 1.90), F = 10.323, $p < .01$ ; post hoc: N > M, N > Y
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	External regulation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 2.79, sd = 1.72; M = 2.88, sd = 1.80; N = 3.77, sd = 1.90), F = 10.323, $p < .01$ ; post hoc: N > M, N > Y

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Osman & Çirak [70].	330	257 (73.2%) M 94 (26.8%) F	22.42, SD = 11.92, 18-34	Turkey	Amotivation	Gaming Motivation Scale (GAMS, [32])	Willingness to change gaming habits	Willing to change (yes, maybe, no)	Mean (Y = 4.15, sd = 1.80; M = 3.17, sd = 1.52; N = 3.27, sd = 1.73), F = 7.681, $p < .01$ ; post hoc: $Y > M$ , $Y > N$
Fam et al. [83].	614	285 (46.4%) M 329 (53.6%) F	15.36, SD = 1.275, 12-18	Malaysia	Social	Online Gaming Motivation Scale [27]	Gaming disorder	Problem Videogame Playing (PVP) Scale [84]	$\beta = .098, p < .05$
Fam et al. [83].	614	285 (46.4%) M 329 (53.6%) F	15.36, SD = 1.275, 12-18	Malaysia	Immersion	Online Gaming Motivation Scale [27]	Gaming disorder	Problem Videogame Playing (PVP) Scale [84]	$\beta = .129, p < .01$
Fam et al. [83].	614	285 (46.4%) M 329 (53.6%) F	15.36, SD = 1.275, 12-18	Malaysia	Achievement	Online Gaming Motivation Scale [27]	Gaming disorder	Problem Videogame Playing (PVP) Scale [84]	$\beta = .166 < p < .01$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Integrated - Identified regulation	Gaming Motivation Scale (GAMS, [32])	Problematic video gaming	Gaming Disorder Scale (IDGS; [86])	$r = .38, p < .001$ , $\beta = .11, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Problematic video gaming	Gaming Disorder Scale (IDGS; [86])	$r = .65, p < .001$ , $\beta = .36, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	External regulation	Gaming Motivation Scale (GAMS, [32])	Problematic video gaming	Gaming Disorder Scale (IDGS; [86])	$r = .36 < p < .001$ , $\beta = .11, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Amotivation	Gaming Motivation Scale (GAMS, [32])	Problematic video gaming	Gaming Disorder Scale (IDGS; [86])	$r = .48, p < .001$ , $\beta = .23, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Competence frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .35, p < .001$ , $\beta = .28, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Autonomy frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .33, p < .001,$ $\beta = .23, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Relatedness frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .28, p < .001,$ $\beta = .19, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Amotivation	Gaming Motivation Scale (GAMS, [32])	Competence frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .29, p < .001,$ $\beta = .16, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Amotivation	Gaming Motivation Scale (GAMS, [32])	Autonomy frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .31, p < .001,$ $\beta = .20, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Amotivation	Gaming Motivation Scale (GAMS, [32])	Relatedness frustration	Psychological Need Thwarting Scale (PNTS, [87])	$r = .27, p < .001,$ $\beta = .18, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Integrated - Identified regulation	Gaming Motivation Scale (GAMS, [32])	Hours gaming	Hours played per week	$r = .36, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Hours gaming	Hours played per week	$r = .24, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	External regulation	Gaming Motivation Scale (GAMS, [32])	Hours gaming	Hours played per week	$r = .19, p < .001$
Mills et al. [85].	1029	749 (72.8%) M 280 (27.2%) F	22.96, SD = 4.13, 18-35	Online	Amotivation	Gaming Motivation Scale (GAMS, [32])	Hours gaming	Hours played per week	$r = .12, p < .001$
T'ng & Pau [73].	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Achievement	Online Motivation Gaming Scale [26]	Avatar identification	The Player-Avatar Identification Scale [88]	$\beta = .173, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
T'ng & Pau [73]	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Social	Online Motivation Gaming Scale [26]	Avatar identification	The Player-Avatar Identification Scale [88]	$\beta = .085, p < .05$
T'ng & Pau [73]	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Immersion	Online Motivation Gaming Scale [26]	Avatar identification	The Player-Avatar Identification Scale [88]	$\beta = .460, p < .05$
T'ng & Pau [73]	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Achievement	Online Motivation Gaming Scale [26]	Internet gaming disorder	Internet Gaming Disorder Scale- Short Form (IGDS9-SF, [89])	$\beta = .107, p < .05$
T'ng & Pau [73]	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Social	Online Motivation Gaming Scale [26]	Internet gaming disorder	Internet Gaming Disorder Scale- Short Form (IGDS9-SF, [89])	$\beta = -.273, p < .05$
T'ng & Pau [73]	1075	808 (75.20%) M 267 (24.80%) F	22.19, SD = 3.30, 18-29	Malaysia	Immersion	Online Motivation Gaming Scale [26]	Internet gaming disorder	Internet Gaming Disorder Scale- Short Form (IGDS9-SF, [89])	$\beta = .366, p < .05$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27]).	Internet gaming disorder	Internet Gaming Disorder Test-10 (IGDT-10; [90])	$\beta = .21, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Internet gaming disorder	Internet Gaming Disorder Test-10 (IGDT-10; [90])	$\beta = .07, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Internet gaming disorder	Internet Gaming Disorder Test-10 (IGDT-10; [90])	$\beta = .06, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Age	Participants were asked of their age	$\beta = -.16, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Gender	Female or male	$\beta = -.24, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Ethnicity	e.g, if White/ Caucasian	$\beta = -.08, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Student status	e.g high schooler, college student, etc.	$\beta = -.08, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Age	Participants were of asked their age	$\beta = -.14, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Gender	Female or male	$\beta = -.19, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Student status	e.g high schooler, college student, etc	$\beta = -.06, p < .001$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Extraversion	BFI-10 [91]	$\beta = .14, p < .001$
Carlisle et al. [68].	1881	1118 (59.4%) M 732 (38.9%) F	28.27, SD = 8.84, 18-95	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Age	Female or male	$\beta = -.14, p < .001$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Competition	VMQ [28];	Extraversion	JS NEO-A60 [93]	$r = .12, p < .05, \beta = -.16, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Competition	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = -.38, p < .01, \beta = -.30, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Competition	VMQ [28];	Conscientiousness	JS NEO-A60 [93]	$r = -.11, p < .01, \beta = -.02, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Competition	VMQ [28];	Openness	JS NEO-A60 [93]	$r = -.16, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Cognitive development	VMQ [28];	Neuroticism	JS NEO-A60 [93]	$r = .14, p < .01, \beta = .14, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Cognitive development	VMQ [28];	Openness	JS NEO-A60 [93]	$r = .14, p < .01, \beta = .19, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Cognitive development	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = -.18, p < .01, \beta = -.12, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Coping	VMQ [28];	Neuroticism	JS NEO-A60 [93]	$r = .32, p < .01, \beta = .32, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Coping	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = -.26, p < .01, \beta = -.12, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD = 1.11, 13-17	Spain	Coping	VMQ [28];	Conscientiousness	JS NEO-A60 [93]	$r = -.16, p < .01, \beta = -.04, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Social Interaction	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = -.24, p < .01,$ $\beta = -.14, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Social Interaction	VMQ [28];	Conscientiousness	JS NEO-A60 [93]	$r = -.12, p < .05,$ $\beta = -.02, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Violent Reward	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = -.41, p < .01,$ $\beta = -.33, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Violent Reward	VMQ [28];	Conscientiousness	JS NEO-A60 [93]	$r = -.14, p < .01,$ $\beta = -.03, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Customization	VMQ [28];	Conscientiousness	JS NEO-A60 [93]	$r = .16, p < .01,$ $\beta = .18, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Fantasy	VMQ [28];	Agreeableness	JS NEO-A60 [93]	$r = .16, p < .01, \beta = -.12, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Recreation	VMQ [28];	Weekly gaming	Hours played per week	$r = .27, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Competition	VMQ [28];	Weekly gaming	Hours played per week	$r = .34, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Cognitive development	VMQ [28];	Weekly gaming	Hours played per week	$r = .28, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Coping	VMQ [28];	Weekly gaming	Hours played per week	$r = .38, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Social interaction	VMQ [28];	Weekly gaming	Hours played per week	$r = .39, p < .01;$ $\beta = .17, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Violent Reward	VMQ [28];	Weekly gaming	Hours played per week	$r = .33, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Customization	VMQ [28];	Weekly gaming	Hours played per week	$r = .21, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Fantasy	VMQ [28];	Weekly gaming	Hours played per week	$r = .32, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Recreation	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .18, p < .01, \beta = -.05, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Competition	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .39, p < .01, \beta = .02, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Cognitive development	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .37, p < .01, \beta = .08, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Coping	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .48, p < .01, \beta = .20, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Social Interaction	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .51, p < .01, \beta = .28, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Violent reward	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .36, p < .01, \beta = .06, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Customization	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .17, p < .01, \beta = .03, p < .01$
López-Fernández et al. [92]	364	252 (69%) M 112 (31%) F	14.97, SD=1.11, 13-17	Spain	Fantasy	VMQ [28];	Disordered gaming	Pathological gaming scale for adolescents [94]	$r = .30, p < .01, \beta = .05, p < .01$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Concentration	Computer Gaming Motivation Scale [37]	Gender	Female or male	$t(1677) = -4.321, p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Entertainment	Computer Gaming Motivation Scale [37]	Gender	Female or male	$t(1677) = -10.350, p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Escape	Computer Gaming Motivation Scale [37]	Gender	Female or male	$t(1677) = -6.619, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Learning	Computer Gaming Motivation Scale [37]	Gender	Female or male	$t(1677) = -10.291$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Socialization	Computer Gaming Motivation Scale [37]	Gender	Female or male	$t(1677) = -11.906$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Concentration	Computer Gaming Motivation Scale [37]	Game place	Home or Internet café	$t(1677) = -14.569$ , $p < .05$ , Mean (concentration per age) = (18-25: 2.803; 26-35: 2.616; 36-45: 2.348; 46-55: 1.815, 56+: 2.031); Fage (4-1672) = 16.851, $p < .05$ $t(1677) = -12.299$ , $p < .05$ Mean (entertainment per age) = (18-25: 3.586; 26-35: 3.025; 36-45: 2.693; 46-55: 1.857, 56+: 3.719); Fage (4-1672) = 60.914, $p < .05$ $t(1677) = -8.646$ , $p < .05$ , Mean (escape per age) = (18-25: 2.789; 26-35: 2.562; 36-45: 2.427; 46-55: 1.921, 56+: 2.896); Fage (4-1672) = 12.795, $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Entertainment	Computer Gaming Motivation Scale [37]	Game place	Home or Internet café	
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Escape	Computer Gaming Motivation Scale [37]	Game place	Home or Internet café	

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Learning	Computer Gaming Motivation Scale [37]	Game place	Home or Internet café	$t(1677) = -13.278$ , $p < .05$ , Mean (learning per age) = (18-25: 3.063; 26-35: 2.696; 36-45: 2.535; 46-55: 1.994; 56+: 2.141); Page (4-1672) = 23.433, $p < .05$ $t(1677) = -15.226$ , $p < .05$ , Mean (socialization per age) = (18 - 25: 3.337; 26 - 35: 2.784; 36 - 45: 2.552; 46 - 55: 1.905, 56+: 3.031); Page (4-1672) = 43.230, $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Socialization	Computer Gaming Motivation Scale [37]	Game place	Home or Internet café	
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Concentration	Computer Gaming Motivation Scale [37]	Daily ICT usage	Participants were given 5 options: no, less than 1 h, 1-3 h, 4-6 h, 7 h, and more	$r = -.127$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Entertainment	Computer Gaming Motivation Scale [37]	Daily ICT usage	Participants were given 5 options: no, less than 1 h, 1-3 h, 4-6 h, 7 h, and more	$r = .105$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Escape	Computer Gaming Motivation Scale [37]	Daily ICT Usage	Participants were given 5 options: no, less than 1 h, 1-3 h, 4-6 h, 7 h, and more	$r = .083$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Concentration	Computer Gaming Motivation Scale [37]	Age	Participants were asked of their age	$r = -.190$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Entertainment	Computer Gaming Motivation Scale [37]	Age	Participants were asked of their age	$r = -.305$ , $p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Escape	Computer Gaming Motivation Scale [37]	Age	Participants were asked of their age	$r = -.143$ , $p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Learning	Motivation Scale [37] Computer Gaming Motivation Scale [37]	Age	Participants were asked of their age	$r = -.196, p < .05$
Yıldız et al. [54].	1677	867 (51.7%) M 810 (48.3%) F	18-56+	Turkey	Socialization	Computer Gaming Motivation Scale [37]	Age	Participants were asked of their age	$r = -.276, p < .05$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Competence	(PENS; [30])	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .15, p < .05$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Autonomy	(PENS; [30])	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .23, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Enjoyment	Intrinsic Motivation Inventory (IMI; [52, 95])	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .39, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Alleviation of boredom	Alleviation of boredom [96]	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .35, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Psychological detachment	Recovery Experience Questionnaire (REQ; [97-99]).	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .20, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Relaxation	Recovery Experience Questionnaire (REQ; [97-99]).	Gaming frequency	Amount of time spent on mobile games in a day and in a week	$r = .25, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Autonomy	(PENS; [30])	Gaming duration	Length of an average gaming session	$r = .14, p < .05, \beta = .19, p = .032$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Relatedness	(PENS; [30])	Gaming duration		$r = .16, p < .05, \beta = .20, p = .002$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Enjoyment	Intrinsic Motivation Inventory (IMI; [52, 95])	Gaming duration	Length of an average gaming session	$r = .25, p < .01,$ $\beta = .19, p = .029$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Alleviation of boredom	Alleviation of boredom [96]	Gaming duration	Length of an average gaming session	$r = .20, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Relaxation	Recovery Experience Questionnaire (REQ; [97-99]).	Gaming duration	Length of an average gaming session	$r = .21, p < .01$
Goldblum [69]	354	0 (0%) M 354 (100%) F	36.79, SD = 12.38, 18-77	United States	Autonomy	(PENS; [30])	Age	Participants were asked of their age	$r = .14, p < .05$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Intrinsic hedonic motivation	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 5.88, sd = 1.06; MMO = 6.17, sd = .94; $t(1016) = -4.48, p < .001$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Intrinsic accomplishment	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 4.52, sd = 1.51; MMO = 5.00, sd = 1.28); $t(1016) = -5.38,$ $p < .001. F(1, 1014) = 28.81,$ $p < .05$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Identified social	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 3.21, sd = 1.67; MMO = 3.83, sd = 1.70); $t(1016) = -5.91,$ $p < .001;$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	External social	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 2.57, sd = 1.54; MMO = 2.27, sd = 1.43); $t(1016) = 3.07,$ $p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	External game	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 3.63, sd = 1.86; MMO = 5.03, sd = 1.44); t(1016) = - 13.36, $p < .001$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Amotivation	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	Mean (SNG) = 3.23, sd = 1.55; MMO = 2.72, sd = 1.44); t(1016) = 5.35, $p < .001$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Identified social regulation	Ad hoc instrument Gaming Motivation Scale [43]	Gender	Female or male	Mean (SNG) (M = 3.41, sd = 1.65; F = 3.01, sd = 1.66) (F(1, 1014) = 4.4, $p < .05$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	External social motivation	Ad hoc instrument Gaming Motivation Scale [43]	Gender	Female or male	Mean (SNG) (M = 2.65, sd = 1.53; F = 2.48, sd = 1.55) (F(1, 1014) = 9.36, $p < .001$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	External game motivation	Ad hoc instrument Gaming Motivation Scale [43]	Gender	Female or male	mean (SNG) (M = 3.46, sd = 1.77, F = 3.81, sd = 1.94); mean MMO (M = 4.94, sd = 1.51; F = 5.12, sd = 1.36); F(1, 1014) = 6.57, $p < .05$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	External game motivation	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	F between male vs. female (1, 1014) = 179.14, $p < .001$
Wohn et al. [43]	1018	515 M 503 F	39, SD = 9.31 (SNG) 28, SD = 7.92 (MMO)	United States	Intrinsic accomplishment	Ad hoc instrument Gaming Motivation Scale [43]	Genre played	if MMO or social network games	F between male vs. female (1, 1014) = 28.81
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Role playing	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.20, p < .01$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.08, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.08, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social Capital	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.14, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team Play	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.11, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.25, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanism	Gaming Motive Scale [38]	Gender	Being female	$\beta = -.11, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Role playing	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.46, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.37, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.25, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social capital	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.19, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team play	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.44, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.26, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Age	Age of the players	$\beta = -.29, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Gaming experience	gamers were asked to indicate the number of years they had been playing computer games	$\beta = .11, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Gaming experience	Gamers were asked to indicate the number of years they had been playing computer games	$\beta = .16, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team play	Gaming Motive Scale [38]	Gaming experience	Gamers were asked to indicate the number of years they had been playing computer games	$\beta = .07, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Gaming experience	Gamers were asked to indicate the number of years they had been playing computer games	$\beta = .12, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Gaming experience	Gamers were asked to indicate the number of years they had been playing computer games	$\beta = .11, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Achievement seeking	NEO Personal Inventory (NEO-PI-R, [100])	$\beta = .06, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Achievement seeking	NEO Personal Inventory (NEO-PI-R, [100])	$\beta = .05, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Achievement seeking	NEO Personal Inventory (NEO-PI-R, [100])	$\beta = .11, p < .01$
Scharnow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Achievement seeking	NEO Personal Inventory (NEO-PI-R, [100])	$\beta = .11, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social Capital	Gaming Motive Scale [38]	Collective orientation	VIA (values in action) Scales [101, 102]	$\beta = .10, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team play	Gaming Motive Scale [38]	Collective orientation	VIA (values in action) Scales [101, 102]	$\beta = .19, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Collective orientation	VIA (values in action) Scales [101, 102]	$\beta = .08, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Strategy	Genre of game	$\beta = -.17, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Strategy	Genre of game	$\beta = .13, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social Capital	Gaming Motive Scale [38]	Strategy	Genre of game	$\beta = .08, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Strategy	Genre of game	$\beta = .25, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Puzzle	Genre of game	$\beta = -.15, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Puzzle	Genre of game	$\beta = .16, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social Capital	Gaming Motive Scale [38]	Puzzle	Genre of game	$\beta = .06, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Puzzle	Genre of game	$\beta = -.11, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Puzzle	Genre of game	$\beta = .12, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = -.08, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = .08, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = -.07, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social Capital	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = -.16, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team Play	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = .22, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = .10, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = .21, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Sport	Genre of game	$\beta = -.07, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Adventure	Genre of game	$\beta = .13, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Adventure	Genre of game	$\beta = .16, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Adventure	Genre of game	$\beta = .09, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Adventure	Genre of game	$\beta = .18, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Role Playing	Genre of game	$\beta = .40, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Role playing	Genre of game	$\beta = -.11, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Role playing	Genre of game	$\beta = .09, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social capital	Gaming Motive Scale [38]	Role playing	Genre of game	$\beta = .07, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Role playing	Genre of game	$\beta = -.07, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Role playing	Genre of game	$\beta = .22, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Platform	Genre of game	$\beta = -.06, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Exploration	Gaming Motive Scale [38]	Platform	Genre of game	$\beta = .09, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team play	Gaming Motive Scale [38]	Platform	Genre of game	$\beta = .13, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Platform	Genre of game	$\beta = .12, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Simulation	Genre of game	$\beta = .17, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Simulation	Genre of game	$\beta = .11, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Music	Genre of game	$\beta = -.06, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Social capital	Gaming Motive Scale [38]	Music	Genre of game	$\beta = -.10, p < .01$
Scharckow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Team play	Gaming Motive Scale [38]	Music	Genre of game	$\beta = .35, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Music	Genre of game	$\beta = -.08, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Fantasy	Gaming Motive Scale [38]	Action	Genre of game	$\beta = .25, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competence	Gaming Motive Scale [38]	Action	Genre of game	$\beta = -.07, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Competition	Gaming Motive Scale [38]	Action	Genre of game	$\beta = .10, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Mechanics	Gaming Motive Scale [38]	Action	Genre of game	$\beta = .18, p < .01$
Scharlkow et al. [38].	4500	2547 M (56.6%) 1953 F (43.4%)	38.8, 14-90	Germany	Narration	Gaming Motive Scale [38]	Action	Genre of game	$\beta = -.06, p < .01$
Ryan et al. [30].	89	23 M 66 F	—	United States	Intuitive controls	(PENS; [30])	Gender	Female or male	$F(1, 87) = 5.60, p < .05$
Ryan et al. [30].	89	23 M 66 F	—	United States	Intuitive controls	(PENS; [30])	Continued play	Dichotomous behavioural choice; participants were given free choice to continue with the game or change to another one	$F(1, 83) = 6.42, p < .05$
Ryan et al. [30].	89	23 M 66 F	—	United States	In-game Autonomy	(PENS; [30])	Continued play	Dichotomous behavioural choice; participants were given free choice to continue with the game or change to another one	$F(1, 83) = 4.77, p < .05$
Ryan et al. [30].	89	23 M 66 F	—	United States	In game competence	(PENS; [30])	Continued play	Dichotomous behavioural choice; participants were given free choice to continue with the game or change to another one	$F(1, 83) = 10.58, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/variable	Gaming-related measure/variable description	Results
Ryan et al. [30].	89	23 M 66 F	—	United States	In game competence	(PENS; [30])	Preference for continued gameplay	Dichotomous behavioural choice; participants were given free choice to continue with the game or change to another one	$\beta = .39, p < .01$
Ryan et al. [30].	89	23 M 66 F	—	United States	In game competence	(PENS; [30])	Free choice continued gameplay	Dichotomous behavioural choice; participants were given free choice to continue with the game or change to another one	$\beta = .41, p < .01$
Ryan et al. [30].	89	23 M 66 F	—	United States	In game competence	(PENS; [30])	Self-esteem	Multidimensional Self-Esteem Inventory (MSEI; [103])	$\beta = .52, p < .01$
Ryan et al. [30].	89	23 M 66 F	—	United States	In game competence	(PENS; [30])	Modd/affect	Mood Rating Scale ([104])	$\beta = .25, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Competence	(PENS; [30])	Future Play	How many months they plan on playing the game in the future	$\beta = .14, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Autonomy	(PENS; [30])	Future Play	How many months they plan on playing the game in the future	$\beta = .15, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Relatedness	(PENS; [30])	Future Play	How many months they plan on playing the game in the future	$\beta = .12, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Competence	(PENS; [30])	Hours per week	Hours played each week in average	$\beta = .09, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Relatedness	(PENS; [30])	Hours per week	Hours played each week in average	$\beta = .18, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Achievement	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Hours per week	Hours played each week in average	$\beta = .19, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Competence	(PENS; [30])	Enjoyment	Intrinsic Motivation Inventory [95]	$\beta = .24, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Autonomy	(PENS; [30])	Enjoyment	Intrinsic Motivation Inventory [95]	$\beta = .49, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Relatedness	(PENS; [30])	Enjoyment	Intrinsic Motivation Inventory [95]	$\beta = .12, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Competence	(PENS; [30])	Mood	Mood Rating Scale ([104]).	$\beta = .12, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Autonomy	(PENS; [30])	Mood	Mood Rating Scale ([104]).	$\beta = .36, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Achievement	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Mood	Mood Rating Scale ([104]).	$\beta = -.21, p < .01$
Ryan et al. [30].	730	679 M 51 F	22.1, 16-44	Online	Immersion	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Mood	Mood Rating Scale ([104]).	$\beta = -.08, p < .01$
Klimmt et al. [39].	8203	6292 (76.7%) M 1911 (23.3%) F	24.2, SD = 9.4	Germany	Socializing	Ad hoc instrument [39]	Experience while playing Travian	For how long the gamers had played the game (for 4 months vs. more than 1 y)	$F = 381, p < .001,$ $n^2 = .04$
Klimmt et al. [39].	8203	6292 (76.7%) M 1911 (23.3%) F	24.2, SD = 9.4	Germany	Competition	Ad hoc instrument ([39])	Experience while playing Travian	For how long the gamers had played the game (for 4 months vs. more than 1 y)	$F = 256, p < .001,$ $n^2 = .03$
Klimmt et al. [39].	8203	6292 (76.7%) M 1911 (23.3%) F	24.2, SD = 9.4	Germany	Coping	Ad hoc instrument ([39])	Experience while playing Travian	For how long the gamers had played the game (for 4 months vs. more than 1 y)	$F = 150, p < .001,$ $n^2 = .02$
Klimmt et al. [39].	8203	6292 (76.7%) M 1911 (23.3%) F	24.2, SD = 9.4	Germany	Competition	Ad hoc instrument ([39])	Gender	Female or male	mean (M = 2.59, sd = .81, $F = 3.04,$ sd = .83), $F(1, 8201) = 437, p < .01,$ $n^2 = .05$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/variable	Gaming-related measure/variable description	Results
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Socialization	MMO-MS [33]	Age	Age of the players	$r = -.100, p < .05$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Dissociation	MMO-MS [33]	Age	Age of the players	$r = -.115, p < .05$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Exploration	MMO-MS [33]	Hours spent playing per week	Hours spent between Monday and Friday and weekend	$r = -.119, p < .05$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Dissociation	MMO-MS [33]	Hours spent playing per week	Hours spent between Monday and Friday and weekend	$r = .316, p < .01$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Achievement	MMO-MS [33]	Type of occupation	Worker (W) or student (S) or student working	Mean (S = 19.53, sd = 7.52; W = 17.08, sd = 7.26); F(3, 426) = 3.6, $p < .05$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Dissociation	MMO-MS [33]	Type of occupation	Worker (W) or student (S) or student working (WS)	Mean (S = 22.84, sd = 8.52; W = 20.07, sd = 8.52; WS = 18.94, sd = 9.68); F(3, 426) = 4.41, $p < .05$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Dissociation	MMO-MS [33]	MMORPG type	If they played World of Warcraft, Aion, and EVE online	Mean (WoW = 23.48, sd = 9.01; Aion = 17.96, sd = 7.57; EVE = 18.06, sd = 8.05); F(6, 423) = 3.54, $p < .01$
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Exploration	MMO-MS [33]	Type of server used	RP or Pvp servers	Mean (RP = 27.24, sd = 4.64; Pvp = 25.08, sd = 6.31); F(2, 427) = 4.05, $p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Fuster et al. [105].	430	410 M 20 F	26.58, SD = 6.79	Spain	Dissociation	MIMO-MS [33]	Type of server used	RP or Pvp servers	Mean (RP = 18.54, sd = 8.05; Pvp = 21.76, sd = 8.05); F(2, 427) = 3.74, $p < .05$
Graham & Gosling [106].	1413	1247 M 166 F	23.69, SD = 14.37	Online	Social motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Extraversion	Big Five Inventory [107]	$\beta = -.20, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Social motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Agreeableness	Big Five Inventory [107]	$\beta = .23, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Social motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Neuroticism	Big Five Inventory [107]	$\beta = .15, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Social motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Openness	Big Five Inventory [107]	$\beta = .11, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Extraversion	Big Five Inventory [107]	$\beta = .17, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Agreeableness	Big Five Inventory [107]	$\beta = -.14, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Conscientiousness	Big Five Inventory [107]	$\beta = -.12, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Neuroticism	Big Five Inventory [107]	$\beta = .10, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Openness	Big Five Inventory [107]	$\beta = -.12, p < .05$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Immersive motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Extraversion	Big Five Inventory [107]	$\beta = -.07, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Immersive motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Conscientiousness	Big Five Inventory [107]	$\beta = -.07, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Immersive motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Neuroticism	Big Five Inventory [107]	$\beta = .19, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Immersive motivations	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Openness	Big Five Inventory [107]	$\beta = .21, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Leadership motivations	Items added by authors (i.e I enjoy leading groups)	Extraversion	Big Five Inventory [107]	$\beta = .45, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Leadership motivations	Items added by authors (i.e I enjoy leading groups)	Agreeableness	Big Five Inventory [107]	$\beta = -.15, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Leadership motivations	Items added by authors (i.e I enjoy leading groups)	Conscientiousness	Big Five Inventory [107]	$\beta = .11, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Leadership motivations	Two Items added by authors (i.e I enjoy leading groups)	Openness	Big Five Inventory [107]	$\beta = .13, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Independence motivations	One item added by authors (i.e I value independence in my character)	Openness	Big Five Inventory [107]	$\beta = .28, p < .01$
Graham & Gosling [106]	1413	1247 M 166 F	23.69, SD = 14.37	Online	Achievement	Motivation to play in Online Games Questionnaire (MPOGQ; [26])	Hours of play	Hours played per week	$r = .24, p = 0.000$
Johnson & Gardner [23].	235	193 (82%) 42 (18%)	22, 17-44	Online	Competence/Control	(PENS; [30])	Agreeableness	Ten-Item Personality Inventory (TIPI, [108])	$r = .14, p < .05$
Johnson & Gardner [23].	235	193 (82%) 42 (18%)	22, 17-44	Online	Presence	(PENS; [30])	Emotional stability	Ten-Item Personality Inventory (TIPI, [108])	$r = -.14, p < .05$
Johnson & Gardner [23].	235	193 (82%) 42 (18%)	22, 17-44	Online	Autonomy	(PENS; [30])	Openness to experience	Ten-Item Personality Inventory (TIPI, [108])	$r = .19, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Johnson & Gardner [23].	235	193 (82%) 42 (18%)	22, 17-44	Online	Presence	(PENS; [30])	Game genre	Shooting, sport/simulation, action-adventure, strategy, & role playing	$F(3, 195) = 4.26, p < .01$
Johnson & Gardner [23].	235	193 (82%) 42 (18%)	22, 17-44	Online	Autonomy	(PENS; [30])	Game genre	Shooting, sport/simulation, action-adventure, strategy, & role playing	$F(3, 195) = 4.72, p < .01$
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Exploration	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33])	Harmonious passion	The Passion Scale [109]	$r = .438, p < .001;$ $\beta = .381, p < .001$
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Socialization	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33])	Harmonious passion	The Passion Scale [109]	$r = .305, p < .001;$ $\beta = .190, p < .001$
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Achievement	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33])	Harmonious passion	The Passion Scale [109]	$r = .259, p < .001;$ $\beta = .235, p < .001$
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Dissociation	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33])	Obsessive passion	The Passion Scale [109]	$r = .689, p < .001;$ $\beta = .785, p < .001$
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Achievement	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33])	Obsessive passion	The Passion Scale [109]	$r = .342, p < .001;$ $\beta = .322, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Fuster et al. [74].	410	410 (100%) M 0 (0%) F	26.49, SD = 6.78, 16-45	Spain	Socialization	Massively Multiplayer Online Games Motivations Scale (MMO-MS, [33]) Motivation to Play in Online Games	Obsessive passion	The Passion Scale [109]	$r = .184, p < .001$ ; $\beta = .084, p < .001$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27]).	Distortion of time	Flow State Scale 2 questionnaire [110]	$r = .237, p < .001$ ; $\beta = .70, t = 7.81, p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Control of task	Flow State Scale 2 questionnaire [110]	$r = .187, p < .05$ ; $\beta = .50, t = 5.47, p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Loss of self-consciousness	Flow State Scale 2 questionnaire [110]	$\beta = .28, t = 3.48, p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Merge of actions and cognition	Flow State Scale 2 questionnaire [110]	$r = .262, p < .001$ ; $\beta = .59, t = 4.78, p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Autotelic experience	Flow State Scale 2 questionnaire [110]	$r = .444, p < .001$ ; $\beta = .93, t = 7.74, p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Daily playtime	Daily hours spent on MMORPGs	$r = .181, p < .05$ ; $\beta = 1.00, t = 3.26, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Status seeking in MMORPGs	Status seeking scale [111, 112]	$r = .672, p < .001$ , $\beta = .89, t = 8.55$ , $p < .05$
Dindar [75]	256	247 (97%) M 9 (3%) F	18.6, SD = 4, 10-47	Turkey	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [27])	Control of task	Flow State Scale 2-questionnaire [110]	$r = .318, p < .001$ , $\beta = .28, t = 3.42$ , $p < .05$
Chang & Zhang [55].	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Self-confidence and achievement	Scale measuring motivation [113]	Materialism	Material values scale [114]	$\beta = .55, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Escape and virtual identifications	Scale measuring motivation [113]	Materialism	Material values scale [114]	$\beta = .34, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Reward	Scale measuring motivation [113]	Materialism	Material values scale [114]	$\beta = .27, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Entertainment	Scale measuring motivation [113]	Materialism	Material values scale [114]	$\beta = .29, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Entertainment	Scale measuring motivation [113]	Attitude towards online games	Attitude test [115]	$\beta = .38, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Sociability	Scale measuring motivation [113]	Attitude towards online games	Attitude test [115]	$\beta = .15, p < .01$
Chang & Zhang [55]	347	201 (58%) M 146 (42%) F	Junior high-university and more	China	Self-confidence and achievement	Scale measuring motivation [113]	Attitude towards online games	Attitude test [115]	$\beta = .11, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	Mean (F = 3.88, sd = 1.42; M = 4.39, sd = 1.20), t-test = 5.38, $p < .001$ Mean (F = 2.42, sd = 1.50; M = 3.00, sd = 1.57), t-test = 5.29, $p < .001$ Mean (F = 2.76, sd = 1.49; M = 3.27, sd = 1.46), t-test = 4.97, $p < .001$ Mean (F = 3.03, sd = 1.55; M = 3.47, sd = 1.48), t-test = 4.28, $p < .001$ Mean (G = 4.67, sd = 1.04; NG = 3.25, sd = 1.26), F(1, 971) = 220.67, $p < .001$ Mean (G = 3.43, sd = 1.49; NG = 1.49, sd = 0.64), F(1, 972) = 347.56, $p < .001$ Mean (G = 3.67, sd = 1.37; NG = 1.90, sd = 0.90), F(1, 971) = 312.60, $p < .001$ Mean (G = 2.00, sd = 1.07; NG = 1.26, sd = 0.46), F(1, 971) = 92.69, $p < .001$
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Extrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gender	Female or male	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gamer classification	Being a gamer (G) or not (NG)	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gamer classification	Being a gamer (G) or not (NG)	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gamer classification	Being a gamer (G) or not (NG)	
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gamer classification	Being a gamer (G) or not (NG)	



