REVIEW

A systematic review of the current state and challenges to the representation of women in esports

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Abstract

Background Esports is an umbrella term for competitive sports involving videogames. Esports is considered a largely male-dominated industry that undermines female participation. This systematic literature review provides a comprehensive and up-to-date review of empirical literature focusing on the state and representation of women in esports by broadly focusing on esports players (including professionals and competitive gamers).

Methods and limitations This systematic review employed a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach. The systematic review included qualitative, quantitative, and mixed-methods empirical research and identified 19 relevant studies from *Web of Science* and *PsycINFO*. Non-empirical literature was excluded.

Results and limitations The findings were summarised into four themes based on thematic analysis principles: (i) a toxic atmosphere for women – subordination, discrimination, and sexualisation, (ii) female motivation and representation, (iii) thriving in esports: coping strategies for combatting gender discrimination, and (iv) interventions and further issues. Analysis and synthesis of the findings suggest that esports can be a hostile space for women and may stigmatise female gamers through exclusion, objectification, and negative stereotyping. Further, the analysis indicates that women employ coping mechanisms such as resilience and in-game gender-swapping and observed that esports may serve as an escapist and empowering platform for women marginalised by oppressive norms outside of gaming. Its key limitations include the exclusion of a risk-of-bias assessment, lack of protocol registration, and omission of additional databases due to the scope of the systematic review and the emerging nature of the research topic.

Conclusion The findings of this systematic review present implications for subsequent research focusing on women in esports, their psychological wellbeing, and interventions focused on boosting women's state and representation in esports.

Keywords Esports, Women, Discrimination, Systematic review, PRISMA

1 Introduction

Esports (short for *Electronic Sports*) is an umbrella term for competitive sports involving videogames [1]. Esports has evolved from its humble beginnings as a niche in videogame culture in the early days of the 21st century to a worldwide entertainment phenomenon in the subsequent decade with the rise of the internet and its applications [2]. Esports owes its global appeal and growing industry to its accessibility, diversity, and modernity, as well as opportunities for unique spectator experiences [3]. Coupled with the rise of social media and recent technological advancements, esports prompted thriving online gaming communities transcending geographical boundaries by engaging professionals and enthusiasts in a plethora of competitive video gaming events, bridging many aspects of excitement and belongingness, thereby legitimising it as a form of professional sport and mainstream entertainment [4].

Despite inspiring many social innovations and newer developments in competitive sports, esports is ultimately embedded in the larger 'gaming culture', and has a complicated relationship with women, primarily from the perspective of professional gamers and the audience [5]. Current estimates suggest that female esports professionals comprise only 6% of the overall player base, in addition to only 4% of LAN (Local Area Network) parties—these are large audience esports tournaments comprising of players competing with each other in the same location, and only a handful have participated in major international esports tournaments [6]. Qualitative research focusing on women's experiences in esports identified it as a largely male-dominated sport that stigmatises, marginalises, and victimises female esports athletes, where female esports players are subjected to negative stereotyping, shared experiences of sexual harassment, objectification, and masculine power structures that undermine women's position [5, 7]. Despite esports' tremendous growth as a market, $1.22 billion in 2021 with a projection of exponential growth in the current decade, there is a steep disparity in financial opportunities for women; 99% of all the top earners are male [8]. These factors may notably affect the participation of women in esports as well as their shared experiences in the industry. While there is growing advocacy for gender inclusivity within esports [9], current interventions are characterised by symbolic efforts rather than effective measures that cut through systemic and structural barriers esports presents to women [10]. Moreover, it can be argued that several empirical challenges plague these efforts: (1) To what extent are negative experiences of women invariable within esports? (2) How do cultural, social, and economic barriers (within and outside esports) intersect to pose barriers to female participation and success in esports? (3) What are the coping mechanisms and psychological consequences of being a woman in a male-dominated esports environment?

While the 'state and representation' of women in esports remains a relevant field of academic research that demands subsequent exploration of women's experiences within esports and the evolving cultural landscape of esports globally, minimal attempts have been made so far to exclusively and systematically assess and synthesise current empirical evidence. To date, there haven't been rigorous attempts to review scholarly contributions that critically evaluate the state and representation of women in esports. Previous review studies [11] have come closest to comprehensively assessing the masculine norms that dictate esports spaces, hinting at the impact of hegemonic gender structures on minorities (in this case women) through novel conceptualisations at the intersection of geek masculinity and hegemonic masculinity – where alternative masculine norms

that emphasise the mastery of technology, science, and video gaming intersect with traditional masculinity norms, such as the pursuit of status, dominance over women, and emotional suppression [12]. However, a systematic analysis of the current literature focusing on the state and representation of barriers to female representation in esports will provide a comprehensive up-to-date perspective of the current knowledge, critical concerns, interventions, and further issues, capturing women's collective experiences in esports. In addition, exploring the collective experiences of women in esports will help critically understand and validate the nature and outcomes of the interaction between professional/competitive female gamers and the hegemonic masculine norms in esports described by previous studies [7, 11]. Finally, the systematic review will present implications and concrete directives for future research studies to enhance the understanding of the state and representation of women in esports.

Therefore, this review study assesses the current literature on the topic by focusing on empirical qualitative, quantitative, and mixed-methods research and data to establish an empirical ground on the state and representation of women in esports.