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Extrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gamer classification	Being a gamer (G) or not (NG)	Mean (G = 3.73, sd = 1.45; NG = 2.48, sd = 1.28), F(1, 971) = 96.81, $p < .001$
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Frequency of use	Frequency of use of games between gamers (G) and nongamers (NG)	Mean (G = 4.39, sd = 1.20; NG = 3.20, sd = 1.39), F(1, 972) = 17.82, $p < .001$
Argento et al. [116].	973	680 (69.90%) M 303 (30.10%) F	23.32, SD = 4.70	Online	Extrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Frequency of use	Frequency of use of games between gamers (G) and nongamers (NG)	Mean (G = 3.51, sd = 1.48; NG = 2.26, sd = 1.29), F(1, 972) = 21.47, $p < .001$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Habit	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 21.02, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Recreativity	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 25.63, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Escapism	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 11.22, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Narrative	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 20.21, $p < .001$ ;

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Performance	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 32, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Social	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 633) = 50.71, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Habit	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 1266) = 5.32, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Recreativity	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 1266) = 5.37, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Escapism	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	F (16, 1266) = 6.65, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Pastime	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	mean (GE) = 2.34, sd = .07; SG = 3.54, sd = .11), US = 3.46, sd = .06); F (16, 1266) = 15.9, $p < .001$ ;
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Social	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	mean (GE) = 2.34, sd = .06; SG = 2.68, sd = .10), US = 2.71, sd = .05); F (16, 1266) = 15.9, $p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Habit	Digital Games Motivation Scale (DGMS; [35])	Genre choice	All genres included (casual, racing, strategy, sport, platform, action, shooter, RPG, Music, Fighting, MMORPG, building, and simulation)	F (13, 607) = 5.11, p < .001
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Reactivity	Digital Games Motivation Scale (DGMS; [35])	Genre choice	All genres included (casual, racing, strategy, sport, platform, action, shooter, RPG, Music, Fighting, MMORPG, building, and simulation)	F (13, 607) = 2.42, p < .001
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Narrative	Digital Games Motivation Scale (DGMS; [35])	Genre choice	All genres included (casual, racing, strategy, sport, platform, action, shooter, RPG, Music, Fighting, MMORPG, building, and simulation)	F (13, 607) = 1.89, p < .001
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Pastime	Digital Games Motivation Scale (DGMS; [35])	Genre choice	All genres included (casual, racing, strategy, sport, platform, action, shooter, RPG, Music, Fighting, MMORPG, building, and simulation)	F (13, 607) = 1.92, p < .001