2 Methodology

Adhering to the ten-step framework [13], this systematic review involved planning, scoping searches, formulating the review questions and protocol elucidation, conducting literature searches, screening titles and abstracts, acquiring papers, selecting full-text articles, extracting data, analysing and synthesising findings, and finally, presentation of the results. The framework was essential to carry out the systematic review, and its replicable aspects are further illustrated by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart provided in Fig. 1 [14]. The widely accepted PRISMA guidelines ensured that the systematic review and its items were presented with clarity and as much completeness as possible within the scope of the research. This was ultimately achieved by adhering to the key components of the 27-item checklist through which all the necessary information is included for transparent and reliable reporting of findings within this systematic review. However, we acknowledge that some elements, such as the risk-of-bias assessment, and consequently, confidence in evidence, and quality assessment of included studies, were not fully addressed. Further, owing to time and logistical constraints, this review did not undergo protocol registration. Collectively, these exclusions are discussed as methodological limitations of the review and its findings (along with its other limitations) and reflect the exploratory and emergent nature of the research topic. A detailed rationale for excluding a risk-of-bias assessment is provided in the subsequent subsections of the methodology section, and further limitations are discussed under the study's limitations.

2.1 Inclusion criteria

The studies included in the systematic review were empirical, peer-reviewed studies published in academic journals, offering psychosocial perspectives on the representation and perception of women in esports. The scope of this review is not limited solely to professionals, but esports more broadly, which also includes competitive gamers and streamers as opposed to casual gamers. The methodologies employed in the studies range from qualitative to quantitative, as well as mixed-methods approaches to research. Non-empirical studies such as literature reviews, theses, book chapters, and books were
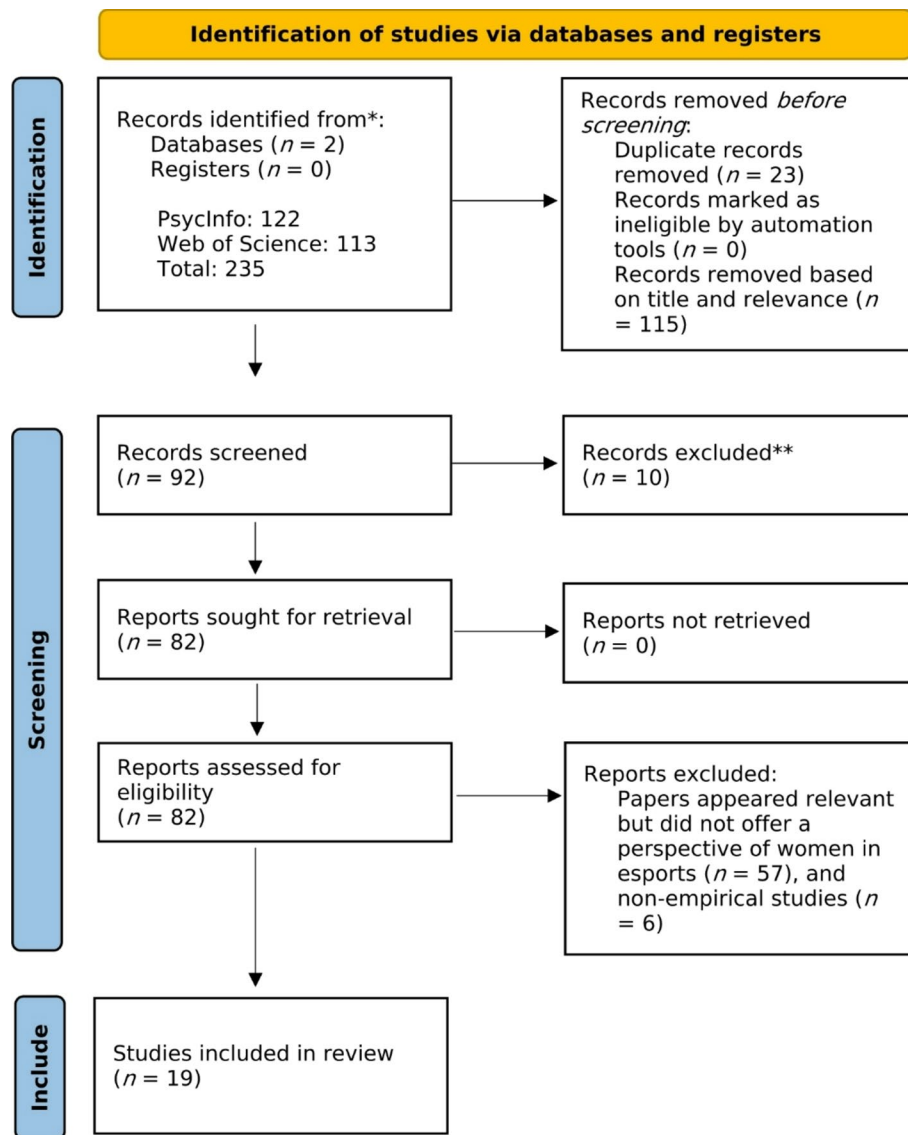
Fig. 1 PRISMA flowchart highlighting the selection process

thus excluded from the systematic review to focus on original data that can be analysed critically and consistently (along with a clearer view of methodological limitations), and limit bias and redundancy.

2.2 Search strategy

A thorough, exhaustive, and wide-ranging systematic literature search was conducted in two databases: *Web of Science* and *PsycINFO* (*ProQuest*), for their extensive literature coverage on empirical psychological and psychosocial research focusing on the topic. The following search string was employed for both databases:

> *Woman OR women OR female OR girl* OR gender* OR gender relations**
> *AND*
> *Professional gaming OR esports OR e-sports OR pro-gaming OR pro-gamer**

The search strings were employed after carefully assessing previous literature and search results yielded by alternative search terms to identify articles most relevant to the objectives of the present study. The searches were constrained to literature published within the last ten years to ensure contemporaneity (the search was carried out on *10/04/2024*). The search was carried out by both the authors involved in the study. The search yielded 235 results (*PsycINFO*: 122; *Web of Science*: 113). A total of 23 search records were removed during the management of duplicates, and 115 records were excluded based on title and relevance. Additionally, five records were excluded because they were published in Spanish, Portuguese, and Malay. Overall, 92 records were screened of which 10 records were excluded for falling outside the scope of the systematic review. A total of 82 reports were retrieved. Of the retrieved reports, none were excluded. In the final assessment for eligibility, 63 reports were excluded because they appeared to be relevant but did not offer insights regarding the representation and perceptions of women in esports. Additionally, six reports were excluded despite being relevant because they did not include research data.