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Social	Digital Games Motivation Scale (DGMS; [35])	Genre choice	All genres included (casual, racing, strategy, sport, platform, action, shooter, RPG, Music, Fighting, MMORPG, building, and simulation)	$F(13, 607) = 5.55, p < .001$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Agency	Digital Games Motivation Scale (DGMS; [35])	Genre choice	Sport games	$\beta = -.15, F(13, 607) = 3.77, p = .05$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Pastime	Digital Games Motivation Scale (DGMS; [35])	Genre choice	Casual games	$\beta = .20, F(13, 607) = 8.23, p < .01$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Pastime	Digital Games Motivation Scale (DGMS; [35])	Genre choice	Action games	$\beta = -.16, F(13, 607) = 8.58, p < .05$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Performance	Digital Games Motivation Scale (DGMS; [35])	Genre choice	Action games	$\beta = .15, F(13, 607) = 4.42, p < .05$
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Habit	Digital Games Motivation Scale (DGMS; [35])	Future intention to play	Participants were asked how much they expect to play digital games during the coming six months.	$\beta = .23, F(1, 631) = 28.89, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Ratan et al. [50].	647	292 M 355 F	SG = 20.73, SD = 20.73 US = 20.69, SD = 1.68 GE = 23.24, SD = 6.13	Singapore, United States, Germany	Social	Digital Games Motivation Scale (DGMS; [35])	Future intention to play	Participants were asked how much they expect to play digital games during the coming six months.	$\beta = -.10$ , $F(1, 631) = 4.38$ , $p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Competition	Smartphone Gaming Motivations [40]	Openness	Five-Factor Model [117]	$r = .176$ , $p < .05$ , $\beta = .205$ , $p < .001$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Competition	Smartphone Gaming Motivations [40]	Instability	Five-Factor Model [117]	$r = .180$ , $p < .05$ , $\beta = .209$ , $p < .001$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Openness	Five-Factor Model [117]	$r = .297$ , $p < .01$ , $\beta = .318$ , $p < .001$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Social Interaction	Smartphone Gaming Motivations [40]	Instability	Five-Factor Model [117]	$r = .224$ , $p < .01$ , $\beta = .224$ , $p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Social Interaction	Smartphone Gaming Motivations [40]	Agreeableness	Five-Factor Model [117]	$r = -.157$ , $p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Extroversion	Five-Factor Model [117]	$r = -.238$ , $p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Conscientiousness	Five-Factor Model [117]	$r = -.301$ , $p < .01$ , $\beta = -.253$ , $p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Agreeableness	Five-Factor Model [117]	$r = -.185$ , $p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Instability	Five-Factor Model [117]	$r = .272$ , $p < .01$ , $\beta = .210$ , $p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Fantasy	Smartphone Gaming Motivations [40]	Instability	Five-Factor Model [117]	$r = .309, p < .01,$ $\beta = .201, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Fantasy	Smartphone Gaming Motivations [40]	Agreeableness	Five-Factor Model [117]	$r = -.306, p < .01,$ $\beta = -.193, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Arousal	Smartphone Gaming Motivations [40]	Instability	Five-Factor Model [117]	$r = .212, p < .01,$ $\beta = .212, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Arousal	Smartphone Gaming Motivations [40]	Agreeableness	Five-Factor Model [117]	$r = -.168, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Extroversion	Five-Factor Model [117]	$\beta = -.160, p < .001$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Openness to experience	Five-Factor Model [117]	$\beta = .163, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Time spent playing	Time spent playing during the week days	$r = .171, p < .05,$ $\beta = .171, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Time spent playing	Time spent playing during the weekend	$r = .271, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Diversion	Smartphone Gaming Motivations [40]	Time spent playing	Time spent playing during the weekend	$r = .182, p < .05$ $, p < .05 \beta = .182,$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Game Genre	Traditional game genre	$r = .256, p < .01,$ $\beta = .202, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Arousal	Smartphone Gaming Motivations [40]	Game Genre	Traditional game genre	$r = .228, p < .01,$ $\beta = .160, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Competition	Smartphone Gaming Motivations [40]	Game Genre	Physical genre game	$r = .161, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Game Genre	Physical genre game	$r = .232, p < .01,$ $\beta = .232, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Fantasy	Smartphone Gaming Motivations [40]	Game Genre	Physical genre game	$r = .249, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Arousal	Smartphone Gaming Motivations [40]	Game Genre	Physical genre game	$r = .242, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Competition	Smartphone Gaming Motivations [40]	Game Genre	Imagination game genre	$r = .160, p < .05$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Challenge	Smartphone Gaming Motivations [40]	Game Genre	Imagination game genre	$r = .204, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Social interaction	Smartphone Gaming Motivations [40]	Game Genre	Imagination game genre	$r = .190, p < .01$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Fantasy	Smartphone Gaming Motivations [40]	Game Genre	Imagination game genre	$r = .298, p < .01;$ $\beta = .298, p < .001$
Kim [40].	183	58 (31.7%) M 125 (68.3%) F	20.39, SD = 3.04, 18-36	United states	Arousal	Smartphone Gaming Motivations [40]	Game Genre	Imagination game genre	$r = .287, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Recreation	VMQ [28];	Gender	Female or male	$r = -.17, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Gender	Female or male	$r = -.46, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Gender	Female or male	$r = -.20, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Gender	Female or male	$r = -.18, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	Gender	Female or male	$r = -.34, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent Reward	VMQ [28];	Gender	Female or male	$r = -.42, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Gender	Female or male	$r = -.15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Recreation	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .23, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .32, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .24, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .34, p < .01,$ $\beta = .18, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .37, p < .01,$ $\beta = .19, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent Reward	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .28, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .19, p < .01$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .26, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Recreation	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .18, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .39, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .37, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .48, p < .01,$ $\beta = .30, p < .001$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social interaction	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .51, p < .01,$ $\beta = .29, p < .001$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent reward	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .36, p < .01,$ $\beta = .12, p < .05$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .18, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .31, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Recreation	VMQ [28];	Shooter	Game genre	$r = .23, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Shooter	Game genre	$r = .32, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Shooter	Game genre	$r = .21, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Shooter	Game genre	$r = .20, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	Shooter	Game genre	$r = .40, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent Reward	VMQ [28];	Shooter	Game genre	$r = .47, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Shooter	Game genre	$r = .20, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	MOBA	Game genre	$r = .20, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	MOBA	Game genre	$r = .12, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	MOBA	Game genre	$r = .15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent Reward	VMQ [28];	Strategy	Game genre	$r = -.15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	MMORPG	Game genre	$r = .14, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Recreation	VMQ [28];	Role playing	Game genre	$r = .15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Action-adventure	Game genre	$r = .19, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Action-adventure	Game genre	$r = .14, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Action-adventure	Game genre	$r = .12, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Action-adventure	Game genre	$r = .22, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Sport	Game genre	$r = .25, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent reward	VMQ [28];	Sport	Game genre	$r = .15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Sport	Game genre	$r = -.12, p < .05$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Casual	Game genre	$r = -.12, p < .05$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent reward	VMQ [28];	Casual	Game genre	$r = -.19, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Social simulation	Game genre	$r = -.26, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Cognitive development	VMQ [28];	Social simulation	Game genre	$r = -.15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Social simulation	Game genre	$r = -.15, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	Social simulation	Game genre	$r = -.20, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent reward	VMQ [28];	Social simulation	Game genre	$r = -.25, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Social simulation	Game genre	$r = .27, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Customization	VMQ [28];	Construction	Game genre	$r = .18, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Fantasy	VMQ [28];	Construction	Game genre	$r = .12, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Competition	VMQ [28];	Platform	Game genre	$r = -.18, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Coping	VMQ [28];	Platform	Game genre	$r = -.11, p < .05$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Social Interaction	VMQ [28];	Platform	Game genre	$r = -.17, p < .01$
López-Fernández et al. [28]	407	278 (68.2%) M 129 (31.8%) F	14.99, SD = 1.13	Spain	Violent Reward	VMQ [28];	Platform	Game genre	$r = -.22, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Age	Participants were asked of their age	$r = .14, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Age	Participants were asked of their age	$r = .19, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Age	Participants were asked of their age	$r = .15, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Gender	Female or male	$r = -.30, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	Gender	Female or male	$r = -.36, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Gender	Female or male	$r = -.18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Gender	Female or male	$r = -.16, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Gender	Female or male	$r = -.40, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Gender	Female or male	$r = -.46, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Gender	Female or male	$r = -.17, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .29, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .15, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .12, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .24, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .42, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .21, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .15, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Gaming hours	Numbers of hours played weekly	$r = .24, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .29, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .28, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .21, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .39, p < .01,$ $\beta = .21, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social interaction	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .41, p < .01,$ $\beta = .19, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .43, p < .01,$ $\beta = .18, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$r = .34, p < .01,$ $\beta = .17, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Disordered gaming	Internet Gaming Disorder Test (IGD-20 Test, [118])	$\beta = -.15, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Shooter	Game genre	$r = .26, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Shooter	Game genre	$r = .13, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Shooter	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Shooter	Game genre	$r = .30, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Shooter	Game genre	$r = .37, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Shooter	Game genre	$r = .13, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Shooter	Game genre	$r = .25, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	MOBA	Game genre	$r = .19, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	MOBA	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	MOBA	Game genre	$r = .43, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Strategy	Game genre	$r = .14, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	MMORPG	Game genre	$r = .15, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	MMORPG	Game genre	$r = .13, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	MMORPG	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	MMORPG	Game genre	$r = .26, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	MMORPG	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Role playing	Game genre	$r = .23, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Role playing	Game genre	$r = .17, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent Reward	VMQ [28];	Role playing	Game genre	$r = .14, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Role playing	Game genre	$r = .20, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Role playing	Game genre	$r = .30, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Action adventure	Game genre	$r = .20, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Cognitive development	VMQ [28];	Action adventure	Game genre	$r = .17, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Coping	VMQ [28];	Action adventure	Game genre	$r = .22, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Action adventure	Game genre	$r = .24, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Action adventure	Game genre	$r = .32, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	Sport	Game genre	$r = .19, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent Reward	VMQ [28];	Sport	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Recreation	VMQ [28];	Casual	Game genre	$r = .18, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Competition	VMQ [28];	Casual	Game genre	$r = .26, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Casual	Game genre	$r = .31, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Casual	Game genre	$r = .34, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Casual	Game genre	$r = .16, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Casual	Game genre	$r = .29, p < .01$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Social Interaction	VMQ [28];	Social simulation	Game genre	$r = -.16, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Customization	VMQ [28];	Social simulation	Game genre	$r = .35, p < .01$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Fantasy	VMQ [28];	Social simulation	Game genre	$r = .13, p < .05$
López-Fernández et al. [28]	260	109 (41.9%) M 151 (58.1%) F	20.54, SD = 3.63	Spain	Violent reward	VMQ [28];	Fighting	Game genre	$r = .13, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Participants were asked of their age	$r = -.15, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Participants were asked of their age	$r = -.27, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Participants were asked of their age	$r = .14, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	$r = -.20, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	$r = .15, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .37, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .25, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .25, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .18, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .37, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Escapism	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Hours played	Hours played per week	$r = .26, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Years playing	Participants were asked how long they have been playing WoW	$r = .16, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Place of playing	Playing in cybercafé	$r = .18, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Place of playing	Playing in cybercafé	$r = .16, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .47, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .26, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .30, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Role play	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .20, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .24, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Escapism	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Excessive use	Internet Addiction Test (IAT, [119])	$r = .48, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Socializing	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Affiliated with a guild	Player's behaviour	$r = .17, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .15, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Teamwork	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .17, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .26, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .24, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .15, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Total progression	Player's behaviour	$r = .16, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Miscellaneous	Player's behaviour	$r = .19, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Miscellaneous	Player's behaviour	$r = .16, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Miscellaneous	Player's behaviour	$r = .24, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Quests	Player's behaviour	$r = .28, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Explorations	Player's behaviour	$r = .34, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Players vs. player	Player's behaviour	$r = .30, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Player vs. player	Player's behaviour	$r = .21, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Player vs. player	Player's behaviour	$r = .39, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Player's behaviour	Player's behaviour	$r = .33, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Dungeons and raids	Player's behaviour	$r = .31, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Dungeons and raids	Player's behaviour	$r = .18, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Teamwork	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Dungeons and raids	Player's behaviour	$r = .19, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Server PvP	Type of server	$r = .23, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Server PvE	Type of server	$r = -.22, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Role play	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Server RP	Type of server	$r = .14, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Teamwork	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Global index	Progression in game	$\beta = .11, t = 2.31, p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Global index	Progression in game	$\beta = .17, t = 3.37, p < .001$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	PvP index	Progression in game	$\beta = .16, t = 3.02, p < .01$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	PvE index	Progression in game	$\beta = .13, t = 2.53, p < .01$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Teamwork	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	PvE index	Progression in game	$\beta = .16, t = 3.31, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	PvE index	Progression in game	$\beta = -.12$ , $t = -2.32$ , $p < .05$
Billieux et al. [71].	690	601 (87.10%) M 89 (12.90%) F	26.22, SD = 8.14, 18-66	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	PvE index	Progression in game	$\beta = .16$ , $t = 3.06$ , $p < .01$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Relationship	Ad hoc questionnaire to measure MMORPG motivations [25]	Gender	Female or male	mean (M = 9.08, sd = 2.15; F = 10.00, sd = 2.21); $t = -11.05$ , $p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Manipulation	Ad hoc questionnaire to measure MMORPG motivations [25]	Gender	Female or male	mean (M = 5.18, sd = 1.86; F = 4.39, sd = 1.48); $t = 11.16$ , $p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Immersion	Ad hoc questionnaire to measure MMORPG motivations [25]	Gender	Female or male	mean (M = 6.87, sd = 1.49; F = 7.09, sd = 1.49); $t = -3.85$ , $p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Escapism	Ad hoc questionnaire to measure MMORPG motivations [25]	Gender	Female or male	mean (M = 6.81, sd = 1.25; F = 7.00, sd = 1.22); $t = -3.48$ , $p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Achievement	Ad hoc questionnaire to measure MMORPG motivations [25]	Gender	Female or male	mean (M = 8.06, sd = 1.48; F = 7.22, sd = 1.49); $t = 14.70$ , $p < .001$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Manipulation	Ad hoc questionnaire to measure MMORPG motivations [25]	Age	Age of male players	$r = -.33, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Achievement	Ad hoc questionnaire to measure MMORPG motivations [25]	Age	Age of male players	$r = -.27, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Manipulation	Ad hoc questionnaire to measure MMORPG motivations [25]	Age	Age of female players	$r = -.15, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Immersion	Ad hoc questionnaire to measure MMORPG motivations [25]	Age	Age of female players	$r = -.13, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Relationship	Ad hoc questionnaire to measure MMORPG motivations [25]	Hours of usage per week	Hours played by males	$r = .22, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Relationship	Ad hoc questionnaire to measure MMORPG motivations [25]	Hours of usage per week	Hours played by males	$r = .22, p < .001$
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Escapism	Ad hoc questionnaire to measure MMORPG motivations [25]	Hours of usage per week	Hours played by females	$r = .16, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [25]	6675	5939 M 736 F	26.70, SD = 8.84, 11-68	Online	Escapism	Ad hoc questionnaire to measure MMORPG motivations [25]	Hours of usage per week	Hours played by females	$r = .14, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.35, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.26, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .22, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .12, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.30, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.24, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .20, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .10, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.15, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.08, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .17, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .12, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.34, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.27, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .06, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.16, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .11, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Socializing	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.08, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Socializing	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .07, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.08, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .11, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .15, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Teamwork	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.14, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.13, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .09, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Discovery	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.16, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of male players	$r = -.13, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Age	Age of female players	$r = -.12, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Escapism	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by males	$r = .11, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Escapism	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gaming hours	Gaming hours played weekly by females	$r = .11, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Escapism	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Problematic gaming	Internet addiction [120]	$\beta = 0.31, p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Problematic gaming	Internet addiction [120]	$\beta = 0.17, p < .01$
Yee [26]	3200	2769 M 431 F	—	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean ( $M = .10$ , $sd = .99$ ; $F = -.66$ , $sd = .82$ ); $t = 15.18$ , $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Advancement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean ( $M = .07$ , $sd = 1.00$ ; $F = -.48$ , $sd = .86$ ); $t = 10.90$ , $p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Mechanics	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = .09, sd = .98; F = -.61, sd = .89); t = 13.93, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Competition	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean(M = .06, sd = 1.01; F = -.43, sd = .76); t = - 10.47, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Social	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = -.05, sd = .98; F = .30, sd = 1.07); t = - 6.83, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Socializing	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = -.03, sd = 1.00; F = .18, sd = 1.01); t = -4.03, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Relationship	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = -.10, sd = .98; F = .62, sd = .98); t = -14.29, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = -.06, sd = 1.00; F = .38, sd = .93); t = - 8.45, $p < .001$
Yee [26]	3200	2769 M 431 F	—	Online	Role play	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean (M = -.02, sd = .99; F = .16, sd = 1.06); t = - 3.57, $p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee [26]	3200	2769 M 431 F	—	Online	Customization	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender	Female or male	Mean ( $M = -.07$ , $sd = 1.00$ ; $F = .46$ , $sd = .088$ ); $t = -10.47$ , $p < .001$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	General motivations	Motives for Online Gaming Questionnaire (MOGQ, [22])	Internet Gaming Disorder Symptoms	Questionnaire based on DSM-5 [121]	$\beta = .45$ , $p < .05$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Escape	Motives for Online Gaming Questionnaire (MOGQ, [22])	Internet gaming disorder symptoms	Questionnaire based on DSM-5 [121]	$\beta = .30$ , $p < .05$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Skill development	Motives for Online Gaming Questionnaire (MOGQ, [22])	Internet gaming disorder symptoms	Questionnaire based on DSM-5 [121]	$\beta = -.26$ , $p < .05$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	General motivation	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gender	Female or male	$d = .95$ , $p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Escape	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gender	Female or male	$d = .62$ , $p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Escape	Motives for Online Gaming Questionnaire (MOGQ, [22])	Age	Participants were asked of their age	$r = .19$ , $p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Fantasy	Motives for Online Gaming Questionnaire (MOGQ, [22])	Age	Participants were asked of their age	$r = .14$ , $p < .01$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Skill development	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Age	Participants were asked of their age	$r = .19, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	General motivation	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Age	Participants were asked of their age	$r = -.25, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	General motivation	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Student	Occupation	$d = .42, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Coping	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Single player	Style of playing	$d = .53, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Competition	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Single player	Style of playing	$d = .57, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	Social	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Single player	Style of playing	$d = 1.28, p < .01$
Wu et al. [121].	383	209 (54.6%) M 174 (45.4%) F	23.7, SD = 6.7, 18-82	China	General motivation	Online Gaming Questionnaire (MOGQ, [22]) Motives for	Single player	Style of playing	$d = 1.00, p < .01$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD = 6.57, 14-58	Hungary	Social	Online Gaming Questionnaire (MOGQ, [22])	Type of gamer	Recreational (R) or Esport gamers (E)	Mean (R = 2.26, sd = .97; E = 2.80, sd = 1.03), $t = 7.74, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Competition	Motives for Online Gaming Questionnaire (MOGQ, [22])	Type of gamer	Recreational (R) or Esport gamers (E)	Mean (R = 2.63, sd = 1.10; E = 2.59, sd = 1.10), t = 10.44, $p < .001$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Skill development	Motives for Online Gaming Questionnaire (MOGQ, [22])	Type of gamer	Recreational (R) or Esport gamers (E)	Mean (R = 2.98, sd = 1.18; E = 2.95, sd = 1.18), t = 8.01, $p < .001$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Escapism	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gaming disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta$ (Esport) = .49, $p < .001$ ; $\beta$ (recreational) = .49, $p < .001$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Coping	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gaming disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta$ (recreational) = -.08, $p < .01$ ;
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Fantasy	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gaming disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta$ (recreational) = -.05, $p < .05$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Recreation	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gaming disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta$ (recreational) = .08, $p < .001$
Bányai et al. [122].	4284	3851 (89.89%) M 433 (10.11%) F	23.08, SD=6.57, 14-58	Hungary	Competition	Motives for Online Gaming Questionnaire (MOGQ, [22])	Gaming disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta$ (Esport) = .14, $p < .05$ ; $\beta$ (recreational) = .12, $p < .001$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Habit	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .58, p = .05$ , $\beta = .381, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Frederik, & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Social	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .43, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Performance	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .34, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Agency	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .29, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Escapism	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .23, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Moral	Digital Games Motivation Scale (DGMS; [35])	Frequency of play	Players were asked if how much they expected to play in the course of the following week	$r = .45, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Habit	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .27, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Social	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .41, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Narrative	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .23, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Performance	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .27, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Agency	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .21, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Escapism	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = -.28, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Moral	Digital Games Motivation Scale (DGMS; [35])	Duration of an average session	Average session in hours played per day	$r = .31, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Habit	Digital Games Motivation Scale (DGMS; [35])	Play	How frequently the participants played with some friends	$r = .43, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Social	Digital Games Motivation Scale (DGMS; [35])	Play	How frequently the participants played with some friends	$r = .34, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Performance	Digital Games Motivation Scale (DGMS; [35])	Play	How frequently the participants played with some friends	$r = .25, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Agency	Digital Games Motivation Scale (DGMS; [35])	Play	How frequently the participants played with some friends	$r = .21, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Habit	Digital Games Motivation Scale (DGMS; [35])	Coplay	How frequently each pair played together	$r = .29, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Social	Digital Games Motivation Scale (DGMS; [35])	Coplay	How frequently each pair played together	$r = .36, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Habit	Digital Games Motivation Scale (DGMS; [35])	Talk	How frequently they talked with their friends about games	$r = .37, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Social	Digital Games Motivation Scale (DGMS; [35])	Talk	How frequently they talked with their friends about games	$r = .28, p < .05$
Frederik & Jan [123].	100	67 M 33 F	16.39, SD = 1.81; 12-20	Belgium	Moral	Digital Games Motivation Scale (DGMS; [35])	Gender	Female or male	$\beta = -.41, p < .01$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Immersion	Gaming motivations [124]	Playing time	Hours played per week	$\beta = -.11, p < .001$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Sociability	Gaming motivations [124]	Playing time	Hours played per week	$\beta = .10, p < .001$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Achievement	Gaming motivations [124]	Playing time	Hours played per week	$\beta = .12, p < .001$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Exploration	Gaming motivations [124]	Playing time	Hours played per week	$r = -.01, p = .44$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Role Play	Gaming motivations [124]	Playing time	Hours played per week	$r = -.07, p < .001$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Customization	Gaming motivations [124]	Playing time	Hours played per week	$r = -.02, p = .10$
Williams et al. [124].	7000	5656 (80.80%) M 1344 (19.20%) F	31.16, SD = 9.65, 12-65	Online	Escapism	Gaming motivations [124]	Playing time	Hours played per week	$r = .02, p = .20$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Intrinsic motivation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .228, p < .001$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Integrated regulation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .443, p < .001,$ $\beta = .133, p = .030$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Identified regulation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .293, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Introjected regulation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .570, p < .001,$ $\beta = .331, p < .001$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	External regulation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .296, p < .001$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Amotivation	Gaming Motivation Scale (GAMS, [32])	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$r = .392, p < .001,$ $\beta = .112, p = .020$
Chua et al. [125]	319	232 (72.7%) M 87 (27.3%) F	22.09, SD = 22.1, 18-35	Malaysia	Engagement	Gaming Experience Questionnaire [126]	Gaming addiction	Internet Gaming Disorder Scale-Short-Form (IGDS9-SF, [89])	$\beta = .289, p < .001$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Social	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 90) = 0.373,$ $p = 0.543$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Achievement	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 0.388,$ $p = .537$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Skill development	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 0.179,$ $p = .674$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Competition	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 0.411,$ $p = .525$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Competition	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 90) = 0.891,$ $p = .348$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Skill development	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 90) = 5.15,$ $p = 0.026$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Achievement	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 90) = 3.85,$ $p = .053$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Achievement	MOGQ [22]	Emotionality	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 18.62,$ $p < .0001$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Coping	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 4.2,$ $p = .046$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Recreation	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 13.64,$ $p < .001$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Escape	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = 1.83,$ $p = .183$
Viswanathan [53]	92	76 M 16 F	18-30	Online	Fantasy	MOGQ [22]	Emotional intelligence	TEIQue (TEIQue-SF; [127, 128]).	$F(1, 45) = .388,$ $p = .537$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Kneer et al. [76]	375	(54.9%) M (44.3%) F	31.71, SD = 11.06	Online	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Negative masculine attributes	Gender variables [76].	$\beta$ (model 2) = .38, $p < .001$ ; $\beta$ (model 3) = .38, $p < .001$
Kneer et al. [76]	375	(54.9%) M (44.3%) F	31.71, SD = 11.06	Online	Social interaction	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Positive feminine attributes	Gender variables [76].	$\beta$ (model 2) = .27, $p < .001$ ; $\beta$ (model 3) = .24, $p < .001$
Kneer et al. [76]	375	(54.9%) M (44.3%) F	31.71, SD = 11.06	Online	Immersion	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Negative feminine attributes	Gender variables [76].	$\beta$ (model 2) = .23, $p < .001$ ; $\beta$ (model 3) = .23, $p < .001$
Kneer et al. [76]	375	(54.9%) M (44.3%) F	31.71, SD = 11.06	Online	Escapism (immersion)	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Game play addiction	IGD-20 Test [89]	$\beta$ (model 2) = .19, $p < .001$ ; $\beta$ (model 3) = .19, $p < .001$
Kneer et al. [76]	375	(54.9%) M (44.3%) F	31.71, SD = 11.06	Online	Social interaction	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Gender affiliation	Gender affiliation [76]	$\beta$ (model 3) = .22, $p < .001$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Age	Age of the participants	$r = -.17, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Hours per week	Numbers of hours played weekly	$r = .16, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Playing in a group	Play with a group of people	$r = .19, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Playing PvP	Play against other players	$r = .33, p < .0008$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Age	Age of the participants	$r = -.16, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Hours per week	Numbers of hours played weekly	$r = .15, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Playing in a group	Play with a group of people	$r = .35, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Playing solo	Playing without other people	$r = -.18, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Immersion	Motivations for gaming [36]	Playing in a group	Play with a group of people	$r = .18, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Immersion	Motivations for gaming [36]	Playing solo	Playing without other people	$r = .28, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Immersion	Motivations for gaming [36]	Playing PvE	Playing against the environment	$r = .37, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Immersion	Motivations for gaming [36]	Role playing	Role playing inside the game	$r = .14, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Relaxing	Motivations for gaming [36]	Playing PvE	Playing against the environment	$r = .16, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Escaping	Motivations for gaming [36]	Hours per week	Numbers of hours played weekly	$r = .13, p < .0008$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Escaping	Motivations for gaming [36]	Gender	Female or male	$\beta = 0.08,$ $t(694) = 3.00,$ $p = 0.003$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Escaping	Motivations for gaming [36]	Marital Status	Being single or not	$t(694) = 3.17,$ $p = 0.002$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Relaxing	Motivations for gaming [36]	Professional status	Professional, student or without any activities	$t(694) = 2.68,$ $p = 0.007$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Type of household	Having children or not	$t(694) = 4.16, p = 0.000$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Marital status	Being alone or not	$t(694) = -3.12, p = 0.002$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Achievement	Motivations for gaming [36]	Gaming addiction	Internet Addiction ([36]; adapted from [120])	$r = .35, p < .00; \beta = .36, t = 10.32, p = .00$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Escaping	Motivations for gaming [36]	Gaming addiction	Internet Addiction ([36]; adapted from [120])	$r = .23, p < .00; \beta = .25, t = 7.11, p = .00$
Dauriat et al. [36].	696	648 M 48 F	25.38, SD = 7.36, 13-54	Online	Socializing	Motivations for gaming [36]	Gaming addiction	Internet Addiction ([36]; adapted from [120])	$\beta = .10, t = 2.98, p = .00$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Social interaction	Video game uses and gratifications [29]	Gender	Female or male	$d > 1.0$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); Eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Diversion	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (college) = .29, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Social interaction	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (college) = .24, $p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Arousal	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (college) = .11, $p < .05$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Diversion	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (11th grader) = .24, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Social interaction	Video Game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (11th grader) = .31, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Arousal	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (11th grader) = .16, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19,68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Diversion	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (8th grader) = .21, $p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19.68, 18-23); highschool (16.56, 16-18), Eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Social interaction	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (8th grader) = .47, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19.68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Strong	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (5th grader) = .31, $p < .01$
Sherry et al. [29].	1265	University (321-58% F, 229-42% M), highschool (168-53% F, 150-47% M); eighth graders (125-55% F, 102-45% M); fourth and fifth grade elementary (70-50% F, 71-50% M)	University (19.68, 18-23); highschool (16.56, 16-18), eighth graders (13.84, 13-16); fourth and fifth grade elementary (10.15, 9-11)	United States	Competition	Video game uses and gratifications [29]	Amount of play	Hours played weekly	$\beta$ (5th grader) = .29, $p < .01$
Johnson et al. [129].	573	470 (82%) M, 103 (18%) F	20.73, SD = 5.71, 13-54	Australia	Competence	PENS [30]	Hours played	Average length of time they play each week	$\beta = .10, p < .05$
Johnson et al. [129].	573	470 (82%) M, 103 (18%) F	20.73, SD = 5.71, 13-54	Australia	Autonomy	PENS [30]	Hours played	Average length of time they play each week	$\beta = .11, p < .05$
Johnson et al. [129].	573	470 (82%) M, 103 (18%) F	20.73, SD = 5.71, 13-54	Australia	Relatedness	PENS [30]	Hours played	Average length of time they play each week	$\beta = .16, p < .05$
Yee et al. [27]	2071	1358 M, 709 F	29.95, SD = 9.20	United States	Achievement	Online Gaming Motivations Scale [27]	Gender	Male (M) or female (F)	mean (M = .14, sd = .83; F = .27, sd = .91), $t = 10.08, p < .001$
Yee et al. [27]	2071	1358 M, 709 F	29.95, SD = 9.20	United States	Social	Online Gaming Motivations Scale [27]	Gender	Male (M) or female (F)	mean (M = -.05, sd = .88; F = .09, sd = .90), $t = -3.43, p < .005$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee et al. [27]	2071	1358 M 709 F	29.95, SD = 9.20	United States	Immersion	Online Gaming Motivations Scale [27]	Gender	Male (M) or female (F)	mean ( $M = -.07$ , $sd = .89$ ; $F = .13$ , $sd = .87$ ), $t = -4.70$ , $p < .001$
Yee et al. [27]	2071	1358 M 709 F	29.95, SD = 9.20	United States	Achievement	Online Gaming Motivations Scale [27]	Age	Age of the participants	$r = .27$ , $p < .001$
Yee et al. [27]	2071	1358 M 709 F	29.95, SD = 9.20	United States	Social	Online Gaming Motivations Scale [27]	Age	Age of the participants	$r = -.13$ , $p < .001$
Yee et al. [27]	2071	1358 M 709 F	29.95, SD = 9.20	United States	Immersion	Online Gaming Motivations Scale [27]	Age	Age of the participants	$r = -.01$ , $p = .64$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	Quests	Behavioural metrics in WoW	$\beta = -.21$ , $p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Social	Online Gaming Motivations Scale [27]	Quests	Behavioural metrics in WoW	$\beta = -.16$ , $p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Immersion	Online Gaming Motivations Scale [27]	Quests	Behavioural metrics in WoW	$\beta = .10$ , $p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	Exploration	Behavioural metrics in WoW	$\beta = -.21$ , $p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Social	Online Gaming Motivations Scale [27]	Exploration	Behavioural metrics in WoW	$\beta = -.09$ , $p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Immersion	Online Gaming Motivations Scale [27]	Exploration	Behavioural metrics in WoW	$\beta = .09$ , $p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	PvP	Behavioural metrics in WoW	$\beta = .14, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Immersion	Online Gaming Motivations Scale [27]	PvP	Behavioural metrics in WoW	$\beta = -.07, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	Dungeons	Behavioural metrics in WoW	$\beta = .28, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Social	Online Gaming Motivations Scale [27]	Dungeons	Behavioural metrics in WoW	$\beta = .18, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Immersion	Online Gaming Motivations Scale [27]	Dungeons	Behavioural metrics in WoW	$\beta = -.10, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	Professions	Behavioural metrics in WoW	$\beta = -.19, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Social	Online Gaming Motivations Scale [27]	Professions	Behavioural metrics in WoW	$\beta = -.14, p < .001$
Yee et al. [27]	645	514 M 128 F	23.59, SD = 5.16	Taiwan (406), Hong Kong (239)	Achievement	Online Gaming Motivations Scale [27]	World event	Behavioural metrics in WoW	$\beta = -.11, p < .001$
McCauley et al. [52].	293	137 M 157 F	18-36+	Online	Autonomy	PENS [30]	Enjoyment	Ad hoc instrument (McCauley, Merola & Gumbley, based on [30, 95])	$\beta = .244, p < .001$
McCauley et al. [52].	293	137 M 157 F	18-36+	Online	Entertainment	Ad hoc instrument (McCauley et al., based on [130])	Enjoyment	Ad hoc instrument (McCauley, Merola & Gumbley, based on [30, 95])	$\beta = .493, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
McCauley et al. [52].	293	137 M 157 F	18-36+	Online	Flow	Ad hoc instrument (McCauley et al., based on [130])	Enjoyment	Ad hoc instrument (McCauley, Merola & Gumbley, based on [30, 95])	$\beta = .231, p < .001$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Exploration	Ad hoc instrument to measure motivations [33]	Years playing	Participants were asked for how long they have been playing	$r = .182, p < .05$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Achievement	Ad hoc instrument to measure motivations [33]	Years playing	Participants were asked for how long they have been playing	$r = .132, p < .05$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Exploration	Ad hoc instrument to measure motivations [33]	Hours during the week	Hours played weekly	$r = .153, p < .05$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Achievement	Ad hoc instrument to measure motivations [33]	Hours during the week	Hours played weekly	$r = .160, p < .05$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Dissociation	Ad hoc instrument to measure motivations [33]	Hours during the week	Hours played weekly	$r = .179, p < .01$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Socialization	Ad hoc instrument to measure motivations [33]	Hours weekend	Hours played during the weekend	$r = .176, p < .01$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Exploration	Ad hoc instrument to measure motivations [33]	Hours weekend	Hours played during the weekend	$r = .230, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Achievement	Ad hoc instrument to measure motivations [33]	Hours weekend	Hours played during the weekend	$r = .166, p < .01$
Fuster et al. [33]	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Dissociation	Ad hoc instrument to measure motivations [33]	Hours weekend	Hours played during the weekend	$r = .308, p < .01$
Fuster et al. [33].	253	253 M 0 F	22.2, SD = 4.4, 16-35	Spain	Exploration	Ad hoc instrument to measure motivations [33]	Number of avatars	Number of avatars possessed	$r = .189, p < .01$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Play amount	Hours played per day	$r = .14, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Friendship maintenance	Pokémon Go motivation scale [48]	Play amount	Hours played per day	$r = .23, p < .001$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Friendship initiation	Pokémon Go motivation scale [48]	Play amount	Hours played per day	$r = .24, p < .001$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Achievement	Pokémon Go motivation scale [48]	Play amount	Hours played per day	$r = .14, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Bonding capital	Social Capital Scale (Williams, 2006)	$r = .18, p < .01,$ $\beta = .28, p < .001$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Escapism	Pokémon Go motivation scale [48]	Bonding capital	Social Capital Scale (Williams, 2006)	$r = -.16, p < .01,$ $\beta = -.20, p < .01$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Friendship maintenance	Pokémon Go motivation scale [48]	Bridging capital	Social Capital Scale (Williams, 2006)	$r = .20, p < .01$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Relationship initiation	Pokémon Go motivation scale [48]	Bridging capital	Social Capital Scale (Williams, 2006)	$r = .24, p < .001,$ $\beta = .24, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Bridging capital	Social Capital Scale (Williams, 2006)	$r = .16, p < .05,$ $\beta = .18, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Escapism	Pokémon Go motivation scale [48]	Loneliness	UCLA Loneliness Scale [131]	$r = .14, p < .05,$ $\beta = .15, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Nostalgia	Pokémon Go motivation scale [48]	Loneliness	UCLA Loneliness Scale [131]	$r = .15, p < .05,$ $\beta = .18, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Relationship initiation	Pokémon Go motivation scale [48]	Loneliness	UCLA Loneliness Scale [131]	$r = .18, p < .01$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Loneliness	UCLA Loneliness Scale [131]	$\beta = -.21, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Life satisfaction	Satisfaction with Life Scale (Diener et al., 1985)	$r = .15, p < .05,$ $\beta = .12, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Friendship Maintenance	Pokémon Go motivation scale [48]	Life satisfaction	Satisfaction with Life Scale (Diener et al., 1985)	$r = .18, p < .01,$ $\beta = .17, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Escapism	Pokémon Go motivation scale [48]	Life satisfaction	Satisfaction with Life Scale (Diener et al., 1985)	$\beta = -.17, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Relationship Initiation	Pokémon Go motivation scale [48]	Life satisfaction	Satisfaction with Life Scale (Diener et al., 1985)	$r = .13, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Fun	Pokémon Go motivation scale [48]	Physical health	Physical And Environmental Health Subscale (Holistic Health Score sheet; [132])	$r = .15, p < .05,$ $\beta = .19, p < .05$
Yang & Liu [48].	262	144 (55%) M 118 (45%) F	30.71, SD = 7.77, 18-58	United States	Friendship maintenance	Pokémon Go motivation scale [48]	Physical health	Physical And Environmental Health Subscale (Holistic Health Score sheet; [132])	$r = .17, p < .05,$ $\beta = .17, p < .05$