A final total of *19* studies were selected to be included in the systematic review after a thorough assessment of relevance and findings of the studies (including those excluded) by both authors. The findings of all the studies were considered for the systematic review with a primary focus on the guiding research objective of capturing a scientifically informed consensus on the state and representation of women in esports, emphasising the experiences of women in esports and their potential outcomes.

2.3 Data extraction

The data extracted for the systematic review are summarised in the master table (Table 1). This includes first author names, study aims and design, sample and data, results, and recommendations for future research – considering the emerging nature of the field of study.

2.4 Risk-of-bias

This systematic review does not include a risk-of-bias assessment for the studies selected to be included in the systematic review due to the narrow scope of the systematic review, the diversity of methodologies of the included studies, and the emerging nature of the research. Moreover, the present review focused on capturing the overarching patterns in results and trends that provide insights into the limited and inconclusively researched area of the state and representation of women in esports. For this purpose, the systematic review relied largely on specific findings in the included literature that closely aligned with its main objective of providing insights into the state and representation of women in esports, limiting its scope for conducting a quality appraisal of the individual selected studies.

2.5 Data synthesis

The review aimed to systematically collate the empirical quantitative and qualitative data gathered by the selected studies (along with relevant discussions) by following the standardised procedure of generating systematic review results [47]. Drawing from the conceptual framework of thematic analysis [48], the results were summarised into key themes by both authors who followed an inductive approach and refined the codes

Table 1 Systematic review master table (uploaded as supplementary material)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Choi et al. [15]	The study aimed to textually analyse a corpus based on an online discussion that occurred in conjunction with a cheating accusation made against 'Geguri' - a professional female computer gamer.	The corpus included: • Online discussions from *Twitter* and *Inven* that took place between 21 June 2016 and 27 June 2016 • Replies to Geguri's tweets made between 13 June 2017 and 15 June 2017.	• The textual analysis of the corpus revealed that surveillance mechanisms in professional gaming often targeted female gamers • Sporting anti/misogyny was discursively constructed and persisted and normalised in these traditions (policing of behaviours, surveilling and identifying females) embedded in gaming culture.	No specific directives about future research were included in the study
Darvin et al. [16]	• The study explored the career experiences and obstacles faced by women in esports by interviewing female esports competitors, content creators, and executives. • The interviews were analysed through inductive thematic analysis.	Ten (*N* = 10) racially diverse female participants (*Age range: 21–40*, experienced professional players or streamers, or were high-level executives in the industry*)* were interviewed and purposively sampled.	Analysis revealed the following themes: o Breaking the glass monitor o Toxic 'geek' masculinity o Hostile sports environment o Mental (e.g., *grit*), o Interview transcripts revealed that a 'toxic geek masculinity' pervades esports spaces, which in turn enables tokenism, access discrimination, and hegemonic masculinity in the industry of esports. • Esports environments are described as hostile for women as a result of harassment, stereotypes, and stigma. • These challenges demand female esports players to develop mental toughness to thrive in the industry, and also persistently push against obstacles within and outside the esports industry.	• Longitudinal work entailing one stakeholder group (such as top-level elite-women gamers or executives) or genre-specific exploration • A consideration for the intersectionality of gender, race, and sexual orientation within evolving female spaces in esports

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Fisher and Foust [17]	The study analysed the representation of gender in US Army esports (USAE), carried out through a critical public relations framework and critical discourse analysis.	Communication materials produced by USAE, i.e., social media posts, videos, etc., were included in the corpus to analyse how USAE portrayed its players.	• The analysis focused on gender and communication patterns, and revealed that USAE challenged and reinforced gender-based norms. • The empowerment efforts of USAE challenged gender norms, where female players received higher content-based visibility and empowerment efforts appeared more pronounced in narratives focusing on female players. • The analysis also noted instances of tokenism and the reliance on gendered imagery in USAE's communication, reinforcing gender norms. • USAE's strategies included recruiting young players identifying with gaming culture and reshaping the public image surrounding esports • These also included spotlighting challenges (and opportunities) where addressing gender disparities necessitated systemic progress that goes beyond representation.	• Analyse discourse generated by non-gaming organisations about gender and diversity in esports • Scholarly attention to race issues in esports • Analysis of the public relation strategies government, corporate, and nonprofit entities utilise the esports space to achieve organisational goals on brand identity, audience engagement, and recruitment
Hao et al. [18]	The study investigated the relationship between gender-swapping and participation intention of female esports players by employing questionnaire surveys.	475 ($N=475$) valid questionnaire results were drawn from female undergraduate students (*Age range: 18–22*) from South-eastern public universities in China, engaged in esports. Gender-swapping, discrimination, self-efficacy, and continuous participation intention were factors statistically analysed. Measures used: • Gender swapping scale adapted from [19]. • Self-efficacy scale adapted from [20]. • Continuous participation intention in esports scale adapted from [20] • Dichotomous (Yes/No) measure for discrimination on the grounds of gender	• Female players experiencing gender-based discrimination displayed higher continuous participation intention as a result of self-efficacy reinforced by gender-swapping. • The impact of gender swapping on continuous participation was not significant, however, gender-swapping had a significant association with efficacy, and self-efficacy was significantly associated with continuous participation intention. • Discrimination moderated the effect of self-efficacy on continuous participation intention.	• Expand the participants' ages and occupations • A consideration for female players with different personality traits • Explore antecedents of female gender-swapping behaviour in the context of esports