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Catharsis	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked their age	$r = -.08, p = .004$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Loss Aversion	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = -.10, p = .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Social Interaction	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = -.17, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Customization	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = -.06, p = .02$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Grinding	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = -.12, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Autonomy	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = .10, p = .002$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Story	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = .02, p = .14$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Violent Reward	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = .02, p = .15$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Escapism	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Age	Participants were asked of their age	$r = .02, p = .17$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Story	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = .23, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Violence	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = .18, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Social	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = .12, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Escapism	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = -.24, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Losing	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = -.16, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Custom	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Spare time	Time spent gaming during spare time	$\beta = -.08, p < .05$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Story	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = -.29, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Violence	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = -.25, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Social	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = -.16, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Escapism	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = -.16, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Losing	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = .17, p < .05$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Custom	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = .09, p < .05$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Autonomy	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Frequency of use	Participants were asked how frequently they played the video games	$\beta = -.13, p < .05$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Story	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = -.13, p < .01$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Violence	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = -.27, p < .001$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Social	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = -.09, p < .05$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Escapism	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = -.16, p < .01$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Losing	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = .29, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Custom	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = .17, p < .001$
Hilgard et al. [34].	672	531 (79%) M 141 (21%) F	22.6, SD = 5.51, 17-34	Online	Autonomy	Gaming Attitudes, Motives, and Experiences Scale (GAMES; [34])	Self-described attitude	Participants were asked how much of a casual or hardcore gamers they were	$\beta = -.16, p < .001$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Philanthropist	Gamification User Types Hexad Scale [44]	Extraversion	Big Five Inventory 10 item short version [91]	$\tau = .148, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Philanthropist	Gamification User Types Hexad Scale [44]	Agreeableness	Big Five Inventory 10 item short version [91]	$\tau = .191, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Philanthropist	Gamification User Types Hexad Scale [44]	Conscientiousness	Big Five Inventory 10 item short version [91]	$\tau = .159, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Philanthropist	Gamification User Types Hexad Scale [44]	Openness	Big Five Inventory 10 item short version [91]	$\tau = .145, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Socialiser	Gamification User Types Hexad Scale [44]	Extraversion	Big Five Inventory 10 item short version [91]	$\tau = .290, p < .001$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Socialiser	Gamification User Types Hexad Scale [44]	Agreeableness	Big Five Inventory 10 item short version [91]	$\tau = .272, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Free spirit	Gamification User Types Hexad Scale [44]	Extraversion	Big Five Inventory 10 item short version [91]	$\tau = .152, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Free spirit	Gamification User Types Hexad Scale [44]	Neuroticism	Big Five Inventory 10 item short version [91]	$\tau = -.204, p < .05$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Free spirit	Gamification User Types Hexad Scale [44]	Openness	Big Five Inventory 10 item short version [91]	$\tau = .215, p < .01$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Achiever	Gamification User Types Hexad Scale [44]	Conscientiousness	Big Five Inventory 10 item short version [91]	$\tau = .255, p < .01$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Disruptor	Gamification User Types Hexad Scale [44]	Neuroticism	Big Five Inventory 10 item short version [91]	$\tau = -.170, p < .01$
Tondello et al. [44].	133	59 M 64 F	23.5, SD = 3.3, 18-36	Canada	Player	Gamification User Types Hexad Scale [44]	Conscientiousness	Big Five Inventory 10 item short version [91]	$\tau = .144, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Autonomy	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Physical Presence	Participants were asked through three items	$\tau = .373, p < .01,$ $\beta = .236, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Competence	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Physical Presence	Participants were asked through three items	$\tau = .324, p < .01,$ $\beta = .226, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Relatedness	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Physical Presence	Participants were asked through three items	$\tau = .409, p < .01,$ $\beta = .519, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Autonomy	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Days played	Recorded by the game	$\tau = .028, p < .01,$ $\beta = .119, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Competence	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Days played	Recorded by the game	$\tau = .093, p < .01,$ $\beta = .127, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Relatedness	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Days played	Recorded by the game	$\tau = .101, p < .01,$ $\beta = .163, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Autonomy	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Group play time	Recorded by the game	$\tau = .03, p < .01,$ $\beta = .224, p < .001$
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Competence	Ubisoft Perceived Experience Questionnaire (UPEQ, [46])	Group play time	Recorded by the game	$\tau = .038, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Azadvar & Canossa [46]	563	509 M 59 F	26.87, SD = 7.94, 16-55	Online	Relatedness	Ubisoft Perceived Experience Questionnaire (UPEQ, [47])	Group play time	Recorded by the game	$\tau = .07, p < .01,$ $\beta = .249, p < .001$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Competition	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.72, F = 4.15), t = 7.59, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Challenge	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.52, F = 3.92), t = 6.74, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), Eighth graders (12-14); fifth grade elementary (9-11)	United States	Arousal	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.46, F = 3.37), t = 11.86, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), Eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversions	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.36, F = 3.53), t = 8.59, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Social Interaction	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.30, F = 2.55), t = 17.90, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); Eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Fantasy	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 4.15, F = 3.14), t = 9.45, p < .001



TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Hi-tech	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 3.82, F = 3.17), t = 8.58, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Realism	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 3.13, F = 2.63), t = 6.90, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Ego	Ad hoc Uses and Gratification Questionnaire [47]	Gender	Female or male	Mean gender (M = 2.81, F = 2.33), t = 6.29, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Challenge	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 4.66, 8th grade = 3.71; 11th = 3.72, college = 4.76), F = 48.00, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Fantasy	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 4.64, 8th grade = 3.43; 11th = 3.24, college = 3.73), F = 22.66, p < .001
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Social interaction	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 3.50, 8th grade = 3.21; 11th = 3.24, college = 3.66), F = 4.33, p < .005
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), Eighth graders (12-14); fifth grade elementary (9-11)	United States	Competition	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 3.41, 8th grade = 4.68; 11th = 4.81, college = 4.36), F = 50.91, p < .001

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 3.39, 8th grade = 3.85; 11th = 4.17, college = 4.00), $F = 8.91, p < .001$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Realism	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 3.35, 8th grade = 2.89; 11th = 2.70, college = 2.87), $F = 9.86, p < .001$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), Eighth graders (12-14); fifth grade elementary (9-11)	United States	Ego	Ad hoc Uses and Gratification Questionnaire [47]	Age	Participants were asked of their age	Mean age (5th grade = 3.22, 8th grade = 2.44; 11th = 2.39, college = 2.54), $F = 15.94, p < .001$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Competition	Ad hoc Uses and Gratification Questionnaire [47]	5th graders' gender	Female or male	$\beta(\text{female}) = .33, p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Challenge	Ad hoc Uses and Gratification Questionnaire [47]	5th graders' gender	Female or male	$\beta(\text{female}) = -.41, p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Ego	Ad hoc Uses and Gratification Questionnaire [47]	5th graders' gender	Female or male	$\beta(\text{female}) = .69, p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	8th graders' gender	Female or male	$\beta(\text{male}) = .28, p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Challenge	Ad hoc Uses and Gratification Questionnaire [47]	8th graders' gender	Female or male	$\beta(\text{male}) = .36$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Social Interaction	Ad hoc Uses and Gratification Questionnaire [47]	8th graders' gender	Female or male	$\beta(\text{female}) = .41$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	8th graders' gender	Female or male	$\beta(\text{female}) = .33$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Arousal	Ad hoc Uses and Gratification Questionnaire [47]	11th graders' gender	Female or male	$\beta(\text{male}) = .24$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	11th graders' gender	Female or male	$\beta(\text{male}) = .28$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Social Interaction	Ad hoc Uses and Gratification Questionnaire [47]	11th graders' gender	Female or male	$\beta(\text{female}) = .23$ , $p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	11th graders' gender	Female or male	$\beta(\text{female}) = .21$ , $p < .05$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), Eighth graders (12-14); fifth grade elementary (9-11)	United States	Diversion	Ad hoc Uses and Gratification Questionnaire [47]	College students' gender	Female or male	$\beta(\text{male}) = .31, p < .05$
Greenberg et al. [47].	1242	University (170 F, 202 M), 11th graders (167 F, 150 M); eighth graders (125 F, 102 M); fifth grade elementary (69 F, 70 M)	University (-) 11th graders (15-17), eighth graders (12-14); fifth grade elementary (9-11)	United States	Social Interaction	Ad hoc Uses and Gratification Questionnaire [47]	College students' gender	Female or male	$\beta(\text{female}) = .16, p < .05$
Bong et al. [133].	706	506 (71.7%) M 200 (28.3%) F	21.94, SD = 2.33	Malaysia	Achievement	Motivation to Play in Online Games Questionnaire (MPOGQ, [26])	Internet gaming disorder	Internet Gaming Disorder scale-short form (IGDS9-SF; [89])	$\beta = .049, p < .295$
Bong et al. [133].	706	506 (71.7%) M 200 (28.3%) F	21.94, SD = 2.33	Malaysia	Social	Motivations of Play in Online Games (MPOGQ, [26])	Internet Gaming Disorder	Internet Gaming Disorder scale - short form (IGDS9 - SF; [89])	$\beta = -.143, p < .001$
Bong et al. [133].	706	506 (71.7%) M 200 (28.3%) F	21.94, SD = 2.33	Malaysia	Immersion	Motivations of Play in Online Games (MPOGQ, [26])	Internet Gaming Disorder	Internet Gaming Disorder scale - short form (IGDS9 - SF; [89])	$\beta = .303, p < .000$
Lowe [51]	87	68 M 19 F	18-23+	Online	Achievement	Motivation to Play [27]	Self Expansion	Ad hoc measures ([51]; based on [134])	$r = .27, p < .05$
Lowe [51]	87	68 M 19 F	18-23+	Online	Social	Motivation to Play [27]	Self expansion	Ad hoc measures ([51]; based on [134])	$r = .38, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Immersion	Motivation to Play [27]	Self expansion	Ad hoc measures ([51]; based on [134])	$r = .61, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Immersion	Motivation to Play [27]	Need for Cognition	Need for Cognition [81]	$r = .47, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Social	Motivation to Play [27]	Need for Cognition	Need for Cognition [81]	$r = .28, p < .01$

TABLE 2: Continued.

References	Sample size	Gender distribution	Age mean/ age distribution	Country	Motivation dimension	Motivation measure	Gaming related dimension/ variable	Gaming-related measure/variable description	Results
Lowe [51]	87	68 M 19 F	18-23+	Online	Achievement	Motivation to Play [27]	Need for Cognition	Need for Cognition [81]	$r = .34, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Immersion	Motivation to Play [27]	Bodily Engulfment ESS	Engulfing Self Scale (ESS, [135])	$r = .42, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Achievement	Motivation to Play [27]	Bodily Engulfment ESS	Engulfing Self Scale (ESS, [135])	$r = .28, p < .05$
Lowe [51]	87	68 M 19 F	18-23+	Online	Achievement	Motivation to Play [27]	Social Engulfment ESS	Engulfing Self Scale (ESS, [135])	$r = .61, p < .001$
Lowe [51]	87	68 M 19 F	18-23+	Online	Achievement	Motivation to Play [27]	Spatial Engulfment ESS	Engulfing Self Scale (ESS, [135])	$r = .38, p < .01$
Ramos-Diaz et al. [136]	821	811 (98.9%) M 10 (1.2%) F	19.9, SD = 3.69	Perù	Social	Online Gaming Questionnaire (MOGQ, [22])	Internet Gaming Disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta = -.127, p < .05$
Ramos-Diaz et al. [136]	821	811 (98.9%) M 10 (1.2%) F	19.9, SD = 3.69	Perù	Escape	Online Gaming Questionnaire (MOGQ, [22])	Internet Gaming Disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta = .966, p < .01$
Ramos-Diaz et al. [136]	821	811 (98.9%) M 10 (1.2%) F	19.9, SD = 3.69	Perù	Fantasy	Online Gaming Questionnaire (MOGQ, [22])	Internet Gaming Disorder	Ten-Item Internet Gaming Disorder Test (IGDT-10, [90])	$\beta = .934, p < .01$

TABLE 3: Main findings of each paper included with references, study limitations, and risk of biases.

Ref.	Main findings	Study limitations	Risk of biases
Beard & Wickham [58]	<p>The three factors from the OGMS (achievement, immersion, and socialization) all showed positive correlations with the three dimensions of the GCWS (competition focus, validation seeking, and reward orientation), except the detached one.</p> <p>Validation seeking, reward orientation, and competition of GCWS had significant correlations with all the dimensions in the GAMS (integrated regulation, external regulation, amotivation, introjected regulation, and identified regulation).</p> <p>GCSW proved to have good reliability and validity.</p> <p>GAMS has good reliability and validity, and the six-factor structure was supported.</p> <p>All GAMS motivations positively correlate with game frequency, except amotivation.</p> <p>Perceived autonomy, competence, and relatedness dimensions of PENS positively correlated with identified regulation, external regulation, and intrinsic motivation GAMS dimensions.</p> <p>Introjected regulation did not correlate to any of PENS' dimensions.</p> <p>Amotivation negatively correlated to autonomy and competence, and it did not correlate to relatedness.</p>	<p>Only extrinsic components of the GAMS were measured; several responses were excluded based on incomplete survey completion; demographic information was collected for only a sample of the participants; however, this was validated using demographic information on the population of AMT users. The study is specifically focused on MMORPG players.</p>	<p>Sampling bias due to higher number of males than females, recruitment sample was done online, so responses could not be representative of the actual gaming population; furthermore, only MMORPG players were analyzed, making generalization of the data more difficult. Some correlations, even though significant, are not particularly high. Reporting bias since some questionnaires were not included.</p>
Lafrenière et al. [32].	<p>The sample contained a larger proportion of men (<math>N = 193</math>) than women (<math>N = 83</math>), so it did not permit them to investigate the issue of gender differences; the results cannot be unequivocally applied to all populations; GAMS assesses exclusively the underlying motivations of gaming and not goal contents. All data were collected using self-reports, which could lead to common method variance issues.</p>	<p>The sample contained a larger proportion of men (<math>N = 193</math>) than women (<math>N = 83</math>), so it did not permit them to investigate the issue of gender differences; the results cannot be unequivocally applied to all populations; GAMS assesses exclusively the underlying motivations of gaming and not goal contents. All data were collected using self-reports, which could lead to common method variance issues.</p>	<p>All data were collected using self-reports, which could lead to common method variance issues; sample bias due to inequality of gender, sample may not be representative since it was recruited online; measurement bias due to the fact that authors did not report the specific Cronbach's alpha for each dimensions.</p>
Myrseth et al. [41].	<p>The confirmatory factor analyses showed that the proposed EGMQ (measuring enhancement, coping, social, and self-gratification motives) displayed satisfactory fit and internal consistency.</p> <p>All dimensions of EGMQ positively correlated to gaming hours, specifically enhancement correlated negatively, while the social, coping, and self-gratification correlated positively.</p> <p>Coping, social, self-gratification, and enhancement had strong positive correlations with gaming addiction.</p> <p>Coping and self-gratification positively predicted gaming problems but not enhancement and social motivation, and coping alone negatively predicted loss of control. Coping and loss of control also correlated negatively.</p> <p>Enhancement and social did not correlate with loneliness. Loneliness is not a predictor of enhancement and social motives. Loneliness is positively correlated with coping and social motivation.</p>	<p>Authors did not include all possible motives, but motives related to addiction were added; the conscript sample was predominated by male gender and young age, both of which are identified as risk factors for gaming addiction; the sample only comes from Norway and includes only people that served in the military service between 2013 and 2015.</p>	<p>Sampling bias: use of a nonrepresentative sample; self-report measure was used, sample has gender inequality, and sample might not be representative since it represents only one country; EGMQ has a statistical bias since it was based on another instrument built that measures gambling (GMQ-R), but they used the Bonferroni rule; the sample was recruited half through email and the other half from a military base.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>Boredom (lack of external stimulation) positively correlated with social, enhancement, and coping motivations. It was also a positive predictor of these three. Boredom (lack of internal stimulation) positively correlated with self-gratification and enhancement. It was a positive predictor of these two.</p>	<p>The large sample is mainly composed of male players, and effects of gender in the realm of gaming might be more pronounced than found in this study; interaction effects were not explored. Due to the recruitment method of using anonymous online volunteers, the sample became biased towards male gamers, with a male-female ratio of around 5 : 1, and alphas for the scale utilized are not present; some answers were removed either to replying other to the questions regarding gender or because they showed no univariate variance in their responses.</p>	<p>Sampling bias: used self-report measurements, reporting bias because some answers were deemed not eligible, measurements bias due to ad hoc instrument used, and Cronbach’s alphas not being reported.</p>
Tekofsky et al. [67].	<p>The gender coefficients reveal that women show a mild preference for MMORPG and MOBA games, while male prefers FPS games. Men prefer competition, while women prefer fantasy, story, escapism, customization, grinding/competition, and relationship. Native English speakers show a preference for fantasy and escapism. Age is negatively related to half of the gaming motivations (competition, fantasy, arousal, story, escapism, customization, and relationships).</p>	<p>Limited to the examination of online games; lack of female participants and lack of generability and representativity; self-reported measures, only Hungarian sites were used to gather data, and many did not completely fill in the survey.</p>	<p>Sampling bias: snowball sampling which leads to some bias in the recruitment aspect, sampling bias related to gender inequality in terms of number, and sample was recruited only through Hungarian sites, reporting bias.</p>
Demetrovics et al. [22].	<p>MOGQ was confirmed through the exploratory and confirmatory analyses. The lowest correlation was between the factors escape and recreation, while the strongest correlations were found between escape and coping and fantasy. Recreation had the highest mean, followed by the social dimensions and then by coping, fantasy, skill development, and escape. Men scored higher on the competition factor than women, while women scored higher on the remaining five factors. Younger persons had higher means scored than did older persons on all dimensions except for recreations, on which older persons scored higher.</p>	<p>110 questionnaires had to be discarded due to missing data, and a convenience sample was used which limits overall generalizability; the sample was mainly composed by men.</p>	<p>Sampling bias: sample was of convenience and composed of mainly male players; response bias due to self-report measures and reporting bias due to many of them were discarded.</p>
Kuss et al. [79]	<p>Weekly gaming hours significantly correlated with relationship, advancement, escapism, mechanism, and competition. Escapism and mechanism are positive predictors of excessive gaming. MMORPG players are significantly more likely to experience gaming-related problems relative to nonplayers.</p>	<p>110 questionnaires had to be discarded due to missing data, and a convenience sample was used which limits overall generalizability; the sample was mainly composed by men.</p>	<p>Sampling bias: sample was of convenience and composed of mainly male players; response bias due to self-report measures and reporting bias due to many of them were discarded.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Hoffman & Nadelson [45].	<p>Engagement is positively correlated to need for cognition, ego scores, task scores, play with others, and hours of play and negatively correlated to gender. The most accurate predictor of video game engagement was the number of hours played per week, followed by playing with others, with gender, and ego scores contributing the least.</p> <p>Males were almost twice as likely to be engaged in gaming as females, making gender a significant indicator of video gaming engagement.</p> <p>Participants want to play for the socializing factors: (1) some to have fun with other; (2) some to compete; (3) some said that gaming is an opportunity to be isolated but still would organize social activities around gaming (scheduling gaming nights).</p>	<p>The research took a general view on video gaming; therefore, individuals that engage themselves in any type of video game were included; the variable nature of gender and other exogenous variables was researched in a limited perspective; the sample was self-selected with student volunteering themselves; only college education majors were included.</p>	<p>Sampling bias due to students being from one country, just college students, and there is a lacking of male players, which leads to low representativity, response bias due to self-report measures and desirability.</p>
Osman & Çirak [70]	<p>Pillai's trace result showed a significant effect of gender on game motivation. The post hoc tests showed that male players had significantly higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation than female players</p> <p>Pillai's trace result showed a significant effect of gender on game motivation. The post hoc test showed that players who played games for four years or more had significantly higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation than the players who played three years or less.</p> <p>The results showed that gaming platforms had a significant effect on gaming motivation. The Pillai's trace result showed a significant effect of playing Internet games on gaming motivation. Players who played games on the Internet had significantly higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation than players who did not play games on the Internet.</p> <p>MANOVA test showed a significant difference on gaming motivation among players who played console games. Console game players significantly had higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation over players of other platforms.</p>	<p>The study was conducted with a small sample (330), and majority of them were male, and self-report measures were used; the study was done with only Turkish people.</p>	<p>Sampling bias due to only one nationality, mainly male subjects, small sample, and recruited through online turkish sites/forums; response bias due to self-reported measures.</p>



TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>Players who played mobile games significantly had higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation than players who did not play mobile games.</p> <p>Players who spent money for games or to buy an item in the game environment significantly had higher mean scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation than players who did not spend money.</p> <p>Post hoc tests revealed significant differences between players who played for more than seven hours in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation. On the contrary, it was seen that players who spent at least seven hours in a gaming environment were significantly less amotivated to games compared to others</p> <p>A one-way between-group MANOVA was conducted in order to examine whether or not the willingness to change gaming habits affected gaming motivation. Post hoc tests revealed significant differences between players who did not want to give up their playing habits and the others in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation. In contrast, players who wanted to give up their playing habits were significantly more amotivated towards the game compared to other players.</p>	<p>This study is cross-sectional, so interpretation of the direction of prediction is largely based on theoretical reasoning and past findings; the majority of the participants played both online and offline games (70.8%); e RMSEA value for the three-factor structure of the Online Gaming Motivation Scale is slightly higher than the threshold proposed by El-Den et al. [160]; sample only comes from Malaysia, and all of them were students.</p>	<p>Sampling bias due to them being students; study was done only in one country, response bias due to self-reported measures being used that could have been affected by social desirability.</p>
Fam et al. [83].	<p>Hierarchical multiple regression revealed gaming motives (achievement, immersion, and social) as significant and positive predictors of internet gaming disorder</p>	<p>This study is cross-sectional, so interpretation of the direction of prediction is largely based on theoretical reasoning and past findings; the majority of the participants played both online and offline games (70.8%); e RMSEA value for the three-factor structure of the Online Gaming Motivation Scale is slightly higher than the threshold proposed by El-Den et al. [160]; sample only comes from Malaysia, and all of them were students.</p>	<p>Sampling bias due to them being students; study was done only in one country, response bias due to self-reported measures being used that could have been affected by social desirability.</p>
Mills et al. [85].	<p>Gaming motivations (integrated-identified regulation, introjected regulation, external regulation, and amotivation) are positively correlated with Problematic Videogaming.</p>	<p>59 answers were deleted because some subjects did the survey twice; others were excluded because they were younger than 18y/o (43) or over 35 y/o (61); 251 did not complete the survey; 359 participants were</p>	<p>Sampling bias due to scarce representativity; response bias due subjects doing the test twice, and some of them did not finish it; self-report data.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>Introjected regulation is associated with uncontrollable internal pressure.</p> <p>Introjected regulation and amotivation predicted increased frustration of all three basic needs.</p> <p>Integrated regulation, identified regulation, amotivation, and external regulation positively predicted Problematic Videogaming.</p> <p>All dimensions of GAMS are positively correlated to gaming hours.</p>	<p>excluded because they were not frequent video gamers; sample may not be representative because it was gathered online; data did not confirm the original six-factor structure of the GAMS; study with a cross-sectional design.</p>	
T'ng & Pau [73]	<p>Immersion and achievement motivations positively predict Internet Gaming Disorder in MOBA games, while social motivation is a negative predictor.</p> <p>Immersion, social, and achievement motivations were predicted by avatar identification in MOBA games.</p> <p>Achievement, social motivation, and immersion motivation were significant and positive predictors of Internet Gaming Disorder.</p> <p>Age and student status were significant predictors of achievement motivation and had a small negative relationship with it. Gender had a moderate and negative relationship with achievement. Ethnicity was the only one to have a small positive relationship.</p> <p>Extraversion and neuroticism were not significant predictors of achievement motivation.</p> <p>Age, gender, student status, and extraversion are significant predictors of social motivation. Ethnicity and neuroticism were not significant predictors of social motivation. Specifically, age, gender, and student status all had small negative relationships with social motivation; instead, extraversion had a small positive relationship.</p> <p>Age is the only predictor of immersion motivation. It has a small negative relationship with it. Gender, ethnicity, student status, extraversion, and neuroticism were not significant predictors.</p>	<p>110 sets of answers were removed due to disqualified age; sample is mainly composed of males; study is done in just one country; study was done only with MOBA players, so it cannot be generalized; social desirability bias due to the online survey&lt;</p> <p>Participants must have played an MMO game within the past 12 months, so the sample is only composed of MMO players; more males than females were present; self-report measures were used; path analysis method could mitigate internal validity; some groups were not equivalent in terms of age and ethnicity; only two constructs of the BFI-10 demonstrated adequate reliability; lack of randomization, manipulation, control factors in the correlational design make it difficult to establish cause-effect relationship; therefore, these results lack generalizability.</p>	<p>Reporting bias due to answers removed, sampling bias due to having administered the survey online, and it was self-report.</p> <p>Sampling bias due to only addressing some specific players. There were more males and females. Response bias due social desirability and self-report measurements. Selection bias due to participants not being representative of the gaming population.</p>
Carlisle et al. [68].	<p>Weekly gaming was positively correlated to customization, fantasy, recreation, competition, cognitive development, coping, social interaction, and violent reward. The strongest relation in the path analysis was with social interaction.</p> <p>Disordered gaming was positively correlated to competition, cognitive development, coping, social</p>	<p>Of 1106 students that were invited to participate, only 364 were deemed eligible. Convenient sample of teenagers; data were all self-reported measures. The study is cross sectional as such causal inferences are not possible.</p>	<p>Sampling bias: sample was of convenience, made of only spanish students and focused on adolescents only. Desirability bias and recall bias due to self-report measures. Reporting bias because some of the participants were not eligible.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Yildiz et al. [54].	<p>interaction, violent reward, customization, fantasy recreation, and competition. In path analysis, the strongest relations were social interaction and coping, low positive relations with violent reward, and cognitive development and competition, while small and negative were with fantasy, competition, and recreation.</p> <p>When all motives were taken into account simultaneously, only social interaction became the main motivation for weekly gaming.</p> <p>Social interaction and coping were the most important motives for disordered gaming.</p> <p>Competition motivation has a positive correlation with extraversion and negative correlations with openness, agreeableness, and conscientiousness. Agreeableness and conscientiousness are negative predictors of competition.</p> <p>Cognitive challenge has a positive correlation with openness and neuroticism and a negative correlation with agreeableness. Openness and neuroticism are positive predictors of cognitive challenge, while agreeableness is a negative predictor.</p> <p>Coping motivation has negative correlations with extraversion, agreeableness, and conscientiousness but a positive correlation with neuroticism. Neuroticism is a positive predictor of coping, while agreeableness and conscientiousness are negative.</p> <p>Social interaction has negative correlations with agreeableness and conscientiousness. Agreeableness and conscientiousness are both negative predictors of social interaction.</p> <p>Violent reward has negative correlations with agreeableness and conscientiousness. Agreeableness and conscientiousness are both negative predictors of violent reward.</p> <p>Customization has a positive correlation with conscientiousness. Conscientiousness is a positive predictor of customization.</p> <p>Fantasy is negatively correlated with agreeableness. Agreeableness is a negative predictor of fantasy.</p>	The research only investigates Turkish gamers, and measures were self-reported, cross-sectional study.	Sampling bias: convenient sample of Turkish gamers; response bias. Desirability due to self-report measures;

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Goldblum [69].	<p>Significant differences were found in favor of the groups playing games in Internet cafes in the concentration, entertainment, escape, learning, and socialization. ANOVA showed differences according to the sample's age.</p> <p>There is a negative low correlation between daily usage of ICT and concentration; but there are also positive correlations between entertainment and escape. If more time is spent with ICT, then, there is a decrease in concentration and an increase in entertainment and escape.</p> <p>Age is negatively correlated to concentration, entertainment, escape, learning, and socialization.</p> <p>Age positively correlated with autonomy motivation.</p> <p>Gaming frequency was positively correlated with autonomy, relatedness, enjoyment, alleviation of boredom, and psychological detachment.</p> <p>Gaming duration was positively correlated with autonomy, relatedness, enjoyment, alleviation of boredom, and relaxation.</p> <p>Relatedness and enjoyment were significantly positively related to gaming duration</p> <p>Autonomy was significantly negatively related to gaming duration</p>	<p>The study is limited to female mobile gamers, leaving out male gamers; cross-sectional nature of the study which leaves out possible causal inferences, this study wanted to capture typical mobile gaming, but due to the pandemic, this data could have been altered; the study was conducted only in the United States; self-report measures could lead to some biases; some questionnaires were discarded due to not meeting the eligibility criteria.</p>	<p>Sampling bias due to participants that were recruited online and only in the United States, and sample is composed only of female gamers. Desirability bias and response bias due to self-report measures; reporting bias due to the fact that some studies were removed;</p>
Wohn et al. [43].	<p>MMO players had higher intrinsic hedonic motivations, higher intrinsic accomplishment, higher social identified, and higher external game than casual SNG players. However, SNG players had higher external social and higher amotivation than MMO players.</p> <p>SNG players had higher external social and higher amotivation than MMO players.</p> <p>For identified regulation, there was a significant genre effect: MMO players had higher identified motivation than SNG players. There was no main gender effect, but there was an interaction with casual SNG players where males had higher identified motivation than females.</p> <p>For external social motivation (motivated because others require you to play), there was a main effect of genre but no main gender effect. SNG players had higher external social motivation than males</p> <p>For intrinsic accomplishment, there was only a main</p>	<p>Data were gathered by administering the measures on Mturk; lack of consistency between the conceptualization and measures of motivation used in this study; this study divided social and achievement motivation in two dimensions; there might be a generalizing effect of gender; self-report measures were used; the study only used participants from one country, the United States.</p>	<p>Sampling bias due to being recruited online and mainly from the United States; response bias due to using Mturk and self-reported measures;</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>effect of genre and no main effect of gender.</p> <p>For external regulation related to game mechanics, there was a significant main effect of the genre. This indicates that MMO players were far more driven by game mechanics than casual SNG players. There was also a significant main effect of gender. Female players for both SNGs and MMOs reported higher levels of external game regulation than males.</p>		
Scharnow et al. [38].	<p>Gender (being female) has negative relations with role playing, competence, exploration, social capital, team play, competition, and mechanics.</p> <p>Age has negative relations with role playing, exploration, social capital, team play, competition, mechanics, and narration.</p> <p>Compared to beginners, experienced players are more interested in the game itself, especially in exploring the game world, its mechanics, and narration, to play another role or be part of a team.</p> <p>Achievement seeking is a positive predictor of competence, exploration, mechanics, and narration.</p> <p>Collective orientation is positively related to social capital, team play, and competition.</p> <p>Fantasy motivation has positive relations with preference for RPG, simulation, adventure, and action.</p> <p>It has negative relations with strategy, puzzle, sport, platform, and music.</p> <p>Competence has positive relations with puzzle and sport, but it has negative relations with role playing and action genre.</p> <p>Exploration has positive relations with strategy, adventure, role playing, and platform, but it has a negative relations with sport genre.</p> <p>Social capital has positive relations with strategy, puzzle, and role playing. It has negative relations with sport and music genre.</p> <p>Team play has positive relations with sport, platform, and action genre.</p> <p>Competition has a negative relationship with role playing, simulation, but it has positive relationship with sport and action.</p> <p>Mechanics has positive relations with sport, adventure, platform, simulation, and action genre.</p> <p>Narration has positive relations with strategy, puzzle,</p>	<p>The first limitation is about the preference element per se given that preferences do not necessarily correspond to actual behaviour; some genres (like action and role playing games) could be explained very well by the constructs outlined by the authors, whereas other types (like strategy games) were more weakly affected by the respective factors; the gaming field is changing rapidly; therefore, the results might not be representative anymore in the future; study included all kinds of users—also the growing group of casual gamers; self-reported measures were used; the sample only came from Germany;</p>	<p>Sampling bias due to sample being all from Germany; response bias due to self-report measure; the recruitment of the sample was done through the phone, so some desirability bias might have affected the answers; measurement bias due to the questionnaire being created ad hoc, plus one dimension exploration (Ego Centered Motives) had only item, thus resulting in a Cronbach's alpha of one.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Ryan et al. [30].	<p>adventure, and role playing genre, but it has a negative relationship with sport and action.</p> <p>Study 1: results revealed a significant difference only for intuitive controls with women scoring lower than men. Those who chose to continue the target game were contrasted with those who chose the alternative. The overall MANOVA was significant. Follow-up univariate results revealed that persons who continued playing had higher scores on IC, in-game autonomy, and in-game competence.</p> <p>Competence is positively related to self-esteem, free choice continued play, and preference for continued play.</p> <p>Mood/affect is positively related to autonomy and competence.</p> <p>Study 4: autonomy, competence, and relatedness were all related to game enjoyment.</p> <p>Post-play mood was positively associated with autonomy and competence, negatively associated with Yee's achievement and immersion</p> <p>Future play was positively related to autonomy, competence, and relatedness.</p> <p>Hours per week was positively related to competence, relatedness, and achievement.</p>	<p>Study 1 used a relatively small sample and majority were females; study 1 only focused on a certain game (Nintendo Super Mario), and study 4 had only MMO players as a sample, furthermore, the majority was male, and they were selected online. In both, the sample was paid to participate in the study; self-reported measures could be an issue due to desirability, and sample was assigned to the game, and they could not choose the game they wanted like in real life; PENS was still a new instrument which needed more validation; even though the model was general, different game genres might have different effects on people.</p>	<p>Sampling bias due to: sample was paid, recruited online, might not be representative of the the real population; response bias due to self-report measures, and the fact the sample was paid; measurement bias because PENS was still in its first stages;</p>
Klimmt et al. [39].	<p>MANOVA results indicate that heaviest players assign more importance both to the socializing and the competition dimensions than do moderate players; the difference in the coping dimension was less pronounced; no relevant difference occurred with the cost/flexibility dimension.</p> <p>Socializing (meeting and playing with others) was found to be the most important dimension.</p> <p>A gender difference emerged only in the competition dimension, with males finding competition more important than female players.</p>	<p>Sample was mainly composed of male players and focused on only one type of game, Travian, a browser game. Furthermore, the participants were all from Germany, and self-report measures were used leading to some desirability bias.</p>	<p>Sampling bias due to: participants all came from Germany, and majority of them were male, and the survey was done. Response bias due to self-report bias and because it was administered online leading to some desirability effect in the answers.</p>
Fuster et al. [105].	<p>Significant negative correlations between age and socialization and dissociation; negative correlations between age and achievement; age and dissociation; hours spent playing per week are negatively correlated to exploration and positively correlated to dissociation. Significant differences between type of occupation (student and worker) and achievement (where students</p>	<p>25 subjects were rejected due to having replied with nonproper answers; majority of the sample was male and just from one country; cross cultural study that cannot infer causality between the variables; self-report measures were used.</p>	<p>Sampling bias due to sample being from one country (Spain) and recruited online; sample was mainly composed of male players; response bias due to random answers and self report measures that might have been affected by social desirability;</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>scored higher than those who worked) and dissociation (where students scored higher than those who worked and those who work and study).</p> <p>ANOVA analysis found significant differences between MMORPG types and dissociation; post hoc showed that World of Warcraft players scored higher on Dissociations than participants who played Aion and EVE online.</p> <p>Significant differences between the different type of server used and the variables Exploration and Dissociation. Post hoc showed that RP servers scored higher on Exploration than those who played in Pvp servers; however, those who played PvP serves scored higher on Dissociation than those playing on RP servers.</p>		
Graham & Gosling [106].	<p>Individuals motivated to play WoW for the purpose of socialization tended to be high on extraversion, agreeableness, neuroticism, and openness but low in conscientiousness; socialization was predicted positively by extraversion, agreeableness, neuroticism, and openness.</p> <p>Achievement motivation was negatively related to conscientiousness, to agreeableness, and openness but positively to extraversion, neuroticism, and hours of play. Achievement motivation is positively predicted by neuroticism and extraversion; while negative predictors were agreeableness, conscientiousness, and openness.</p> <p>Individuals playing WoW for immersive motives were relatively high in openness, neuroticism, and agreeableness but lower on extraversion and conscientiousness. Openness was the only positive predictor for immersion, while neuroticism, conscientiousness, and extraversion.</p> <p>WoW gamers motivated to play for leadership purposes tended to be extraverted, conscientious, and open and lower in agreeableness and neuroticism.</p> <p>Extraversion, conscientiousness, and openness were positive predictors, while agreeableness is a negative one.</p> <p>Individuals with motives of independence tended to be low in extraversion, agreeableness, conscientiousness, and neuroticism but high in openness. Openness was the only positive predictor.</p>	<p>Sample was recruited online, and it included exclusively World of Warcraft players; majority of the sample was male, and they were administered self-reported measures;</p>	<p>Sampling bias due to all participants were recruited online, and they were majorly male; they were mainly WoW players; Response bias due to self-report measures.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Johnson & Gardner [23].	<p>Agreeableness was positively correlated with competence/control, and people with high levels of agreeableness were more likely to report higher levels of competence and control when recalling their experience with their current favorite game.</p> <p>Emotional stability was negatively correlated with presence; people with higher levels of emotional stability were less likely to report higher levels of presence.</p> <p>Openness to experience was positively correlated with autonomy respondents with higher levels of openness to experience that were more likely to report higher levels of autonomy.</p> <p>There is a significant relationship between game genre and reported levels of presence. The experience of presence was lowest for sport/simulation and shooting games, moderate for action adventure games, and highest for strategy/role playing games.</p> <p>There is a significant relationship between game genre and autonomy. The experience of autonomy was lowest for action adventure and shooting games, moderate for sport/simulation games, and highest for strategy/role playing games</p>	<p>Sample was recruited online, and it was majorly composed of males; two cases were removed because their surveys were incomplete.</p>	<p>Sampling bias due to the sample being recruited online, and majority of it was composed by males; response bias due to self-reported measures that could have been affected by social desirability; reporting bias due to some questionnaire being removed;</p>
Fuster et al. [74].	<p>Harmonious passion is positively correlated with exploration, socialization, and achievement.</p> <p>Harmonious passion is a positive predictor of exploration, socialization, and achievement.</p> <p>Obsessive passion is positively correlated with dissociation, achievement and socialization. Obsessive passion is a positive predictor of dissociation, achievement, and socialization.</p>	<p>Sample was only composed of Spanish people, and the female numbers were all removed due to low representation in the sample. Participants were only MMORPG players; self report measures were used; data were cross-sectional; it is unknown if players with high score for Obsessive Passion were really addicted to the game;</p>	<p>Sampling bias due to being recruited online, only male spanish MMORPG players were included; reporting bias because all the female participants were removed; response bias due to self reported measures.</p>
Dindar [75].	<p>Immersion motivation is correlated and predicts all facets of flow (merge of actions and thoughts, control on task, loss of self-consciousness, distortion of time, and autotelic experience);</p> <p>Social motivations predict daily play time.</p> <p>Achievement motivation is correlated and predicts status seeking in MMORPGs and control on task.</p>	<p>Sample only comes from Turkey, and it is composed majorly by male and only of MMORPG players; self-reported measures were used. A bigger sample is needed; all participants were recruited online, so it is possible that they might not be representative of their population; gamer loyalty was measured as an attitudinal, rather than behavioural, construct.</p>	<p>Sampling bias due to mainly male participants; all of them were Turkish, recruited online and MMORPG players; Response bias due to self report measures that could be affected by social desirability; measurement bias due to the attitudinal nature of gamer loyalty construct.</p>
Chang & Zhang [55].	<p>Materialism significantly and positively predicted the pursuit of self-confidence and achievement, escape and virtual identification, and entertainment and reward through online gaming.</p>	<p>Cross-sectional study; sample was composed only of chinese players, and mean of age was not reported; self-reported measures were used; some questionnaires were deemed not valid.</p>	<p>Sampling bias due to sample being composed only of Chinese players; response bias due to using self reported measures; reporting bias due to some questionnaires being removed.</p>



TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Argento et al. [116].	<p>Entertainment, sociability, and self confidence and achievement were positive predictors of attitude towards online gaming.</p> <p>MANCOVA analysis suggested that male players were higher in intrinsic motivation, integrated regulation, identified regulation, and extrinsic motivation than female players.</p> <p>MANCOVA analysis suggested that gamers were higher in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and extrinsic motivation than nongamers.</p> <p>MANCOVA analysis suggested that there is a difference of frequency of use between gamers in intrinsic motivation and extrinsic motivation than nongamers.</p>	<p>Data were collected through a convenient sample and online, so it may not be representative; use of self-reported measures; many questionnaires were removed from the initial numbers of submitted ones; the number of female participants is low; violations of equal variances limit the interpretation of the corresponding effect sizes.</p>	<p>Sampling bias due to being recruited online, mainly composed of male players; response bias due to self-reported measures; reporting bias due to half of the original sample was cut out;</p>
Ratan et al. [50].	<p>Game motivations altogether differed significantly by participant gender and country. Nearly all game motivations differed significantly by gender, with the exception of agency and pastime. For all significant differences, all motivations were higher for men than women.</p> <p>As for country, MANCOVA showed significant differences in habit, reactivity, escapism, pastime, and social motivations; according to a post hoc comparison by country, for the pastime motivation, Germany was significantly lower than Singapore and the US. For the social motivation, Germany was significantly lower than Singapore and the US.</p> <p>According to the multivariate tests, genre choices altogether differed significantly by the motivations of habit, reactivity, narrative, pastime, and social. Agency was positively and significantly associated with sports games, and pastime was positively and significantly associated with casual games and action games, while performance motivation was positively associated with action games.</p> <p>Results suggest that future play intention was positively associated with habit motivations and negatively associated with social motivations.</p>	<p>Participants sample may not be representative of their broader populations, and only three countries participated in this research; the Singaporean sample had a very small sample of women, and gender was considered a dichotomous characteristic but, nowadays, is seen as a multicategorical variable; genre choice and future play intention were measured only through one item; self-reported measures were used; generalizability might be taken into questions due to small sample.</p>	<p>Sampling bias due to sample only came from three countries, so it might not be representative of the real gaming population; response bias due to self report measure that could affect social desirability; measurement bias: two construct were measured only through one item, so validity could be taken into question; statistical bias: type 1 error due to ANOVA methods;</p>
Kim [40].	<p>Competition motivation was positively correlated with openness and instability. Challenge and openness were positively correlated. Social interaction was positively</p>	<p>The sample of the study was convenient and only made of American college students. The five factor model might not fully reflect every aspect of gamers'</p>	<p>Sampling bias due to mainly American college students and mainly composed of females; response bias due to self-reported measures; reporting bias due to some</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>correlated with instability and negatively correlated with agreeableness. Diversion was negatively correlated with extraversion, conscientiousness, and agreeableness and positively correlated with instability. Fantasy and agreeableness were positively correlated with instability but negatively correlated with agreeableness. Also, arousal positively correlated with instability but negatively with agreeableness. Competition motivation had two positive predictors: openness and instability. Challenge motivation had two positive predictors: openness and extroversion. For the social interaction motivation, only one positive predictor: instability; diversion motivation had three positive predictors: conscientiousness, instability, and openness to experience. For the fantasy motivation, instability was a positive predictor, while agreeableness was a negative one. For the arousal motivation, only one positive predictor instability.</p> <p>The amount of time spent playing smartphone games on a weekday was positively correlated with challenge. Additionally, the amount of time spent playing smartphone games in a weekend was positively correlated with challenge and diversion. Also, traditional game-genre preference was positively correlated with challenge and arousal. Physical game-genre preference was positively correlated with competition, challenge, fantasy, and arousal. Imagination game genre preference was positively correlated with competition, challenge, social interaction, fantasy, and arousal.</p> <p>Challenge significantly predicted the amount of smartphone gaming in a typical weekday. For the amount of time spent in gaming in a typical weekend, one motivation explained the variance, making diversion a significant predictor of weekend gaming activity.</p> <p>For the traditional game-genre preference, two positive predictors explained the variance. Challenge and arousal significantly positively predicted the preference for traditional games. For the physical games-genre preference, there was only one positive predictor: challenge; For the imagination game-genre preference, only one positive predictor explained the variance: fantasy.</p>	<p>personalities; the impact of situational context of gamers may have been excluded; the game preference reliabilities were low; self-reported measures were used; some questionnaires were removed due to not meeting eligibility criteria, and generalizability might not be applicable to other groups.</p>	<p>answers being removed; measurement bias due to game preference scale having a low alphas.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
López-Fernández et al. [28].	<p>In the adolescent sample, the following results were found: gender negatively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, and fantasy; Gaming hours positively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, customization, and fantasy. Furthermore, coping and social interaction are predictors of gaming hours.</p> <p>Disorder gaming positively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, customization, and fantasy. Furthermore, coping, social interaction, and violent reward are positive predictors of disordered gaming. Shooter games positively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, and fantasy.</p> <p>MOBA games positively correlated with competition, cognitive development, and social interaction. MMORPG positively correlated only with fantasy; Role playing positively correlated with recreation and fantasy;</p> <p>Action adventure genre positively correlated with cognitive development, coping, customization, and fantasy.</p> <p>Sport genre positively correlated with violent reward and competition but negatively to customization. Casual genre negatively correlated with competition and violent reward.</p> <p>Social simulation genre negatively correlated with competition, cognitive development, coping, social interaction, and violent reward but positively with customization.</p> <p>Construction positively correlated with customization and fantasy;</p> <p>Platform negatively correlated with competition, coping, social interaction, and violent reward.</p> <p>In the young adult sample, age was positively correlated with recreation, cognitive development, and coping. Gender was negatively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, customization, and fantasy. Regarding gender, adolescent and young adult males presented higher scores than females in nearly all scales</p>	<p>The study only used a Spanish sample of adolescents and young adults; validation of VMQ is necessary in other cultures too; cross sectional study and self-reported measures were used; the adolescent sample was lacking female participants; some questionnaires were not counted for not meeting eligibility criteria.</p>	<p>Sampling bias due to having used mainly Spanish students or young adults; the adolescent sample was lacking female participants; response bias due to self-reported measures; reporting bias because some questionnaires were removed;</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>apart from customization, especially in competitive, violent reward, and social interaction motives.</p> <p>Gaming hours are positively correlated with all motivations.</p> <p>Disordered gaming is positively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, fantasy, and coping.</p> <p>Also, coping, social interaction, fantasy, and violent reward are positive predictors of disordered gaming, while customizing was a negative predictor.</p> <p>Shooter genre is positively correlated with all motivations, except competition.</p> <p>MOBA is positively correlated with recreation, competition, and social interaction.</p> <p>Strategy is negatively correlated with violent reward.</p> <p>MMORPG is positively correlated with recreation, competition, coping, social interaction, and fantasy.</p> <p>Role playing genre is positively correlated with recreation, social interaction, violent reward, customization, and fantasy.</p> <p>Action-adventure genre is positively correlated with recreation, cognitive development, coping, violent reward, and fantasy.</p> <p>Sport genre is positively correlated with competition and violent reward.</p> <p>Casual genre is negatively correlated with recreation, competition, social interaction, violent reward, customization, and fantasy.</p> <p>Social simulation is positively correlated with customization and fantasy but negatively correlated with social interaction.</p> <p>Fighting genre is positively correlated with violent reward.</p>		
Billieux et al. [71].	<p>Age was negatively correlated with advancement and competition but positively correlated with discovery.</p> <p>Younger players are more motivated by advancement</p> <p>Both male gender and young age were related to a greater proneness to look for competition in the game, whereas both female and older players showed a greater interest in discovery and exploration of WoW.</p> <p>The number of hours devoted to WoW daily/weekly appeared to be strongly correlated to an advancement motive but also to mechanics, competition,</p>	<p>Researchers considered players to have a unique main avatar, even though it might be possible, they had multiple accounts; this study only focuses on WoW; self-reported measures were used as such generalizability that might not be applicable to other studies; the number of female participants was low; sample was recruited online; many questionnaires were removed for not meeting eligibility criteria or for not having been completed.</p>	<p>Sampling bias due to it was recruited online; majority of them were males, and all participants were WoW gamers; response bias due to self-reported measures that can affect social desirability and generalizability; reporting bias due to some questionnaires being removed.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>relationship, customisation, and escapism. The number of years since the participants played was related only to the mechanics' motive. Participants playing in cybercafés were more interested in both competition and advancement, whereas no motives were related to the tendency to play at work. An additive usage pattern (measured by the IAT) was primarily related to the advancement and the escapism motives, although significant relationships of smaller amplitude were found with other motivations, namely, mechanics, competition, role play, and customisation. Participants who were highly motivated by socialising and team work, and seeking relationships with other people were more often affiliated with a guild.</p>		
	<p>The total progression score (which accumulates the various types of achievements) was primarily and positively associated with advancement and mechanics motives but also related to the relationship and discovery motives. Quests and exploration achievements were specifically and positively related to the discovery motive. PvP achievements were primarily and positively related to the competition motive, although significant associations also took place with both advancement and mechanics motives. Dungeon and raid achievements were positively associated with a variety of motives, including advancement, mechanics, relationship, and teamwork. The miscellaneous achievement score was positively related to the advancement, mechanics, and discovery motives.</p>		
	<p>Finally, role play, customisation, and escapism motives were unrelated to specific ingame achievements. Participants playing in PvP servers were motivated by competition, whereas the opposite relation was found for people playing in PvE servers. Participants who subscribed to the RP servers were indeed primarily driven by role playing-related motives</p>		
	<p>Progression in the game, at a global level, was predicted by the discovery and teamwork motivations</p>		
	<p>Progression regarding the competitive aspects of the game (PvP index) was positively predicted only by the motivation to compete and fight other players and by a younger age. Finally, progression related to cooperative achievements (PvE index) was positively predicted by the motivation of teamwork and the motivation of</p>		