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Hussain et al. [21]	The two-phased study aimed to qualitatively explore the lived experiences of female Muslim videogamers through ethnographic observation and interviews.	• In the first phase, an audio-visual ethnography was conducted, involving nine Muslim women engaged in esports from the marginalised parts of Pakistan as well as organising esports tournaments in the region (*Age range: 19–29*). • The second phase involved content analysis of interviews involving the same sample.	The findings were clustered into the following themes: o True-self o Escapism o Accessibility o Other psychological motives o Focus on whiteness o Harassment and sexualised bodies • The analysis offered an understanding of the motives and lived experiences of Muslim women participating in esports. Esports empowered and enabled self-expression in the participants, and served as an avenue to break free from patriarchal norms and societal barriers through 'oppositional agency' and identity-assertion in gaming spaces. • However, Muslim women were not immune to systemic and systematic marginalisation, pushing Muslim women gamers to navigate through and persevere against the intersecting barriers of oppressive norms and post-colonial intrusions.	• Verify the results across different social avenues (such as social media), to observe how escapism manifests in other contexts • Investigate how masculine hegemony and white colour inferiority complex impact male (Pakistani) gamers
Hwang and Kim [22]	• The study investigated the impact of gender and prior participation on the perception of esports and esports academic programs among college students. • Statistical analyses allowed a comparison of the effects of esports participation and gender, in addition to the interaction effect occurring between esports participation and gender.	Questionnaire data were collected from one hundred and 162 participants to measure perceptions surrounding esports and esports academic programs, and were statistically analysed. Measures used: • Student perception of esports adopted from [23] • Student perception of esports academic programs questionnaire, drawn from previous research and validated for inclusion	• An analysis of participant responses revealed that esports perception was significantly associated with esports participation and gender (there was no combined effect) • The perception of esports academic programs was significantly associated with participation. • Women reported lower levels of esports perception compared to men	• Expanding methodology to include larger samples for generalisability as well as different higher-education stakeholders (parents, administrators, faculty, etc.) • Exploring whether esports reinforce barriers that exclude non-binary individuals • Investigating the impact of increased level of physicality in Virtual Reality or Augmented Reality-based esports

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Jang and Byon [24]	The study investigated esports playing intention formation and aimed at understanding the role of gender in this context by employing surveys and statistical analyses.	Responses from 498 participants (men = 54.2%, women = 45.8%), who had experience playing esports games were measured using a survey combining the following six determinants adopted from Jang and Byon [25]: • *Hedonic motivation* • *Habit* • Price Value • *Social influence* • *Flow* • *Esports gameplay intention*. • Statistical analyses were employed to understand the distribution of the constructs across gender and their interrelationships.	The statistical analyses furnished the following findings: • Hedonic motivation significantly influenced esports gameplay intention • Social influence significantly impacted esports gameplay intention • Habit played a significant role in influencing eSport participation intention Additionally, gender has been noted as a moderator in these interrelationships where • The influence of hedonic motivation in esports gameplay intention was higher in men • The impact of habit on esports participation intention was higher in women • The role of social influence in esports gameplay intention was higher in men	• Consider gender and genre to have an interactive effect on the moderator of each relationship that exists between determinants and esports gameplay intention • Investigate gender differences in esports consumption along with esports gameplay intention to explain the behaviours of esports consumers
Jang et al. [26]	The study aimed to examine the interacting effects of gender and genre in the relationship between esports gameplay intention and its drivers based on a six-group model (consisting of Hedonic motivation, Habit, Price value, Effort expectancy, Social influence, and Flow). Questionnaire surveys were employed and statistically analysed.	Participants: Data from *1194* adult USA-based participants were collected, of which 50.3% were male (*Age range: 18–45*) Measures used: • A screening question to understand the esports gameplay experiences of the participants • A 23-item psychometric-based survey measuring Hedonic motivation, Social influence, Price value, Flow, esports gameplay intention, and Effort expectancy was adopted from Jang & Byon [27]	o The six-group model comparison indicated that the interaction between gender and genre moderated the relationship between drivers and esports gameplay intention. o Moderating effects were observed where; • *Social influence* and *esports gameplay intention* occurred between *male-physical enactment* and *female-physical enactment* • *Habit* and *esports gameplay intention* occurred between *female imagination* and *female physical enactment*; • *effort expectancy* and *esports gameplay* occurred between *female imagination* and *female-physical enactment* • *Hedonic motivation* and *esports gameplay intention* occurred between *female physical enactment* and *female sport simulation*; • *Effort expectancy* and *esports gameplay intention* occurred between *female physical* enactment and *female imagination*.	• Theoretically specify the boundaries among the six groups that should be mutually exclusive • Consider experience of esports gamers to extend the esports consumption model to include experience-driven influences in esports consumption • Inclusion of esports gameplay behaviour in future assessments of esports gameplay intention

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Kordyaka et al. [28]	Two studies were designed to understand the observed gender disparities in esports through explanatory mixed-methods approach by conducting a cross-sectional survey and gendered focus groups (consisting of differing gender compositions).	• 396 valid participant responses from *League of Legends* players were included in the study. • The data were statistically analysed to understand the relationship between gender and other constructs such as expectancy, instrumentality, • valence, and achievement motivation. For the focus groups, 15 participants were included in two single-gendered focus groups (one for each gender) and one mixed-gender focus group. Overall, 6 women and 9 men participated in the study (*Mean age: 25. 41*) Measures used: • Expectancy, instrumentality, valence, and achievement motivation were adapted from measures used in previous research • A single nominal item (male vs. female vs. other) was used for gender	• The quantitative phase revealed no difference in expectancy and instrumentality among male and female players and was in line with expectancy theory. Female players, however, showed higher valence (value attached to success) and achievement motivation compared to their male counterparts. • The following themes were derived from the focus groups: o In-game culture o Individual attributions of players • Analysis of the two themes emphasised culture and individual disposition to shed light on the prevailing gender differences. Female participation was influenced by in-game culture and individual attributes (such as goal orientation and locus of control). • Overall, the results underscored the need to consider individual and contextual factors to address gender disparities in esports.	• Test the relationships between the variables through structural equation modelling contrasting female and male players • Use other sampling channels for a comparison of results and perspectives, in addition to a cross-cultural examination • Inclusion of non-binary populations • Following the generalisable construct of esports, consideration of only real professional players, not semi-professional and casual players of competitive esports games in studies.

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Kulari et al. [29]	The study investigated the perceived competitive aggressiveness and civil behaviours in professional esports players.	Responses from 84 professional esports players, (42 men, 42 women, *average age: 24, SD = 4.97*) were collected through a quantitative survey and their perceptions of civility, and competitive aggressiveness and anger were measured. There were 22 Portuguese participants and 62 non-Portuguese participants. Measures used: • Workplace civility scale adapted from [30] • Competitive aggressiveness and anger scale adapted from [31] and [32].	• Statistical analysis of the surveys revealed that female esports players perceived lower levels of civility when compared to their male counterparts, who also displayed high competitive aggressiveness. • The difference in anger behaviours was not significant in the context of gender. • The findings offer gender disparities in incivility and how it may subsequently lead to the underrepresentation of women in esports.	• Longitudinal research focusing on one genre • Qualitative research to understand gender differences in esports treatment and perceived civility • Include larger and more diverse samples while researching perceived civility in esports • Use of objective measures (rather than self-administered measures) to measure perceived civility and competitive aggressiveness

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Lambert Graham [33]	The study explored rituals and tropes in online gaming and their impact on female gamers by qualitatively analysing a corpus of online data.	• A corpus of data involving *150 h* of live game streams (of a female *Twitch* streamer 'Raihnbowkidz') and concurrent open-forum chats were extracted for analysis. • The policies of *Twitch*, combined with rules posted by 6 individual streamers were also examined.	There exists a prevailing moral order in online gaming communities, which reinforces gender norms and barriers for female gamers, positioning them as unwelcome and inferior.	• Examining whether the patterns enforced by the moral order translate into other contexts of online gaming (such as other sets of gamers), particularly how these findings compare across different platforms (*Twitch vs. Youtube*) and if multimodality in online communication can challenge the moral order • To discern and examine whether attempts to resist or change the prevailing moral order are longitudinally efficient
McLeod et al. [34]	The study investigated inequalities in the emerging esports labour market and the social stratifications that are produced as a result of industry dynamics.	Data were collected for statistical analysis by web-scraping an online database: *esports Earnings* (ESportsearnings.com), which provides descriptive statistics for prize-earnings data from 2005 to 2019.	• Statistical analysis revealed that while esports is projected as an industry rife with financial opportunities, particularly for young people, most competitors earned less than the (USA) poverty threshold. • The findings highlighted gender disparities, where female players faced inequalities in median incomes and the ability to earn higher than the poverty threshold. • The esports market was described as unequal, providing significant financial outcomes for a few (mostly male gamers), while marginalising the rest and widening the gap between successful and low-paid players.	• Evaluate different income streams of esports players • Situate individual inequalities within global inequalities • Collect additional data on the industry and incorporate regression techniques to identify variables associated with inequality in the esports industry

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Piggott and Tjønndal [35]	Drawing upon positionality theory, the study explored through interviews how leadership and inclusivity in esports intersect with identities and influence the perception and experiences of esports leaders.	Accounts from 11 participants (7 men, 4 women, *age range: 27*–56) from nine Scandinavian esports organisations were retrieved through interviews and analysed through reflexive thematic analysis.	The following themes were derived from the interviews: o The ways in which the workforces of esports organisations are established and developed o Wider issues of discrimination and marginalisation across the esports community • Analysis of the two themes revealed that participants' experiences were informed by identity, social background, and context of esports organisations. Based on this positionality, the participants' experiences were noted to be gendered, where women leaders disclosed experiences of discrimination and marginalisation, while their male counterparts did not report similar experiences. • Additionally, the nature and severity of the discrimination experienced by the women leader participants were influenced by ethnicity, sexual orientation, age, esports background, professional role, and positionality ultimately informing how leaders perceived their experiences and those of other leaders within esports.	No specific directives about future research were included in the study
Pizzo et al. [36]	The study investigated the barriers individuals face while engaging in leisurely pursuits such as esports through the leisure constraints model. The leisure constraints to esports participation were compared by gender, and statistical analyses enabled an investigation of the relationship between continuous participation intention and gender.	Survey data were extracted from 201 male participants and 201 female participants ($N = 402$), and analysed, to investigate the role of gender on leisure constraints and contextual factors, and understand their effect on continuous participation intention. Measures used: The following validated scales were adapted into the esports context: • Structural, interpersonal, and intrapersonal construct scale [37] • Community support scale [38] • Level of flow [39] • Career expectations scale [40] • Continuous participation intention scale [41]	The statistical analyses revealed that female esports players experienced higher interpersonal and intrapersonal constraints compared to their male counterparts, and contributed towards explaining the limited representation of women in esports.	• An examination of leisure constraints and leisure facilitators in esports engagement • A complete assessment of esports participation and leisure constraints also encourages understanding the constraint negotiation process in different groups (not limited to gender) and esports platforms • Examine the influence of toxicity in esports across all populations