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Yee [25]	<p>discovery, and it was negatively predicted by the customisation motive.</p> <p>Male players scored significantly higher than female players on the achievement and manipulation factors, while female players scored significantly higher on the relationship, immersion, and escapism factors. Age was negatively correlated with manipulation for both genders. Age of male players was negatively correlated with achievement. Age of female players was negatively correlated with immersion.</p> <p>Hours of usage per week positively correlated with escapism and relationship for both male and female players.</p>	<p>The group of respondents is self-selected, and they are MMORPG players only, the majority of them were males; self-reported measures were used; data were cross sectional; female participants were lacking</p>	<p>Sampling bias due to sample recruited online, mainly composed of male players and composed of MMORPG players, self-selected; measurement bias due to low alphas regarding three scales: immersion, escapism, and achievement; response bias due to self-reported measures being used that could have been affected by social desirability;</p>
Yee [26]	<p>Male players scored significantly higher on all the achievements components than female players, while female players scored significantly higher than male players on the relationship subcomponent. There is no gender difference in the socializing subcomponent: male players socialize just as much as female players. Negative correlations were found between the age of male players and achievement, advancement, mechanics, competition, social, socializing, relationship, teamwork, and customization; regarding hours spent playing by males, positive correlations were found with achievement, advancement, mechanics, competition, relationship, immersion, and escapism. Negative correlations were found between age of female players and achievement, advancement, mechanics, competition, immersion, discovery, customization, and escapism; regarding hours spent playing by females, positive correlations were found with achievement, advancement, mechanics, social, relationship, and escapism.</p> <p>Multiple regression with the problematic usage score showed that the escapism compone was the best and positive predictor, followed by the advancement component.</p>	<p>It is a cross sectional study; sample was recruited online, and it was majorly composed of male MMORPG players; self-reported measures were used;</p>	<p>Sampling bias due to being recruited online, composed of male players and only MMORPG players. Response bias due to self-reported measures that could have been affected by social desirability;</p>
Wu et al. [121].	<p>General motivation was the largest predictor of IGD symptoms, followed by escape and a negative coefficient on skill development. Males scored significantly higher on general motivation but lower on escape.</p>	<p>Cross sectional study; the research was focused only on a chinese sample; sample of convenience thus limiting generalizability and replication; the MOGQ was adapted into a Chinese version, but further studies are</p>	<p>Sampling bias due to sample recruited only Chinese gamers, and it was of convenience; response bias due to self-reported measures that could have been affected by social desirability; reporting bias due: some questionnaires were removed.</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	Age was positively related to escape, fantasy, and skill development but negatively related to general motivation. Students were found to have higher general motivation than employed participants. Those who primarily played single-player games had a higher score on coping but a lower score on competition, social, and general motivation than those who primarily played MMO games.	needed; some questionnaires were not counted because they were not completed.	
Bányai et al. [122].	The results of the present study suggest that Esport and recreational gamers play video games in a different way in terms of gaming motivations (i.e., esport gamers scored significantly and considerably higher on certain motives such as competition, social, and skill-development). Escapism and competition were predictors of gaming disorder for both esports gamers and recreational gamers. For recreational gamers, coping and fantasy were negative predictors, while recreation and competition were positive predictors of gaming disorder.	Cross sectional study so it does not take into consideration causal explanation; sample was recruited online, with participants coming from Hungarian speaking regions (i.e., Hungary, Romania, and Slovakia); thus, this can affect generalizability and representativeness. Furthermore, it was mainly composed of male gamers. Self-reported measures were used thus leading to some desirability bias; the division between Esport gamers and recreational gamers was based solely on number of gaming competition engaged;	Sampling bias due to recruited online only from Hungarian speaking country and mainly composed of male gamers; response bias due to self-reported measure that could have been affected by social desirability;
Frederik & Jan [123].	Moral outcomes were negatively associated with gender. Frequency of playing was correlated with habit, social, performance, agency, escapism, and moral motivations. Also, frequency of play was positively associated only with habit in the model proposed. Duration of a session was correlated with habit, social, narrative, performance, agency, escapism, and moral motivations. Play was positively correlated with all motivations, except pastime and narrative motivations. Coplay was positively correlated with habit and social. Talk was positively correlated with habit and social motivations.	The target population was limited to high school students from Belgium, and this implies that it cannot be generalized to other populations; the sample was too small, and there were more males than girls; self-reported measures were used;	Sampling bias due to sample that was composed only of high school students from Belgium, and majority of it was composed of male; response bias: self-reported measures were used that could have been affected by social desirability; statistical bias due to sample being really small, and specifically, we are talking about a type II error.
Williams et al. [124].	Immersion was negatively related, while sociability and achievement were both positively related to playing time. The correlation coefficients between each of the immersion factors and time played were all negative: exploration, role-play, customization, and escapism. With role playing being the only significant one.	Sample was recruited online, and only players of EverQuest 2 were included; the sample was majorly composed of male players; self-reported measures were used; the data set obtained in this studio might not be suitable since the future is changing rapidly;	Sampling bias due to sample recruited online playing only one specific MMO game and majorly composed of male gamers; response bias: self-reported measures were used which could have been affected by social desirability; measurement bias: the validity of the scale created is quite low for the immersion factor.

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Chua et al. [125].	<p>There was a significant correlation between intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, amotivation, and game addiction.</p> <p>It was found that game engagement, integrated regulation, introjected regulation, and amotivation significantly positively predicted game addiction.</p> <p>Results of linear regression were not statistically significant regarding social motivations and emotional intelligence.</p> <p>Regarding only ranking players in LoL, the results of linear regression were not statistically significant for emotional intelligence and achievement. Also, skill development and competition were also not significant.</p> <p>Regarding all the participants players of the study, the results of the linear regression were significant for achievement and skill development but not for competition.</p> <p>There was a statistically significant relationship between achievement and emotionality.</p> <p>There was a statistically and positive significant relationship between trait EI and coping motivation.</p> <p>The model indicates that ranked players with lower trait EI scores may play LoL to relieve stress.</p> <p>A significant positive correlation between trait emotional intelligence and recreation motivation was found, while escape and fantasy were found not significant in association with trait emotional intelligence</p>	<p>Some questionnaire were removed for not meeting eligibility criteria; self report measures were used; in cross sectional study, furthermore, the sample was composed of Malaysian MOBA players, so it cannot be generalized to other countries, and the sample was majorly composed of males;</p>	<p>Sampling bias due to being composed of MOBA Malaysian gamers where majority of them were male; response bias due to self-reported measures that could have been affected by social desirability and recall bias; reporting bias due to some questionnaire not being included.</p>
Viswanathan [53].	<p>The sample is relatively small, composed only of LoL players, and the majority of them were males; three questionnaires were removed due to incomplete responses; the online and small sample could limit representativity and generalizability; self-report measures were used as well</p>	<p>The sample is relatively small, composed only of LoL players, and the majority of them were males; three questionnaires were removed due to incomplete responses; the online and small sample could limit representativity and generalizability; self-report measures were used as well</p>	<p>Sampling bias due to sample being recruited online, and it is small, composed only by LoL players, and majority of it is male; response bias due to self-reported measures that could have been affected by social desirability; reporting bias due to some questionnaires being excluded;</p>
Kneer et al. [76].	<p>Negative masculine attributes were positive predictors for achievement; positive feminine traits predicted social interaction; negative feminine traits predicted immersion; gender affiliation only predicted social interaction.</p> <p>Escapism positively predicted gaming addiction.</p>	<p>The term gender attributes can be misleading, especially regarding digital game-related studies since attributions rely on socially constructed sex-role and gender-role assumptions; the study did not include any real addicts; thus, the predictors found and cannot be seen as the real cause for developing gaming addiction; self-reported measures were used; sample was recruited online; some questionnaires were not included, and two people did not report their gender but were still included in the study.</p>	<p>Sampling bias due to being recruited online and being only related to MMORPG games which could reduce representativity; response bias; self-reported measures were used which could have been affected by social desirability; Reporting bias due to some questionnaires being left out.</p>
Dauriat et al. [36]	<p>Achievement factor positively correlated with hours per week, playing in a group and playing PvP, and negatively correlated with age.</p>	<p>Sample was recruited online and is based on MMORPG players, and majority of it was composed of male participants; self-reported measures were used;</p>	<p>Sampling bias: sample was recruited online so it might not have good representativity of the MMORPG population; it was majorly composed of males, and only</p>



TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>The socializing factor negatively correlated with age and playing solo, but it is positively correlated with hours per week and playing in a group.</p> <p>The immersion factor positively correlated with playing in a group, playing solo, playing PvE, and role playing.</p> <p>The relaxing factor is positively correlated with playing PvE;</p> <p>The escaping factor is positively correlated with hours per week.</p> <p>Men have a greater score for escaping than women do.</p> <p>Singles have a greater score on the escaping factor than persons do in a relationship.</p> <p>Participants who have children have a lower score on the social factor than those who do not have children.</p> <p>People with professional or student activities have a greater score on the relaxing factor than do those without activities.</p> <p>Those who live alone have a lower score on the achievement factor.</p> <p>Positive correlations were found between gaming addiction and achievement, escaping, and socializing.</p> <p>The achievement factor was the best and positive predictor, followed by escaping, socializing, and gender of gaming addiction. Immersion, relaxing and age were not significant predictors.</p>	<p>furthermore, authors did not put the Cronbach's alpha for the motivation scale; questionnaires were excluded: 20 excluded because of unclear answers, and 54 were excluded because participants did not play MMORPG.</p>	<p>players that played MMORPG were included; response bias due to self-reported measures that could have been affected by social desirability; reporting bias due to some questionnaires being excluded; measurement bias due to items that were written, but alpha's level for each scale was not reported.</p>
Sherry et al. [29].	<p>Males consistently ranked all gratifications higher than females did, and the rank order of gratifications between males and females was fairly consistent.</p> <p>Among all grade samples, the rank order was consistent except that males rated social interaction much higher on their rank order than females did. Social interaction had the largest difference between males and females as expressed as Cohen's in all samples except eighth graders.</p> <p>In the college, eleventh-grade, and fifth-grade samples, challenge was the top reason for playing video games.</p> <p>Least popular among all the gratifications in the eleventh-, eighth-, and fifth-grade samples was playing for the fantasy of being strong</p> <p>The relationship between the use categories and amount of play showed that in each sample, the uses and gratifications variables were strong predictors of time spent playing video games. Among college</p>	<p>Sample only came from one nation, the United States; self-reported measures were used, and some surveys were not included because they were not completed; personality was not taken into consideration;</p>	<p>Sampling bias due to being composed only of people coming from the United States; response bias: due to self-reported measures being used and that could have been affected by social desirability; reporting bias due to some questionnaires were excluded</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>students, 28% of the variance in game play was accounted for by uses and gratifications, with diversion, social interaction, and arousal as the most important predictors of time spent playing video games per hour. The pattern was the same among 11th graders, with more variance explained using the same variables diversion, social interaction, and arousal. A similar amount of variance was explained in the eighth-grade sample using only two of the other motivations (i.e., diversion and social interaction). Uses and gratifications accounted for 28% of the variance in amount of weekly game play in the fifth grade sample, with a different set of significant predictors, playing to be strong and for competition.</p>	<p>A sample of convenience was used; the number of females was really low; only survey measures were used, so it is not possible to infer causation for any of the associations identified; self-reported measures were used; the total variance in hours of play accounted for in the current study was relatively small.</p>	<p>Sampling bias: sample was mainly composed of males, and it was a sample of convenience; response bias: self-reported measures were used that could have been affected by social desirability;</p>
Johnson et al. [129].	<p>With respect to the experience of play, competence, autonomy, and relatedness were associated with more play.</p>	<p>A sample of convenience was used; the number of females was really low; only survey measures were used, so it is not possible to infer causation for any of the associations identified; self-reported measures were used; the total variance in hours of play accounted for in the current study was relatively small.</p>	<p>Sampling bias: sample was mainly composed of males, and it was a sample of convenience; response bias: self-reported measures were used that could have been affected by social desirability;</p>
Yee et al. [27]	<p>In the first study, there is a significant difference in gender in the achievement motivations: males score higher than females. Achievement is also positively correlated to age. Significant gender differences were also found for social and immersion motivations where females tend to score higher than males, but age only correlated negatively with the social motivation. Age was not correlated to immersion motivation. Motivations were also associated with specific WoW behaviours such as completing quests, exploring the map, being competitive in PvP, doing raids or dungeons, having noncombat crafting skills (professions), and participating in world events. Achievement motivation was a negative predictor of quests, exploration, professions, and world events; it was a positive predictor of PvP and dungeons. Social motivation was a negative predictor of quests, exploration, and professions but a positive predictor for doing dungeons; finally, immersion motivation was a positive predictor of doing quests and exploring the map, but it was a negative predictor of doing PvP and dungeons.</p>	<p>Only data for World Of Warcraft players were collected, so only for an online game, the sample was mainly composed of males; self-reported measures were used; the correlations between the WoW behaviours and the immersion factor were not that strong; the scale used must be validated in some other studies too; the sample for the second study only came from two regions: Hong Kong and Taiwan.</p>	<p>Sampling bias due to all the participants that were WoW players, and both samples were majorly composed of male, and the second one only comes from Taiwan and Hong Kong; response bias due to self-reported measures being used and that could have been affected by social desirability;</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
McCauley et al. [52].	Enjoyment is a positive predictor of autonomy, entertainment, and flow motivations.	Sample was recruited online, and it is not big enough to fully represent the whole population of mobile gamers; sample was composed mainly of people under the age of 35; self-reported measures were used; the instrument was created starting from other already existing instruments and needs further validation.	Sample bias due to sample being recruited online and composed majorly by young people; response bias due to self-reported measures that could have been affected by social desirability; measurement bias due to instrument needing further validation.
Fuster et al., [33].	In relation to motivations, significant correlations were found for (i) years playing WoW and exploration and achievement, (ii) for hours playing WoW per week (i.e., during the working week) and exploration, (iii) for hours playing WoW per week and achievement, and (iv) for hours playing WoW per week and dissociation. Furthermore, hours spent playing at weekends produced highly significant but low correlations with all motivations: (socialisation, exploration, achievement, and dissociation). The correlation between exploration and number of avatars was also significant.	Sample was only composed of Spanish male players of WoW; self-reported measures were used; questionnaire completed by females were discarded due to the low number of participants (10), and others were discarded because the participants were too young; the questionnaire was created ad hoc for this study, as such it needs further validation;	Sampling bias due to only coming from Spain and only composed of young male WoW players; response bias due to self-reported measures that could have been affected by social desirability; measurement bias due to instrument being created ad hoc and further validation is therefore necessary; reporting bias due to all questionnaires completed by female or participants under the age of 16 being discarded,
Yang & Liu [48].	The amount of hours played per day is positively correlated to fun, friendship maintenance, the relationship initiation, and achievement motivations. Fun motivation is positively correlated to bonding and bridging capital, life satisfaction, and physical health. Escapism is negatively correlated with bonding capital but positively associated with loneliness. Nostalgia is positively correlated with loneliness. Friendship maintenance is positively correlated with bridging capital, life satisfaction, and physical health. Relationship initiation is positively correlated with bridging capital, loneliness, and life satisfaction. As for multiple regression analysis, playing the game for fun was positively related to better well-being, such as higher bonding and bridging social capitals, negatively related to loneliness, and better physical health. Playing the game to maintain friendships was positively related to higher life satisfaction. Playing the game to initiate new relationships was positively related to bridging social capital and loneliness. Both using the game to escape from reality and playing with nostalgia were positively related to higher loneliness, and escapism was also negatively related to bonding social capital and life satisfaction.	Sample consisted only of Pokémon Go players coming from the United States; the correlational data cannot infer causality between gaming and well-being; self-reported measures were used.	Sampling bias due to being recruited only in the United States and composed of only Pokémon Go Players; thus, the results can not be generalized to other type of games; response bias due to self-reported measures being used that could have been affected by social desirability,

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
Hilgard et al. [34].	<p>Age was significantly and negatively correlated with catharsis, loss-aversion, social interaction, customization, and grinding, but it was positively correlated with autonomy. Age was not significantly correlated with story, violent reward, or escapism.</p> <p>Higher story, violent reward, escapism, social interaction, and autonomy scores were associated with playing more frequently, spending a greater proportion of spare time on videogames and self-description as a “hardcore” player.</p> <p>Higher scores on loss-aversion and customization were associated with reduced frequency of play, a smaller proportion of spare time spent on games, and self-description as a “casual” player.</p>	<p>A cross-sectional design was used, as such it is not possible to determine the direction of causality in any of the relationships; the survey was particularly long, and many of the questionnaires were discarded because they were not completed or did not meet the eligible criteria; the sample was recruited half from online and half from an American university, and the number of girls was low; self-reported measures were used.</p>	<p>Sampling bias due to it being recruited online and majorly composed of males; response bias due to self-reported measures that could have been affected by social desirability, and also, some random answers were given; reporting bias because some questionnaires were discarded.</p>
Tondello et al. [44].	<p>The philanthropist type is positively correlated with extraversion, agreeableness, conscientiousness, and openness; The socialiser type is positively correlated with extraversion and with agreeableness. The free spirit type is positively correlated with openness and also positively correlated with extraversion and negatively with neuroticism; the achiever type is positively correlated with conscientiousness; however, it was not found to be correlated with agreeableness; The disruptor type is negatively correlated with neuroticism. The player type is only positively correlated with conscientiousness.</p>	<p>A limited sample was used, and it was limited only to students coming from one university, which limits generalization to a general population; self-reported measures were used; the reliability of the scale needs to be improved; personality was assessed with the short 10 item version;</p>	<p>Sampling bias due to coming from one nation and being quite small; response bias due to self-reported measures being used that could have been affected by social desirability; measurement bias due to scale needing more studies to be validated and the fact that a short version of a scale was used, so it could have problems with acquiescence, and the player dimension’s alpha was quite low.</p>
Azadvar & Canossa [46]	<p>Autonomy, competence, and relatedness are positive significant correlates of physical presence, in-game measures such as number of days that the player has played the game and group playtime percent.</p> <p>Regression analysis showed positive significant betas between day played and autonomy, competence, and relatedness; group playtime and autonomy and relatedness; physical presence and autonomy, competence, and relatedness.</p>	<p>Sample is composed of volunteer online respondents that only plays Ubisoft Games and majorly composed of males; the study was measured in game behaviour which has the risk of showing a shared platform among multiple players who may be different from the survey respondent; self-reported measures were used</p>	<p>Sampling bias due to sample being recruited online, majorly composed of males and Ubisoft game players; response bias: self-reported measures were used that could have been affected by social desirability; measurement bias due to in game behaviour measures that could have been affected by external variables such as shared accounts.</p>
Greenberg et al. [47].	<p>On all nine gratifications, the average score for males exceeds that of the females. First, the two primary gratifications for both sexes are competition and challenge. Second, the largest sex differences are playing video games for arousal and for social interaction. Challenge is a stronger motivation for the 5th graders and college students than for the other age groups. In</p>	<p>The research is time bound to the period where the data were collected; sample only comes from one area: United States of America; self-reported measures were used;</p>	<p>Sampling bias due to being recruited only from one area, response bias due to self-reported measures being used that could have been affected by social desirability</p>

TABLE 3: Continued.

Ref.	Main findings	Study limitations	Risk of biases
	<p>its place, competition is key for 8th and 11th graders, in contrast with the others, although competition remains a strong motivator for the college students.</p> <p>Fantasy is a key motivation only for the 5th graders, whereas diversion is found least in that youngest group. Although they are weaker gratifications on an absolute basis, the youngest respondents also profess stronger realism and ego gratification motives than the older participants. The need for social interaction is strongest among the college students.</p> <p>Diversion is the most common motivator contributing to playing time, identified among 8th- and 11th-grade boys and girls and college males. Social interaction also is important among 8th, 11th, and college females.</p> <p>Noteworthy is the absence of any significant motives for 5th grade boys, while females disliked the challenge but liked competition.</p>	<p>Sampling is majorly composed of male participants coming only from Malaysia; disproportionate races ratio due to Malaysia being composed by many ethnic groups; self report questionnaires were used; the number of predictors in the study for IGD was only four (immersion, achievement, socialization, and identification with avatar); therefore, the number is quite low; this study is a cross-sectional study, so data are connected to a certain time frame; adolescents were not included in the sample even though, it is known that adolescents are those more exposed to develop IGD symptoms.</p>	<p>Sampling bias due to sample coming from just one country (Malaysia), being majorly composed of male and lacking adolescents; response bias due to self-reported measures being used that could have been affected by social desirability;</p>
Bong et al. [133].	<p>Multiple linear regression analysis found that socialization motivation is a negative predictor, and immersion motivation is a positive predictor of IGD's symptoms but not achievement motivation.</p>	<p>Sampling is majorly composed of male participants coming only from Malaysia; disproportionate races ratio due to Malaysia being composed by many ethnic groups; self report questionnaires were used; the number of predictors in the study for IGD was only four (immersion, achievement, socialization, and identification with avatar); therefore, the number is quite low; this study is a cross-sectional study, so data are connected to a certain time frame; adolescents were not included in the sample even though, it is known that adolescents are those more exposed to develop IGD symptoms.</p>	<p>Sampling bias due to sample coming from just one country (Malaysia), being majorly composed of male and lacking adolescents; response bias due to self-reported measures being used that could have been affected by social desirability;</p>
Lowe [51].	<p>Self expansion is strongly positively correlated to immersion and achievement motivations. It also has moderate positive correlations with social.</p> <p>Need for cognition is positively correlated with immersion, social, and achievement.</p> <p>Immersion motivation is positively correlated with bodily engulfment.</p> <p>Achievement motivation is positively correlated with bodily engulfment and spatial engulfment, and it is strongly positively correlated with social engulfment.</p>	<p>Sample is small and majorly composed of males; furthermore, only FPS and MMORPG players were taken into consideration; many questionnaires were discarded due dropping out; the online nature of the sample may not be representative of the general population, and some ethnicities were missing from the sample; self-reported measures were used; the survey data cannot be used to infer causality between the variables;</p>	<p>Sampling bias: sample is small and composed of MMORPG players and mainly by male players, recruited online; response bias due to self-reported measures being used that could have been affected by social desirability; reporting bias due to some questionnaires being removed for being incomplete.</p>
Ramos-Diaz et al. [136]	<p>Social motivation has a small negative effect on Internet gaming disorder symptoms. Instead, escapism and fantasy have a strong positive effect on internet gaming disorder.</p>	<p>The sample is mainly composed of male players, and it only comes from one area (Peru); self-reported measures were used; cross sectional study.</p>	<p>Sampling bias due to sample being mainly composed of Peruvian males; response bias due to self-reported measures being used that could have been affected by social desirability.</p>

girls liking competition more than boys. To be more specific, 5th grader boys did not have any significant motives to play, while diversion was the strongest motivation for 8th, 11th grader boys, and male college students, and social interaction was the strongest motivation for 8th and 11th grader girls and female college students. Yee [25] observed that males score higher than females in manipulation and achievement motivation.

Moreover, Wu et al. [121] found that males scored higher on General Motivation but lower on Escape.

Ryan et al. [30] found the only significant difference in gender in intuitive controls where women scored lower than men.

Carlisle et al. [68] did not find gender as a significant predictor for immersion, but achievement and social motivation had a small negative relationship with gender.

The most important results regarding gender are summed up in Table 4.

The second most investigated sociodemographic variable was age ( $n = 15$ ). 10 studies ( $n = 10$ ) used Pearson's  $r$  to study the correlation between age and gaming motivations. Two used Path Analysis/Structural Equation Modeling ( $n = 2$ ). Two studies used ANOVA ( $n = 2$ ), and only one study used multiple linear regression ( $n = 1$ ) to assess the relations between age and gaming motivations.

Four studies found that gaming motivation tends to be stronger in younger samples [22, 28, 38, 47]. Two studies study found that age is positively associated with achievement [27, 68], while 3 studies found a negative correlation between age and achievement [25, 36, 105], even though for Yee, [25] only the age of male players was negatively correlated with achievement. Grinding [34] and advancement [71] were negatively correlated to age. Eight papers reported that age is negatively associated with social motivation or dimensions related to social aspects, such as social capital, team play, relationships, and social interaction [27, 34, 36, 38, 54, 67, 68, 105]. Regarding the immersion motivation, 2 studies found that they are not related to each other [27, 36], and only 2 study found a small negative relationship [25, 68]. As for escapism, 2 studies found negative correlations [54, 67], 1 that they were not correlated [34], and Wu et al. [121] were the only ones to find positive correlations.

Two studies found a positive correlation with autonomy [34, 69]. Yee [25] found that manipulation negatively correlated with the age of both female and male players.