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Rogstad [42]	Through Foucauldian discourse analysis, the study explored the media portrayal of Chiquita Evans, who was the first woman to participate in the NBA 2 K (esports) League.	A diverse range of 26 media texts was collected from various online spaces for the Foucauldian discourse analysis of the media portrayal of Chiquita Evans.	• The analysis enabled an examination of the case of Chiquita Evans in the convergence of sport, gaming, and media visibility. • The findings represent Chiquita Evans as a 'trailblazer' navigating through the barriers of the industry and challenging gender and racial expectations in esports. • The findings also revealed that media representation and wider acceptance reinforce established stereotypes and may not overturn the systemic disparities in esports.	• Scholarly attention focused towards race and ethnicity issues in the esports space • Focus on how media practices sustain hegemonic structures in discourse, particularly at the intersection of race and gender
Ruvalcaba et al. [43]	Two studies aimed to investigate how male and female esports players received feedback on online videogaming spaces by employing survey and observational methods.	• A 13-question (self-report-based) survey on experiences with positive and negative feedback received during esports gaming sessions was employed for study-1 and responses from 92 gamers (61 women and 31 men) were statistically analysed. (*No detailed demographic data were provided*) • For study-2, observation based on 87 *Twitch* streaming players (39 female) and their spectators were made and qualitatively analysed.	The findings from Study 1 revealed the following: • No significant gender differences in reports of criticism • Both female and male players were more likely to report praise from same-gender players than other-gender players • Men were more likely than women to report receiving praise from low-ranking women • Women were more likely than men to receive praise from high-ranking women. • There were no gender differences in reported praise from low or high-ranking men. Findings from Study 2 revealed the following: • Women were more likely to receive sexual comments directed at them when compared to men • No significant gendered differences in general sexual comments • No significant gendered differences in negative comments directed towards players • Women were more likely to receive positive comments directed towards them • Men were more likely to receive neutral comments directed towards them o Together, the findings revealed a mixed experience for women on *Twitch* where they were more likely to be victims of sexual harassment, but also more likely to receive positive feedback from spectators, shedding light on complex feedback dynamics in esports.	• Use of scales to expand upon the limitations of self-report-based measures or use of open-ended questions to understand gendered patterns and players' online experiences • Consider spectators' gender to understand players' experiences • Extract direct messages from streamers regarding praise, criticism, or sexual harassment • Investigate how sexual harassment/objectification through comments affects women's video game performance and commitment towards pursuing esports careers and understand the pipeline that leads women to esports

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Taylor and Stout [44]	An interview-based study focusing on leaders from esports clubs and varsity programs to bring clarity to the transforming terrain of 'collegiate' esports.	Interviews from twenty-one participants ($N=21$) were qualitatively analysed. The following categories of participants were in the study (detailed demographic information was not disclosed): • Undergraduate students — 13 • Faculty positions — 3 Salaried and non-faculty positions — 6	• Analysis of the interviews revealed shed light on the professionalisation of collegiate esports, which encouraged a two-tiered system distinguishing club-level esports programs from well-funded esports programs • Professionalisation of esports did not positively influence gender representation and diversity, and systematic issues within collegiate esports persist despite the openness of some leaders towards skilled players and continue to disenfranchise women • Well-funded esports programs remain male-dominated, whereas club-level esports programs are more inclusive, though are often student-led and not organised Note: The analysis did not follow a strict coding procedure. The analytical framework involved collaborative re-reading of transcripts, generation of themes, and consulting existing literature on esports, professionalisation, and gender.	No specific directives about future research were included in the study
Xue et al. [45]	The study explored how online narratives on *Reddit* drive the commercial, cultural, and identity-based mechanisms within esports communities, and investigated through narratological analysis how these narratives influence boundaries of inclusion and exclusion within discourse.	Online discourse involving players engaged in esports, from *Reddit* was analysed through narratological analysis.	• The study emphasised the multifaceted nature of online discourse and digital communal identities in the context of esports • An analysis of the prevailing narratives revealed that *Reddit* users described as members of the esports community engaged in politicisation of platform discourse promoting inclusion/exclusion behaviours associated with gender and investment • These dynamics often lead to the marginalisation of female esports players.	No specific directives about future research were included in the study

Table 1 (continued)

Author/s	Study aims and design	Sample and data	Results	Recommendations for future research
Yusoff and Yunus [46]	The study aimed to qualitatively examine the challenges faced by female esports athletes in what is categorised as a male-dominated sport.	Interviews from ten women who were involved in esports either by representing esports teams/clubs or playing MMORPGs were analysed via thematic analysis. *Age range: 19–22*	• An analysis of the interviews revealed that female esports athletes struggled for sustainability within the community due to severe gender disparities. • Women were described as less competitive and ill-suited for MMORPGs and 'masculine games' that were deemed challenging, extreme, and aggressive. • Women also experienced challenges surrounding communication when interacting with male players and were also the frequent targets of inappropriate sexual comments. • The masculine image of esports and gendered challenges hinder women's growth, development, and sustainability in the industry.	No specific directives about future research were included in the study

iteratively by analysing, comparing, and synthesising the evidence retrieved from the studies to draw further conclusions and create a cohesive narrative explaining the primary research question. The following themes were derived at the end of the thematic analysis process:

1. A toxic atmosphere for women—subordination, discrimination, and sexualisation.
2. Female motivation and representation.
3. Thriving in esports: Coping strategies for combatting gender discrimination.
4. Interventions and Further issues.