The rest of the results are quite ambiguous, and this could be due to the motivations assessed, the game used as reference or the samples' characteristics. Three studies found that age tends to have negative associations with all or almost all gaming motivations [34, 38, 67]; specifically, 4 studies found negative associations between age and competition [38, 47, 67, 71]. Age is negatively associated with fantasy [67], customization [34, 67], and role playing [38]. Only Wu et al. [121] found age to be positively correlated with fantasy. All the results are summarized in Table 5.

The third variable of this group is "Status/Occupation" as being a worker, a student, or being married or not, and it was analyzed by 4 papers. One used Path Analysis/Structural Equation Modeling [68], one used  $t$ -test to compare the different types of status [36], one used  $d$  of Cohen

TABLE 4: Most agreed motivation for gender and number of papers that support these findings.

Males	Females
Competition <sup>13</sup> ( $n = 9$ )	Relationship motivation <sup>59</sup> ( $n = 5$ )
Escape <sup>25</sup> ( $n = 2$ )	Social motivation <sup>65</sup> ( $n = 3$ )
Intrinsic motivation <sup>38</sup> ( $n = 2$ )	Escape <sup>25</sup> ( $n = 3$ )
Integrated regulation <sup>36</sup> ( $n = 2$ )	Fantasy <sup>28</sup> ( $n = 2$ )
Identified regulation <sup>34</sup> ( $n = 2$ )	
External regulation <sup>27</sup> ( $n = 2$ )	

[121], and the last one used ANOVA to compare groups [105]. The results are as follows: students tend to have higher scores in achievement motivations [68, 105]. Social motivation has a small negative relationship with the status student, while immersion motivation is not a significant predictor [68]. Students also have higher general motivation for playing if compared to employed people [121] and tend to have higher scores for the dissociation motivation [105]. Dauriat et al. [36] reported that people who work or study had greater scores on the relaxing motivation than those who do nothing.

The fourth element of this category was taken into consideration by only 3 studies ( $n = 3$ ), and it is "type of gamer or self attitude towards being a gamer or not." One study studied this relationship through  $t$ -test [80], one used multiple linear regression [34], and one used MANCOVA [78]. Esport gamers have higher scores than recreational gamers in competition, social, and skill development motivations [122]. Hardcore players have higher scores in story, violent reward, escapism, social interaction, and autonomy scores while casual players only have higher score on loss-aversion and customization [34]. Argento et al. [116] also found that heavy gamers have higher scores in intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and extrinsic motivation.

**3.2.2. Results Related to the Behavioural Variables.** The most investigated variable of this group was "hours played per week" ( $n = 22$ ), also called weekly gaming or gaming frequency. 18 studies ( $n = 18$ ) used Pearson's  $r$  to study the correlation between the hours played and gaming motivations, 8 ( $n = 8$ ) used linear regression to either study the correlations further or to see if gaming hours could be a predictor for certain gaming motivations, and finally, 2 ( $n = 2$ ) used Path Analysis/Structural Equation Modeling.

Generally, 2 studies, which used the Self-Determination Theory as a framework [31, 72], confirmed positive correlations between introjected regulation, identified regulation, external regulation, integrated regulation, and intrinsic motivation with hours spent gaming [32, 85], except amotivation for Lafrenière et al. [32].

All the other studies assessed weekly gaming hours related to motivations by using a different framework (other researchers used dimensions such as competition and social).

Three studies confirmed that weekly gaming hours have positive associations with competence, autonomy, and relatedness motivations [30, 69, 129].

TABLE 5: The table reports the correlations observed between each gaming motivation and the variable “Age.”.

Motivation	Positive correlation	Negative correlation	No correlation	Notes
Achievement <sup>1</sup>	( <i>n</i> = 1)	( <i>n</i> = 3)	—	[63]: age is a predictor of achievement; Yee [25]: achievement is negatively correlated with age only for male players
Grinding <sup>31</sup>	—	( <i>n</i> = 1)	—	—
Advancement <sup>3</sup>	—	( <i>n</i> = 1)	—	—
Social and social aspects <sup>65</sup> (social capital <sup>66</sup> , team play <sup>71</sup> , relationships <sup>59</sup> , and social interaction <sup>65</sup> )	( <i>n</i> = 1)	( <i>n</i> = 6)	—	[44]: college students play for social motives
Immersion <sup>35</sup>	—	( <i>n</i> = 2)	( <i>n</i> = 2)	Yee [25] found a negative correlation only with the age of female players
Escapism <sup>25</sup>	( <i>n</i> = 1)	( <i>n</i> = 2)	( <i>n</i> = 1)	—
Autonomy <sup>7</sup>	( <i>n</i> = 2)	—	—	—
Competition <sup>13</sup>	—	( <i>n</i> = 2)	—	[44]: strong motivation for 8th, 11th, and college students
Fantasy <sup>28</sup>	( <i>n</i> = 1)	( <i>n</i> = 1)	—	[44]: strongest motivation for 5th graders
Customization <sup>17</sup>	—	( <i>n</i> = 2)	—	—
Role playing <sup>61</sup>	—	( <i>n</i> = 1)	—	—
Narration <sup>48</sup>	—	( <i>n</i> = 1)	—	—
Story <sup>70</sup>	—	( <i>n</i> = 1)	( <i>n</i> = 1)	—
Violent reward <sup>74</sup>	—	—	( <i>n</i> = 1)	—
Mechanics <sup>44</sup>	—	( <i>n</i> = 1)	—	—
Exploration <sup>26</sup>	—	( <i>n</i> = 1)	—	—
Catharsis <sup>73</sup>	—	( <i>n</i> = 1)	—	—
Loss-aversion <sup>43</sup>	—	( <i>n</i> = 1)	—	—
General motivation <sup>30</sup>	—	( <i>n</i> = 1)	—	—
Entertainment <sup>24</sup>	—	( <i>n</i> = 1)	—	—
Manipulation <sup>45</sup>	—	( <i>n</i> = 1)	—	—
Skill development <sup>63</sup>	( <i>n</i> = 1)	—	—	—
Cognitive development <sup>10</sup>	( <i>n</i> = 1)	—	—	—
Recreation <sup>56</sup>	( <i>n</i> = 1)	—	—	—
Coping <sup>15</sup>	( <i>n</i> = 1)	—	—	—
Discovery <sup>18</sup>	( <i>n</i> = 1)	—	—	—

Weekly gaming hours had positive associations with: social motivation (*n* = 6) [26, 28, 36, 41, 92, 123], even though for Yee [26], this correlation was positive only in the female sample; competition (*n* = 5) [26, 28, 71, 79, 92], to be noted that for Yee [26], this correlation was positive only for the male sample; escapism (*n* = 6) [25, 26, 36, 71, 79, 123]; achievement (*n* = 4) [26, 33, 36, 106]; relationship (*n* = 4) [25, 26, 71, 79]; customization (*n* = 3) [28, 71, 92]; advancement (*n* = 3) [26, 71, 79]; mechanism (*n* = 3) [26, 71, 79]; coping (*n* = 3) [28, 41, 92]; dissociation (*n* = 2) [33, 105]; fantasy (*n* = 2) ([28]: [92]); cognitive development (*n* = 2) [28, 92]; violent reward (*n* = 2) [28, 92]; recreation (*n* = 2) [28, 92]; habit (*n* = 2) [36, 123]; moral motivations [123]; self-gratification [41]; engagement [45]; alleviation of boredom [69]; psychology detachment [69]; challenge [40]; immersion but only for males [26]; agency [123]; performance [123].

Weekly gaming hours had negative correlations with enhancement [41] and role playing [124]; regarding exploration, Fuster et al. [33] obtained a positive correlation with hours played per week, but in another study, they obtained a negative one [105].

Furthermore, Sherry et al. [29] used a stepwise linear regression to find which motivation was the best predictor for each sample they had. They found that the best predictors for college students and 11th graders were diversion, social interaction, and arousal; as for 8th graders, they were diversion and social interaction, while for 5th graders, it was the need to be strong and competition. López-Fernández et al. [28] did a similar procedure for their sample and found that the best predictors for their adolescent sample were coping and social interaction. The fact that there is a strong relation between social interaction and weekly gaming was also confirmed by other 3 studies [34, 92, 124]. Williams

et al. [124] found that immersion, achievement, and sociability were significant positive predictors of weekly gaming. Furthermore, challenge [40] and habit [123] are positive predictors of weekly hours spent on playing. Hilgard et al. [34] found that the scores of players who spent more time playing were best predicted by story, violent reward, escapism, social interaction, and autonomy motivation, while the scores of people who play less were predicted by loss-aversion and customization motivations.

All the results regarding hours played weekly are summarized in Table 6.

The second most investigated variable was “daily playtime” ( $n = 6$ ), meaning the average hours spent daily on a certain game or the average longest daily gaming session they had. Four studies Pearson’s  $r$  to study the correlation between the daily hours and gaming motivations ( $n = 4$ ), and 1 used Kendall’s tau, 1 ( $n = 1$ ) used MANOVA to compare players who spent different amounts of hours per day on the gaming activity and ( $n = 2$ ) also used linear regression to further study the correlations between the variables, and 1 explored these relation through a Structural Equation Modeling.

Three studies found that “daily playtime” had positive associations with social and relationship motivation [48, 75, 123], and 2 studies confirmed positive associations with autonomy, competence, and relatedness motives [46, 69]. Daily playtime is also positively correlated to enjoyment, alleviation of boredom, and psychological detachment [69]; habit, narrative, performance, agency, escapism, and moral [123]; fun and achievement [48].

Additionally, Osman & Çirak [70] compared people who played for less than two hours, people who played between 3 hours and 6 hours and people who played for more than 7 hours, and found that the groups that played for more than 7 hours had significantly higher scores on intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation, and they were also significantly less amotivated compared to other gamers.

The third most investigated variable was “years of playing” ( $n = 5$ ). Two studies Pearson’s  $r$  to study the correlation between the years spent playing games and gaming motivations ( $n = 2$ ), 2 ( $n = 2$ ) used MANOVA to compare experienced players with less experienced players, and ( $n = 1$ ) used Path Analysis/Structural Equation Modeling.

Positive associations between years of playing and mechanics motivation [71], exploration [33, 38], achievement [33], role playing [38], team play [38], mechanics [38], and narration motivations [38] were found. Klimmt et al. [39] compared hardcore playes of Travian with more moderated ones and found that hardcore players gave more importance to socializing and competition motives, while the difference for coping was less pronounced. Osman & Çirak [70] found, through a MANOVA, that players with more than four years of experience had significantly higher scores on intrinsic motivation, integrated regulation, identified regulation, introjected regulation, and external regulation than those who played for just three years or even less.

The fourth most investigated variable was “playing or talking with other people” ( $n = 5$ ), assessing all the actions of doing actions with other people or talking with them.

Four studies Pearson’s  $r$  to study the correlation between the actions of playing or talking with other people and gaming motivations ( $n = 4$ ), and 1 used Kendall’s tau, 1 ( $n = 1$ ), and one of these used linear regression to further study the correlations between the variables.

Azadvar & Canossa [46] found positive correlations between the time spent playing with a group of people and autonomy, competence, and relatedness motives. Frederik & Jan [123] found that playing with their partner, co-play, and talking with others positively correlated with habit and social motivation; the action of playing with people positively correlated with habit, social, performance, agency, escapism, and moral motives, except pastime and narrative. Hoffman & Nadelson [45] found that engagement positively correlated with playing with other people. Billieux et al. [71] correlated some specific behaviours of playing with others with gaming motivations, and they found that being affiliated with a guild correlated with higher scores on socializing, teamwork, and relationship motivations; Dauriat et al. [36] found positive correlation between playing with a group of people and achievement, socializing, and immersion motivation. In fact, people playing solo negatively correlated with the social motivation but positively with the immersion motivation.

The following three variables were analyzed each one by only two papers ( $n = 2$ ). The first one is “time spent playing on weekends,” and it was assessed through Pearson’s  $r$  ( $n = 2$ ). One study of the two ( $n = 1$ ) also used linear regression. Time spent playing on weekends positively correlated with diversion and challenge [40], socialization, exploration, achievement, and dissociation [33].

The second variable is “Future intention of keep playing,” and it was assessed through an ANCOVA ( $n = 1$ ) and a multiple regression ( $n = 1$ ). It was positively related to autonomy, competence, relatedness [30] and habit but negatively associated with social motivation [50].

The third variable is specific to a certain game, World of Warcraft, and is “behaviours shown by players in *WoW*”, and it was assessed through a linear regression ( $n = 2$ ). Billieux et al. [71] found that the progression score shown in the game and related to various achievements is positively related to advancement, mechanics, relationship, and discovery motivations; quest and exploration achievements were positively related to discovery motivation; PvP achievements were positively related to competition, advancement, and mechanics motivations; dungeon and raid achievements were related to advancement, mechanics, relationships, and teamworks; miscellaneous achievement scores were positively related to advancement, mechanics, and discovery motivations, and lastly, some specific in game achievements was unrelated to role play, customization, and escapism. Yee et al. [27] found some contrasting results; achievement and social motivations were negative predictors of quests, exploration, and professions, with achievement being the only negative predictor for world events; both achievement and social motivation were positive predictors of dungeons; immersion was a positive predictors of doing quests and exploration, but it was a negative predictor of PvP and dungeons.



TABLE 6: The table reports how many studies found positive and negative correlations for each motivation and also how many found that motivation to be a positive predictor of hours played per week.

Motivation	Positive correlation	Negative correlation	Positive predictors	Notes
Social motivation <sup>65</sup>	( <i>n</i> = 6)	—	( <i>n</i> = 5)	Yee [26] obtained a positive correlation only in the female sample
Competition <sup>13</sup>	( <i>n</i> = 5)	—	—	Yee [26] obtained a positive correlation only in the male sample
Escapism <sup>25</sup>	( <i>n</i> = 6)	—	( <i>n</i> = 1)	—
Achievement <sup>1</sup>	( <i>n</i> = 4)	—	( <i>n</i> = 1)	—
Relationship <sup>59</sup>	( <i>n</i> = 4)	—	—	—
Customization <sup>17</sup>	( <i>n</i> = 3)	—	( <i>n</i> = 1)	Hilgard et al. [34] found it to be the best predictor for people who played less
Advancement <sup>3</sup>	( <i>n</i> = 3)	—	—	—
Mechanics <sup>46</sup>	( <i>n</i> = 3)	—	—	—
Coping <sup>15</sup>	( <i>n</i> = 3)	—	( <i>n</i> = 1)	—
Dissociation <sup>20</sup>	( <i>n</i> = 2)	—	—	—
Fantasy <sup>28</sup>	( <i>n</i> = 2)	—	—	—
Cognitive development <sup>10</sup>	( <i>n</i> = 2)	—	—	—
Violent reward <sup>74</sup>	( <i>n</i> = 2)	—	( <i>n</i> = 1)	—
Recreation <sup>57</sup>	( <i>n</i> = 2)	—	—	—
Habit <sup>32</sup>	( <i>n</i> = 2)	—	( <i>n</i> = 1)	—
Competence <sup>12</sup>	( <i>n</i> = 2)	—	( <i>n</i> = 1)	—
Autonomy <sup>7</sup>	( <i>n</i> = 2)	—	( <i>n</i> = 2)	—
Relatedness <sup>58</sup>	( <i>n</i> = 2)	—	( <i>n</i> = 1)	—
Introjected regulation <sup>40</sup>	( <i>n</i> = 2)	—	—	—
Identified regulation <sup>34</sup>	( <i>n</i> = 2)	—	—	—
External regulation <sup>27</sup>	( <i>n</i> = 2)	—	—	—
Integrated regulation <sup>36</sup>	( <i>n</i> = 2)	—	—	—
Intrinsic motivation <sup>38</sup>	( <i>n</i> = 2)	—	—	—
Amotivation <sup>5</sup>	( <i>n</i> = 1)	( <i>n</i> = 1)	—	—
Exploration <sup>26</sup>	( <i>n</i> = 1)	( <i>n</i> = 1)	—	—
Challenge <sup>9</sup>	( <i>n</i> = 1)	—	( <i>n</i> = 1)	—
Immersion <sup>35</sup>	( <i>n</i> = 1)	—	( <i>n</i> = 1)	Yee [26] obtained a positive correlation only in the male sample
Moral motivations <sup>47</sup>	( <i>n</i> = 1)	—	—	—
Self-gratification <sup>62</sup>	( <i>n</i> = 1)	—	—	—
Alleviation of boredom <sup>8</sup>	( <i>n</i> = 1)	—	—	—
Psychological detachment <sup>55</sup>	( <i>n</i> = 1)	—	—	—
Agency <sup>4</sup>	( <i>n</i> = 1)	—	—	—
Performance <sup>51</sup>	( <i>n</i> = 1)	—	—	—
Engagement	( <i>n</i> = 1)	—	( <i>n</i> = 1)	—
Enhancement <sup>23</sup>	—	( <i>n</i> = 1)	—	—
Role playing <sup>61</sup>	—	( <i>n</i> = 1)	—	—
Story <sup>70</sup>	—	—	( <i>n</i> = 1)	—
Loss-aversion <sup>43</sup>	—	—	( <i>n</i> = 1)	Hilgard et al. [34] found it to be the best predictor for people who played less

**3.2.3. Results Related to the Psychological Variables.** The most investigated variable of this cluster was “gaming addiction” ( $n = 17$ ), often called with different names such as gaming problems, excessive gaming, gaming disorder, problematic video gaming, internet gaming disorder, disordered gaming, and excessive use. Eight studies ( $n = 8$ ) used linear regression to study which motivations can be considered predictors of gaming addiction, 7 ( $n = 7$ ) used Pearson’s  $r$  to study the correlations between gaming addiction and gaming motivations, 6 studies used Path Analysis/Structural Equation Modeling ( $n = 6$ ) to fit the relations between gaming addiction and gaming motivations inside a model, and, finally, 1 ( $n = 1$ ) used  $d$  of Cohen.

Gaming addiction found positive associations between intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, amotivation, and gaming addiction ( $n = 2$ ) [85, 125].

Results regarding other motivations not pertaining to the Self-Determination Theory as a framework [31, 72] were as follows. Gaming addiction had positive associations with as follows: escapism ( $n = 9$ ) ([36, 71, 76, 79, 92, 122, 136], [26, 121]); social motivation ( $n = 6$ ) [28, 36, 41, 68, 83, 92]; achievement ( $n = 4$ ) [36, 68, 83, 122], with Bányai et al. [122], finding it to be a positive predictor for both recreational and esport gamers; competition ( $n = 4$ ) [28, 71, 92, 122]; coping ( $n = 3$ ) [28, 41, 92]; customization ( $n = 3$ ) [28, 71, 92], even though López-Fernández et al. [28] found this result only in their adolescent sample; recreation ( $n = 2$ ) [28, 92]; violent reward ( $n = 2$ ) [28, 92]; fantasy ( $n = 2$ ) [28, 92]; cognitive development ( $n = 2$ ) [28, 92]; violent reward ( $n = 2$ ) [28, 92]; self-gratification ( $n = 1$ ) [41]; enhancement ( $n = 1$ ) [41]; mechanics ( $n = 1$ ) [71]; role play ( $n = 1$ ) [71]; achievement ( $n = 1$ ) [36]; immersion ( $n = 1$ ) [133]; advancement ( $n = 1$ ) [26]; self-gratification ( $n = 1$ ) [41]; cognitive development ( $n = 1$ ) [92], mechanics ( $n = 1$ ) [79], and general motivation [121].

Negative associations of gaming addiction were as follows: social ( $n = 3$ ) [73, 133, 136]; fantasy ( $n = 2$ ) [92, 122], but this result was found only for recreational players as well in the study done by Bányai et al. [122]; coping ( $n = 1$ ) [122], but only for recreational players; competition ( $n = 1$ ) [92]; recreation ( $n = 1$ ) [92]; customizing ( $n = 1$ ) [28], but this result was found by López-Fernández et al. [28] only in the young adult sample and skill development [121]. All the results regarding gaming addiction are summarized in Table 7.

The second most investigated variable of this group is “personality.” Four studies ( $n = 4$ ) used Pearson’s  $r$  to study the correlations between gaming motivations and personality, 3 ( $n = 3$ ) used linear regression to assess which personality trait can be considered a predictor of certain gaming motivations, and lastly, 2 study used Path Analysis/Structural Equation Modeling ( $n = 2$ ).

All the studies used the big five theory to assess personality traits which measure personality based on agreeableness, neuroticism, openness, extraversion, and conscientiousness.

Agreeableness associated positively with as follows: social interaction ( $n = 3$ ) [40, 92, 106]; fantasy ( $n = 2$ ) [40, 92]; competence/control [23]; the philanthropist type of player [44]; the socialiser type of player [44]; it associated negatively with

as follows: competition [92]; cognitive development [92]; coping [92]; violent reward [92]; diversion [40]; arousal [40]; fantasy ( $n = 2$ ) [40, 92]; social interaction [92]; achievement motivation [106]; leadership motivation [106].

Neuroticism, also called emotional stability or instability, positively associated with as follows: the achiever type of player [44]; cognitive development [92]; coping [92]; competition ( $n = 2$ ) (Graham & Gosling; [40]); social interaction [40]; diversion [40]; fantasy [40], arousal [40]; achievement [106]. It is negatively associated with presence [23], the free spirit type of player [44], and the disruptor type [44], and the immersion [106].

Openness to experience is positively associated with as follows: autonomy [23]; the philanthropist player type [44]; the free spirit type of player [44]; cognitive development [92] and competition [40]; challenge [40]; diversion [40]; socialization [106]; immersion [106]; leadership motivation [106]; independence motives [106]. It has negative associations with competition [92] and achievement [106].

Extraversion was positively associated with as follows: the philanthropist type of player [44]; the socialiser type of player and thus social motivation ( $n = 3$ ) [44, 68, 106]; the free spirit type of player [44]; competition [75]; leadership motivation [106]. It was negatively correlated with: coping [92] and diversion [40].

Finally, conscientiousness was positively associated with as follows: the philanthropist type of player [44]; the achiever type of player [44]; the player type of player [44]; customization [92] diversion [40]; leadership motives [106]. It has negative associations with as follows: competition [92]; coping [92]; social interaction [92]; violent reward [92]; diversion [40]; achievement [106]; immersion [106].

Scharkow et al. [38] was the only study to use a different instrument to assess personality, and they found that achievement seeking is positively predicted by competence, exploration, mechanics, and narration.

The variables that follow were assessed each one by just two papers. The first one is “loneliness” ( $n = 2$ ). The 2 studies used Pearson’s  $r$  to study the correlations between gaming motivations and personality and linear regression to assess the relations. Loneliness is positively associated with coping (Myrseth et al. [41], social and relationship motivation [41, 48], escapism [48], and nostalgia [48].

The second variable is “values” ( $n = 2$ ). Scharkow et al. [38] found through a Structural Equation Model that the value of “collective orientation” is positively related to social capital, team play, and competition. Chang & Zang [55] found that the materialism value was a positive predictor of achievement, escape and virtual identification, entertainment, and reward through online gaming.

The third variable is “Need for cognition” ( $n = 2$ ) which is positively related to engagement [45], immersion, social, and achievement [51].

The fourth variable is “enjoyment” ( $n = 2$ ) which is positively related to autonomy ([52]; Ryan et al. [30], entertainment and flow motivations [52], competence, and relatedness [30].

**3.2.4. Results Related to the Gaming Environment.** This cluster of variables is a peculiar one that gathers all the variables

TABLE 7: The table summarizes the results found in literature between gaming motivations and gaming addiction.

Motivation	Positive associations	Negative associations	No associations	Notes
Social motivation <sup>65</sup>	( <i>n</i> = 6)	—	( <i>n</i> = 1)	
Coping <sup>15</sup>	( <i>n</i> = 3)	—	—	Bányai et al. [122] found it to be a negative predictor only for recreational gamers.
Escapism <sup>25</sup>	( <i>n</i> = 9)	—	—	—
Customization <sup>17</sup>	( <i>n</i> = 3)	( <i>n</i> = 1)	—	López-Fernández et al. [28] found customization to be a negative predictor only in the young adult sample.
Competition <sup>13</sup>	( <i>n</i> = 4)	( <i>n</i> = 1)	—	—
Recreation <sup>57</sup>	( <i>n</i> = 2)	( <i>n</i> = 1)	—	—
Violent Reward <sup>74</sup>	( <i>n</i> = 2)	—	—	—
Fantasy <sup>28</sup>	( <i>n</i> = 2)	( <i>n</i> = 2)	—	Bányai et al. [122] found it to be a negative predictor only for recreational gamers.
Cognitive development <sup>10</sup>	( <i>n</i> = 2)	—	—	—
Self-gratification <sup>62</sup>	( <i>n</i> = 1)	—	—	—
Enhancement <sup>23</sup>	( <i>n</i> = 1)	( <i>n</i> = 1)	( <i>n</i> = 1)	—
Mechanics <sup>46</sup>	( <i>n</i> = 1)	—	—	—
Role play <sup>61</sup>	( <i>n</i> = 1)	—	—	—
Achievement <sup>1</sup>	( <i>n</i> = 4)	( <i>n</i> = 1)	( <i>n</i> = 1)	—
Immersion <sup>35</sup>	( <i>n</i> = 1)	—	( <i>n</i> = 1)	—
Advancement <sup>3</sup>	( <i>n</i> = 1)	—	—	—
Relaxing <sup>60</sup>	—	—	( <i>n</i> = 1)	—

that could not fit inside all the other clusters outlined before such as sociodemographic, behavioural, and psychological ones. This group contains the genre of the games assessed by the papers, the style of play chosen by the participants, the number of avatars that a player has, the gaming place where the activity is mainly done, the type of server used to play, and the physical health of the player playing the game.