2.6 Theme 1: A toxic atmosphere for women—subordination, discrimination, and sexualisation

A total of nine studies assessed in this systematic review suggested that esports permeates a toxic atmosphere that is hostile to women [15, 16, 21, 29, 33, 35, 43, 45, 46]. In other studies [18, 28, 44], empirical data were gathered and discussions were built around references to the 'toxic culture' within esports (and gaming) [15] and [16]. defined a form of toxic 'geek' masculinity (as opposed to traditional hegemonic masculinity) as a force that drives the culture of competitive gaming, which creates social pressures for men to legitimise an exclusivist male order which in turn subordinates women (and sometimes other men, sexual minorities, etc.) through gatekeeping, trolling, gender-zoning, identity policing, etc., within the esports ecosystem. While [15, 16] characterised esports culture through the lens of toxic geek masculinity, the other seven studies identified under this theme further reported that toxic norms pervaded every operational aspect of esports and affected all categories of women, from professional gamers to audiences [21]. noted that esports can challenge and conform to hegemonic masculinity norms (a complex combination of resistance and dominance). This dichotomy was also observed in online discourse on esports [45]. Further [46], observed that esports is rife with gender disparities. They argued that many games and genres in esports were designed to attract male gamers and largely represented a masculine image

that indirectly discourages meaningful female participation. As a result, male gamers are perceived as naturally suitable for esports while female gamers are deemed unsuitable. Within this hostile cultural ecosystem, women are forced to confront the challenges associated with sexism and unwanted sexualisation. For instance [21], noted that female bodies are sexualised in esports (as they often are in society), creating an avenue for further issues such as sexual harassment [46]. reported that women were frequent targets of inappropriate sexual comments within esports platforms [29] and [43]. observed that women were more likely than men to receive sexual comments and comments lacking in civility, respectively. These outcomes affected not just players, but also female esports leaders [35]. [16] also underscored that sexual harassment of female gamers is pervasive within esports and highlighted that women often experience infantilisation and objectification when interacting with male gamers, which is coupled with the consequence of othering and surveillance, where women are surveilled and sexualised merely for being women, but often remain unrecognised for their skills in esports on account of their sex [15]. Ultimately, the toxic esports culture contributes to a moral order (as described by [33]), which disempowers women by positioning them as inferior and generally unwelcome.

2.7 Theme 2: Female esports motivation and representation

In six studies, various aspects of female esports motivation and representation were assessed [21, 24, 26, 28, 29, 36]. Female motivation to participate in esports is an empirically complex topic that is multifaceted and governed by many variables that have mixed outcomes on behaviour and wellbeing and are related to the representation of women in professional gaming. Evidence gathered from seven relevant studies assessed in the systematic review helps navigate the complex relationship between female motivation to partake in esports and their representation [24]. identified that gender plays a moderating role in influencing esports gameplay motivation, where there exists a negative relationship between female esports gameplay motivation and social influence because female gamers are less likely to identify as a 'gamer' and more likely to be motivated by habit and effort expectancy (i.e., ease within which esports could be learned and played). Further [26], noted that genre could play an important role in the relationship between esports gameplay motivation and gender, and suggested that the perceptions of women around esports gameplay intention vary across genres. For instance, women are discouraged from partaking in the 'physical enactment' genre of esports (i.e., games involving physical action/movement, e.g., simulations of real-world sports with the help of sensors and other devices that recognise and transmit player movement from real-world onto the gaming platform through responsive avatars) due to social influence, where meaningful social interactions are scarce in contrast to higher levels of toxicity, sexual gender role stereotyping of game characters, inequality, and discrimination that are generally associated with the culture of esports [28]. observed that many women who participate in esports are highly motivated towards performance and achievement, but noted that fewer women participated in esports because of many potential barriers, such as limited representation at a higher level of professional stage (the most visible level of esports to the general public, also noted by [36]), toxic environments within esports, and higher perceived stress levels and lower self-report performance scores [29]. also observed that female representation is affected by incivility, competitive aggressiveness, and toxicity

prevalent within esports [36]. reported that the structural constraints within esports exclude female participation, in addition to psychosocial barriers that particularly discourage women's identification with esports activities, when external constraints such as lack of time, opportunities, and financial success are similar for both women and men. However, the relationship between structural and systemic issues in esports and the participation of women is not straightforward [21]., for instance, observed that some women experiencing greater real-life marginalisation are motivated to engage in esports to escape from everyday sexism.

2.8 Theme 3: Thriving in esports: coping strategies for combatting gender discrimination

Six studies [15, 16, 18, 21, 33, 35] assessed in the systematic review highlighted the various coping strategies women employed to successfully participate in esports in the face of systemic challenges and gender discrimination [16]. emphasised mental toughness and women's (self-perceived) need to be resilient for sustenance in esports in all professional capacities (i.e., as competitive players, executives, and content creators). This was also reflected in the findings of [35], where resilience, confidence, and competence were regarded as the primary coping strategies. Further, case studies involving individual female esports players practically demonstrated the importance of such coping strategies [15, 33]. Other studies including the one by [18] observed that female gamers who engaged in in-game gender-swapping experienced higher levels of self-efficacy, thereby increasing continuous participation intention. Additionally, in-game gender-swapping was remarked as a primary coping strategy employed by some women to combat negative gender stereotyping (i.e., stereotyping threat) [21]. noted that esports engagement itself served as a coping strategy against everyday sexism and observed how women from marginalised communities not only utilised esports gaming spaces as escapist platforms, but also to assert their identities, strengthen their self-expression, and empower themselves by breaking free from repressive patriarchal norms imposed on them in the real world outside those gaming spaces.

2.9 Theme 4: Interventions and further issues

In nine studies, interventions and further issues in challenges for women in esports were discussed [16, 17, 21, 22, 34–36, 42, 44]. The perception and representation of women in esports paints a clear picture encouraging initiatives to tackle gender disparities and hostility within the larger ecosystem of esports. Seven studies assessed in the systematic review provide an idea and critical evaluation of current practices and interventions to improve the status of women in esports while shedding light on further issues and gaps in research in the area.