The most investigated variable of this group was “Genre of game played” (*n* = 7). Four papers analyzed it by doing an ANOVA (*n* = 4), 2 papers used Pearson’s *r* to study the correlations, 1 study did a linear regression, and 1 study used Path Analysis/Structural Equation Modeling.

Wohn et al. [43] found that people who play MMO games have higher intrinsic hedonic motivations, higher intrinsic accomplishment, higher social identified, and higher external game than players who played social network games. People who played social network games had higher external social and higher amotivation than people who played MMOs.

Fuster et al. [105] found that WoW players had higher scores on dissociations than those who played Aion and EVE online.

Scharkow et al., [38] found that playing for fantasy motivation had positive relationships with RPG, simulation games, adventure, and action but negative relationships with strategy, puzzle, sport games, platforms, and music games; competence had positive relationships with puzzle games and sport but negative ones with role playing and action;

exploration had positive relationship with strategy, adventures, role playing, and platform games but negative ones with sport genre; social capital had positive relationship with strategy, puzzle, and role playing but negative ones with sport and music; team play had positive relationship with sport, platform, and action genre; competition had negative relationship with role playing and simulation but positive ones with sport and action; mechanics had positive relationship with sport, adventure, platform, simulation, and action genre, and lastly, narration has positive relations with strategy, puzzle, adventure, and role playing but negative ones with sport and action.

Johnson & Gardner [23] found that the experience of presence in games was the lowest for sport, simulation, and shooting games; moderate for action-adventure games; highest for strategy and role playing games. The experience of autonomy was lowest in action adventure games and shooting games, moderate for sport and simulation games, and highest for strategy and role playing games.

Ratan et al. [50] found that agency was positively associated with sport games, and pastime was positively associated with casual games and action games, while performance was associated with action games.

Kim [40] found positive correlations between traditional type of game and challenge and arousal; physical game-genre was positively correlated with competition, fantasy, and arousal; imagination game genre preference was positively correlated with competition, challenge, social interaction, fantasy, and arousal.

Lastly, López-Fernández et al. [28] studied game genres related to two specific samples: young adults and adolescence. They found that in the adolescent sample, shooter games positively correlated with recreation, competition, cognitive development, coping, social interaction, violent reward, and fantasy; MOBA games positively correlated with competition, cognitive development, and social interaction; MMORPG positively correlated with fantasy; role playing positively correlated with recreation and fantasy; action adventure positively correlated with cognitive development, coping, customization, and fantasy; sport games positively correlated with violent reward and competition but negatively with customization; social simulation negatively correlated with competition, cognitive development, coping, social interaction, and violent reward but positive with customization; construction positively correlated with customization and fantasy; platform games negatively correlated with competition, coping, social interaction, and violent reward. While, they found the following correlations in the young adult sample, the shooter genre positively correlated with recreation, cognitive development, coping, social interaction, violent reward, customization, and fantasy but not competition; MOBA positively correlated with recreation, competition, and social interaction; strategy is negatively correlated with violent reward; MMORPG is positively correlated with recreation, competition, coping, social , and fantasy; action-adventure game is positively correlated with recreation, cognitive development, coping, violent reward, and fantasy; sport genre is positively correlated with competition and violent reward; casual genre is negatively correlated with recreation, competition, social interaction, violent reward, customization, and fantasy; social simulation positively correlated with customization and fantasy but negatively with social interaction; fighting genre positively correlated with violent reward.

The second most investigated variable was investigated by only 2 papers, and it was “style of play” ( $n = 2$ ). Wu et al. [121] found that those who primarily played single-player games had a higher score on coping but a lower score on competition, social, and general motivation than those who primarily played MMO games. Dauriat et al. [36] correlated style of play (playing PvP, playing solo, playing PvE, role playing, or playing in groups) and found that achievement positively correlated with playing PvP, socializing negatively correlated with playing solo but positively correlated with playing in a group, and immersion positively correlated with playing in a group, playing solo, playing PvE, and role playing.

**3.2.5. Risk of Biases.** All the risk of biases detected are reported in Table 3. All the 53 studies included presented a sampling bias due to various reasons: 21 studies recruited their samples online through forums or other platforms, while 32 were highly specific and focused their investigation on a targeted nation, even though one study compared three nations [50]; 28 studies had more male participants than females; 1 study only had only female participants [138]; 3 were lacking male players; 8 focused their results only on MMORPG players; 4 specifically targeted World of Warcraft players, 5 papers focused on MMO players, with one specifically comparing

MMO players with social network gamers [43]; the study done by Carlisle et al. [68] also lacked of randomization factors. The fact that some papers were specifically targeting some games or countries can lead to a lack of generalizability of the obtained results. Considering that all 53 studies used self-reported questionnaires, all of them might have been affected by a response bias due to the nature of the instruments per se. Furthermore, 2 studies [33, 34] received random response to their questionnaires. 23 papers had a reporting bias since they had to discard some of them, and not all the cases were reported. 13 papers presented a measurement bias: (1) Lafrenière et al. [32] did not report the specific value of each dimensions’ Cronbach’s alpha; (2) Tekofsky et al. [67] created an ad hoc scale by compiling items from already assessed instrument, but they did not report the Cronbach’s alpha for each dimensions; (3) Scharrow et al. [38] created an ad hoc questionnaire, but one of the dimensions (exploration-ego centered motives) had only one item, thus resulting in Cronbach’s alpha of one; (4) Dindar [75] proposed the construct of “gamer loyalty” as an attitude variable and not as behavioural one; (5) Ratan et al. [50] measured two constructs only through one item; (6) Kim [40] created a scale to measure preference of games, and this scale had low alphas; (7) the questionnaire used by Williams et al. [124] had an alpha of .62 for the immersion factor which would be considered insufficient if we would interpret this with the European Federation of Psychologists’ Association’s [27] criteria, which says that a Cronbach’s alpha is acceptable only if above .70; (8) Dauriat et al. [36] did not report the Cronbach’s alpha for each dimensions of their scale; (9) McCauley et al. [52] created an ad hoc questionnaire that needs further validation; (10) Fuster et al. [33] used an ad hoc instrument that needs further validation; (11) Tondello et al. [44] used a short version of their scale, and it could have problems with acquiescence, also the scale needs further validation, and the player dimension had a Cronbach’s alpha of .698, which is insufficient according to EFPA [139]; (12) Azadvar & Canossa [46] measured some behavioural variables through a recording system, so the obtained data could have been affected by external factors; (13) the ad hoc questionnaire created by Yee [25] to measure MMORPG motivations had three dimensions with insufficient alphas [139]: .63 for immersion, .62 for escapism, and .67 for achievement. Lastly, 3 papers also had a statistical bias due to the fact that one questionnaire was based on an already existent one [41]; Frederik & Jan had a really small sample which could lead to a type II error; Ratan et al. [50] underlines that there might have been a type I of error due to the unequal sample size in doing the ANOVA calculations.

## 4. Discussion

The primary objective of this PRISMA systematic review was to present the main results obtained in literature pertaining to gaming motivation not related to psychopathology symptoms specifically. Aside from some main topics that are often analyzed or discussed, the literature exhibits either contradictory results or results that should be investigated more. To summarize, the most investigated variables are gender, age, gaming frequency, gaming addiction, and personality.

The current literature has mainly observed that males have higher gaming motivation than females [28, 29, 39, 47, 50, 54], and they seemed to play principally to compete [22, 26–28, 38, 39, 47, 67, 71], while females seemed to play for social reasons [22, 29, 47] or relationship purposes [22, 25–27, 67]. This is in line with Bales' Theory [140] that females are more relationship-oriented while males are more task-oriented. Gaming motivation appears to be stronger in younger people [22, 28, 34, 36, 38, 67, 68, 105, 121], and they mainly play for social reasons [34, 36, 38, 54, 67, 68]. There is to note two things: (1) studies addressing more adult players, with a mean of age of more than 35 years, are still lacking [38, 43, 69]; (2) positive correlations between some gaming motivation and age were observed just in a few of these studies [28, 67, 71, 121] and thus may need further research and exploration.

In general, it appears that video gamers tend to spend more hours on video games to satisfy their needs of social interaction ([25, 28, 29, 34, 36, 41, 48, 92, 123, 124, 26]), competition<sup>13</sup> ([28, 71, 92, 26, 79]), escapism<sup>25</sup> ([25, 36, 71, 79, 123, 26]), achievement<sup>1</sup> [26, 33, 36, 106], autonomy<sup>7</sup> [46, 69], competence<sup>12</sup> [46, 69], and relatedness<sup>58</sup> [46, 69].

Notably, non-addicted players and problematic ones appeared to play for almost the same gaming motivations, meaning escapism ([36, 71, 76, 79, 92, 122, 136, 26]), social [28, 36, 41, 68, 83, 92], and achievement reasons [36, 68, 83, 122] are the only difference being coping as a motivation for addicted players [28, 41, 92]. These results seem coherent with the idea that people tend to obsessively play video games to not think about their daily problems (i.e., escapism<sup>25</sup>), to not miss some social aspect or to interact with some other people (i.e., social motivation<sup>65</sup>), to cope with their feelings or mood states (i.e., coping<sup>15</sup>), and lastly, simply because they want to achieve something that probably require lots of time to be spent in that game (i.e., achievement<sup>1</sup>). This means that the relationship between gaming motivation and gaming addiction could be null in the end. Therefore, future research should directly compare problematic and nonproblematic gamers more in depth to identify possible differences in terms of motivations [141]. Lastly, papers addressing the relation between personality and gaming motivation were only 6, and the only results supported by more than one paper were that agreeableness positively correlated with fantasy<sup>28</sup> [40, 92] and social interaction<sup>65</sup> [40, 92], even though 2 papers [40, 92] also concluded that agreeableness is a negative predictor of fantasy<sup>28</sup>. All the other results were discovered just by one paper, hence implicating that this particular topic needs more research.

This systematic review provides support to different theories already present in literature, the first one being the Self-Determination Theory (SDT; [72]) and the second one the Use and Gratification Theory applied to media (UGT; [29, 142]). According to the SDT, people play video games because of intrinsic or extrinsic motivations to satisfy some basic psychological needs that all people have, namely, the need for competence, relatedness, and autonomy [30]. It appears that video games are now able to satisfy those needs thanks to their improvements not only in terms of potential gameplay but also in terms of real time connections with people. As seen in this systematic review, the most common

reasons to play appear to be competition for males and social for females. Both of these reasons support the theory that gamers, but also casual people, tend to play to satisfy their need of feeling competent (e.g., through competition with other players) and to feel connected to other people (e.g., by developing social relationship through a common interest), which are also both fundamental basic human needs according to Maslow's theory [57]. Moreover, apparently, there is a common ground in what pushes people to play that is independent from psychopathological aspects. In fact, addicted and nonaddicted gamers play for almost the exact same reasons as shown by this systematic review. It is probably that there are some moderators that determine whether a person is prone to develop pathological behaviours or not. Notably, with our findings, we also support the UGT, which states that people can use technology to keep satisfying their needs within a society that keeps changing rapidly and developing not only in the real context but also in parallel in a virtual world. In fact, as shown by Sherry et al. [29], which were the first to apply UGT to video games, all respondents report to play for mainly two reasons: (a) competition and (b) social reasons. These results were largely confirmed throughout literature (e.g., [26, 28, 92]). It is also not surprising that these motivations are the most supported ones given the fact that human beings have always compared themselves to others [143], and this appears to be true in virtual settings as well.

*4.1. Potential Impact and Future Perspectives.* This PRISMA systematic review has the merit to put together a lot of heterogeneous literature regarding gaming motivation by outlining some connections that might have been missed given the fact that same constructs may have different names in literature. This overview could be helpful for different purposes: (a) it is found that there is no difference between addicted and nonaddicted players in terms of gaming motivation. It is known that motivation is the most important key in treatment, and clinical researcher could use these information to use videogames as a way to promote a healthy lifestyles, to reduce stress [144], to increase physical activity in sedentary people [145, 146], for educational purposes by learning useful information [147, 148], or for therapy with children with special educational needs, ADHD, or neurodevelopmental disorder [149, 150]. As stated, motivation is strictly related to age and gender; thus, this systematic review could help in identifying which games with which characteristics could be helpful for the target population. This implies that some games can be considered more engaging and thus can have a stronger impact; (b) game companies are always interested in knowing which reasons lead people to play video games. Gamers spend lots of hours in playing certain video games because through this activity, they can satisfy some of their basic psychological needs [30]. This activity can easily become pathological, and companies can use gaming motivation knowledge to create dedicated checking systems to avoid detrimental effects due to excessive screen time, such as lacking of attention [151] or sleep deprivation [152]. Furthermore, gaming motivation can be the needed bases to develop video games

and gamification aspects that can be used for training purposes [12] or for HR processes [153, 154]; (c) it is the first systematic review to focus on nonpathological reasons and thus giving an overview of why gamers (addicted or not) play video games. These could be helpful to compare both groups of these groups and understand their differences on common gaming motivation [141]. Clinicians could use the knowledge of the current literature to develop better treatments based on gender, age, and culture. Female and male gamers play in fact for entirely different reasons, and a generalized treatment can not possibly work well on whatever patient. Also, future research should strive to investigate and include female players more since the majority of the studies consisted of mainly male players; (d) gaming motivation can be studied related to some relatively new possible work careers that are taking over the entertainment sector such as Esport. Esports are a really competitive sector, and it requires hours and hours of training to achieve great performances in tournaments. This implies that there might be the need to further investigate how constructs such as self-esteem [155], work-related stress [156], burnout [156], or general mattering [157] might be related to gaming motivation in pursuing this type of work; (e) can be useful to build a possible future questionnaire that tries to integrate most of the gaming motivation found. It reported most of the existent instruments (ad hoc instruments included) in literature right now to measure gaming motivation and thus giving an overview of all the gaming motivation thought and investigated as a whole. The fact that the literature is so heterogeneous makes it hard to have results that can be compared or connected to the same theoretical point of view. Many researchers decided to create an ad hoc instrument instead of using the most adopted standards (e.g., GAMS, PENS, MPOGQ, and MOGQ), implying that the already created scales were not suitable for measuring what they wanted. Thus, the conclusion of some studies can be considered as stand alone but still informative. It also shows that researchers are having hard time in having a point of reference; thus, the need to put them all together shows that there is a sort of common thread on which we can work on and further develop so that we can actually compare those results. Some researchers are giving different names to basically the same constructs (e.g., skill development and cognitive development). This means that, while searching in literature, some papers will be missed and not included in other researches, and comparisons will be hard to do if searched by keywords. There is not a paper that tried to put together all the results about gaming motivation but also paid attention to this note. This PRISMA would allow other researchers to see if there are strong associations between game-related variables and other dimensions (e.g., gender and coping, whereas coping was called differently in some papers). Furthermore, it is interesting to put together all the gaming motivation papers since many focused on specific genres, but nowadays, games are also becoming more mixed, and thus, through this PRISMA systematic review, researchers could find a common pattern that could be interesting to investigate

on games in general, without relying too much on a specific pattern.

Considering what has been said up to now, it is safe to say that there is a lot to discover and deepen about this topic, albeit what has been found is, without doubt, vital to keep the research going.

## Data Availability

Data is not applicable since it is a review, and all the articles selected are presented in the appendix section.

## Disclosure

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## Conflicts of Interest

The authors declare that they have no conflicts of interest.

## Endnotes

Glossary of gaming motivation: <sup>1</sup>Achievement: it refers to dominance, leadership, prestige, and achievement of goals [33]. <sup>2</sup>Achiever: players motivated by competence. Their motivation to play is to seek progress within a system by completing tasks or to prove themselves by tackling difficult challenges [44]. <sup>3</sup>Advancement: the desire to gain power, progress rapidly, and accumulate in-game symbols of wealth and status [26]. <sup>4</sup>Agency: refers to the expectations of the player regarding their ability to play the game according to their preferences [35]. <sup>5</sup>Amotivation: the relative absence of motivation either intrinsic or extrinsic [158]. Individuals do not perceive contingencies between their actions and the outcomes of their actions. For example, players may have had good reasons to play but now persist despite not perceiving any reasons for doing so [32]. <sup>6</sup>Arousal: a frequently stated reason for playing video games is to stimulate emotions [29]. <sup>7</sup>Autonomy: the degree to which participants felt free and perceived opportunities to do activities that interest them [30]. <sup>8</sup>Boredom: play games to relieve boredom, to fill time and to relax [69]. <sup>9</sup>Challenge: players enjoy playing video games to push themselves to a higher level of skill or personal accomplishment; the desire to solve puzzles in order to get to the next level or beat the game [29]. <sup>10</sup>Cognitive development: intellectual activity stimulation during video game play [28]. <sup>11</sup>Community: play games in order to be part of a community and to interact with others [38]. <sup>12</sup>Competence: player's perception of the game providing a challenging but not overwhelmingly difficult experience and enhanced efficacy [30]. <sup>13</sup>Competition: the desire to challenge and compete with others [26]; motives of competing with and defeating others in order to feel a sense of achievement [22]. <sup>14</sup>Concentration: the feeling of total absorption that leads the gamer to totally ignore or forget their surroundings. It is similar to the experience of flow [37, 54]. <sup>15</sup>Coping: using games to help coping with real problems (stress, aggression, and anxiety) and managing unpleasant moods and unwanted impulses [22]; playing for stress-

reduction and mood enhancement [28]. <sup>16</sup>Completion: interest in performing every possible action in a game or collecting every in-game item [34]. <sup>17</sup>Customization: having an interest in customizing the appearance of their character [26]; interest in-game creative pursuits like personalizing an in-game avatar or building a house [34]. <sup>18</sup>Discovery: finding and knowing things that most other players do not know about [26]. <sup>19</sup>Disruptor: players motivated by the triggering of change. Their motivation to play is to disrupt the system either directly or through others to force negative or positive changes [44]. <sup>20</sup>Dissociation: refers to identification with the avatar, and with evasions of, or escaping from, reality [33]. <sup>21</sup>Diversion: games used to avoid stress or responsibilities, to fill time, relax, escape from stress, or because there is nothing else to do [29]. <sup>22</sup>Ego: motivation is related to aspects of the self, like playing to be strong [47]. <sup>23</sup>Enhancement: internal, positive reinforcement (e.g., increase in positive emotions) [41]. <sup>24</sup>Entertainment: playing because it is exciting, it is fun, and it is interesting [37, 54]. <sup>25</sup>Escape/escapism: using the online environment to avoid thinking about real life problems [26]; escaping from reality, especially problems of the real world [22]. <sup>26</sup>Exploration: discovery of the game, its history, and the various phenomena that occur within the game [33]; enthusiasm for games with many choices, options, multiple solutions of puzzles, and open areas to explore [34]. <sup>27</sup>External regulation: behaviour regulated through external means such as rewards [32]. <sup>28</sup>Fantasy: stepping out of one's usual identity, trying new identities in a different fantasy world, and trying things that one cannot do in real life [22]; playing for the immersion in the gaming world and the story's in-game characters [28]. <sup>29</sup>Free spirit: players motivated by autonomy. Their motivation to play is to express themselves and act without external control to explore and create within a system [44]. <sup>30</sup>General motivation: a general factor subsuming all the other motivations [121]. <sup>31</sup>Grinding: attitudes toward performing repetitive actions or playing real-life money to earn in-game rewards [34]. <sup>32</sup>Habit: refers to media use that is not active. It concerns starting to play games without really thinking about it [35]. <sup>33</sup>Hi-tech: the motivation to play video games is because they look cool [47]. <sup>34</sup>Identified regulation: people engage in a behaviour based on its perceived meaning or its relation to personal goals [159] even if the activity is not pleasant in itself. For example, players might play because it has personal meaning or in order to help achieve other personal goals, such as developing/maintaining friendships [32]. <sup>35</sup>Immersion: play to enjoy being part of a fantasy world as well as being someone else [25]. <sup>36</sup>Integrated regulation: engaging in an activity out of choice. However, such choice is not simply limited at the activity level but is now a coherent part of the organization of the self. That is, the regulation becomes part of a person's habitual functioning and part of the person's sense of self. Thus, players who play because it is aligned with other life goals, such as becoming a game designer [32]. <sup>37</sup>Intrinsic accomplishment: one's feeling of pleasure when improving one's own performance [43]. <sup>38</sup>Intrinsic motivation: it defines players who play because they enjoy exploring the game universe and improving their skill levels or because they like the thrill and strong sensation the game provides [32]. <sup>39</sup>Intrinsic hedonic: the pure sense of enjoyment coming from playing [43]. <sup>40</sup>Introjected regulation:

regulation of the behaviour through internal pressures such as anxiety and guilt, and, thus, implies partial internalization. For example, players who play because if they did not, they would be irritable or restless [32]. <sup>41</sup>Intuitive controls: participants' experiences of the interface that controls their character's actions in the virtual environment [30]. <sup>42</sup>Learning: playing video games to learn new skills, new things, to improve, and because it makes the players think [37, 54]. <sup>43</sup>Loss-aversion: tendency of a loss to frustrate or to "spoil the fun". Likely, subsumes search for challenge [34]. <sup>44</sup>Low-cost: it refers to the motivation of playing games that require low effort to get started and/or are flexible to use (time/location) [39]. <sup>45</sup>Manipulation: how much inclined a user is to objectify other users and manipulate them for his personal gain and satisfaction [25]. <sup>46</sup>Mechanics: having an interest in analyzing the underlying rules and system in order to optimize character performances [26]. <sup>47</sup>Moral self reaction: expectations resulting from comparing playing digital games with own, social, or moral norms [35]. <sup>48</sup>Narration: it refers to the topic and story of the game [38]. <sup>49</sup>Narrative: composed by believability, the expectation about coherence and believability of the game environment, and involvement, the expectation about involvement with aspects of the game world [35]. <sup>50</sup>Pastime: the expectation to kill time when playing [35]. <sup>51</sup>Performance: the expectation to perform well when playing digital games [35]. <sup>52</sup>Philanthropist: players motivated by purpose. Their motivation to play is to help others without expecting a reward [44]. <sup>53</sup>Player: players motivated by the extrinsic rewards. Their motivation to play is to earn rewards within a system, independently of the type of the activity [44]. <sup>54</sup>Presence: sense of immersion in the gaming world [30]. <sup>55</sup>Psychological detachment: a subdimension of alleviation from stress, similar to zoning out [69]. <sup>56</sup>Realism: playing because the game world, its characters, and/or story feel like the real world [47]. <sup>57</sup>Recreation: refers to recreational and relaxing aspects of online games [22]. <sup>58</sup>Relatedness: the feeling of connection that participants feel to other players in the game [30]; the concept of social belonging [46]. <sup>59</sup>Relationship: the desire to form long-term meaningful relationships with others [26]. <sup>60</sup>Relaxing: the game as a means of relaxing and a source of "exciting entertainment" [36]. <sup>61</sup>Role-playing: creating a persona with a background story and interacting with other players to create an improvised story [26]. <sup>62</sup>Self-gratification: motivation related to the act of indulging/satisfying one's own desires [41]. <sup>63</sup>Skill development: refers to people playing games in order to improve their coordination, concentration, or other skills [22]. <sup>64</sup>Sociability: the expectation to enact non-competitive social behaviour when playing [35]. <sup>65</sup>Social/Socializing/Social Interaction: having an interest in helping and chatting with other players [26]; the pleasure of getting to know people, being with others, and playing together with other persons [22]. <sup>66</sup>Social capital: play to make new friends or to get to know new people [38]. <sup>67</sup>Socializer: players motivated by relatedness. Their motivation to play is to interact with others and create social connections [44]. <sup>68</sup>Social external regulation: reinforcement received from other players within the game (similar to the external regulation of physical activity behaviours) [43]. <sup>69</sup>Status: the expectation of being respected by other players [35]. <sup>70</sup>Story: whether

game stories are important, engaging, and emotionally compelling [34]. <sup>71</sup>Teamplay: play games to play at the same time with other players and/or to simply play with other people [38]. <sup>72</sup>Teamwork: deriving satisfaction from being part of a group effort [26]. <sup>73</sup>Violence catharsis: whether game violence is perceived to help harmlessly release negative moods or aggression [34]. <sup>74</sup>Violent reward: whether game violence provides positive or thrilling emotions such as satisfaction or power [34]; gratification obtained via in-game violence [28].

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