Tokenism around gender-inclusivity was reported through the perspectives of women in esports [16, 44]. Tokenism was also observed in analyses of gender-inclusive strategies such as proactive public relations efforts [17] and positive media portrayals and messaging [42]. Collectively, these initiatives include possible risks, such as reinforcing established stereotypes and subsequently placing emphasis on improving structural inequalities and systemic barriers and not just achieving representation within esports. Similarly, focusing on collegiate esports [44] demonstrated that well-funded 'professional' esports programs do not necessarily improve gender representation and diversity, in contrast to club-level esports programs (which are often not organised

and student-led), which show a lot of promise when it comes to gender equality and representation.

Moreover, the socioeconomic dimension surrounding women's participation and achievement in esports is rife with notable and context-specific challenges [34]. challenged the image of esports as an industry of financial opportunity and revealed that positive financial outcomes are accrued by few (mostly male) gamers, while female gamers generally experience challenges to earning beyond the poverty threshold. Ultimately, analysis of earnings in esports positions its market as unequal, and one that frequently marginalises a significant portion of players, resulting in a wide gap between successful and low-paid gamers [36]. further highlighted how personal constraints such as financial and time-based limitations negatively affect female participation in esports, alongside disparities in opportunities, resource allocation, amiable female-centred esports spaces, and competitive videogame content (and tournaments) targeted at female players and audiences [22]. showed that women had a lower perception of esports (i.e., perceived esports less favourably compared to men) which affected their participation even at collegiate level. Additionally [21, 35, 42], underlined the role of positionality and stressed the importance of sub-identities (under the larger umbrella of 'women in esports') in determining the experiences and unique challenges present across various categories of female esports players [35]. emphasised how the 'gendered' challenges faced by women within esports are further influenced by sexual identities, profession or role within esports qualification, and social class. Further [21], pointed out that female esports players from marginalised Muslim communities often have to navigate through the intersecting barriers of oppressive norms and intrusive post-colonial narratives embedded within gaming culture, where players may advertently focus on 'whiteness' (for example, by preferring white avatars when diverse options are available) and inadvertently reinforce white supremacy by engaging with white supremacist portrayals/discourses in videogames and video gaming culture. Further, the challenge of addressing racial stereotyping in videogames and discourse (at the intersection of gender and race) remains a critical issue [42].

3 Discussion

This systematic review aimed to review current literature focusing on the barriers faced by competitive women gamers and the challenges surrounding female representation in esports. A total of 19 studies were identified which provided qualitative and quantitative perspectives to address its primary aim. The findings across the studies included in the present systematic literature review were synthesised and summarised into four major themes: (i) a toxic atmosphere for women: subordination, discrimination, and sexualisation, (ii) female motivation and representation, (iii) thriving in esports: coping strategies for combatting gender discrimination, and (iv) interventions and further issues. The results obtained from the present systematic review suggest the prevalence of toxicity which poses a lasting barrier undermining the experiences, representation, and success of women in esports. Some studies assessed in this review [15, 16] characterised esports as a culture of toxic 'geek' masculinity as opposed to hegemonic masculinity. Geek masculinity generally presents an alternative view of masculinity and in many ways conceptually challenges traditional norms that can disempower and disenfranchise women, as in the emphasis on physical abilities, sexual prowess, and social dominance present

within hegemonic narratives of masculinity [49], whereas geek masculinity values critical thinking, problem-solving skills, and positive solitude [50]. However, geek masculinity becomes toxic by rejecting and reinforcing certain hegemonic masculine norms by perpetuating and normalising harmful behaviours, including sexism, gatekeeping, trolling, gender-zoning, and identity policing by combining geek culture and unregulated virtual spaces within the esports context, thereby engendering a gendered hegemony that ultimately hinders women [51, 52]. This is also reflected in the findings of research focusing on the experiences of female gamers [53, 54], indicating that continuity exists between the masculinisation of the larger gaming culture and the gendered challenges faced by women in esports [9, 11, 55]. Thus, toxic geek masculinity provides a meaningful conceptual ground to explore these barriers inherent in video gaming culture and translate into challenges faced by women in esports. However, 'geek masculinity' is ultimately a broad descriptor despite being useful in the present research context, and is vulnerable to the risk of overgeneralisation and may not entirely take into account cultural and contextual variations (more specifically outside of the WEIRD demographic—white, Educated, Industrialised, Rich, and Democratic [56]). A broad descriptor such as geek masculinity may affect empirical understanding of how women make sense of structural and systemic barriers within esports in unique contexts and brings into question whether toxicity invariably intersects with geek culture in the experiences of women in esports. This kind of generalisation is already challenged by some studies included in the present systematic review [21, 42], highlighting that positionality and socioeconomic marginalisation affect women uniquely and generate context-specific challenges – marginalised women often experience barriers in esports owing to the cultural norms shaping their lives outside gaming and how they are ultimately perceived in videogames and outside of them.

In this systematic review, it was identified how the motivation to participate in esports is largely gendered across different contexts, and influenced by several (sometimes interrelated) variables, namely habit, effort expectancy, genre, videogaming culture, discrimination, incivility, toxicity, sexual objectification, competitive aggressiveness, and others [24, 29, 36]. Apart from this, there exist two critical issues within the domain of women in esports: (i) Defining and understanding psychological wellbeing implications for women who are highly motivated to participate and achieve as esports professionals, and (ii) bridging the barriers preventing women from participating in esports. Studies such as [15, 16, 33] emphasised the role of mental toughness and resilience in helping women sustain professional careers in esports. This is in line with the findings of other studies including the study by [57], who highlighted the importance of resilience (both individual and organisational) in enabling women to thrive in male-dominated fields, including esports [18]. even suggested that some female esports players engage in unique coping mechanisms (such as in-game gender swapping) to sustain participation intention in the face of gender discrimination and stereotyping-threat (i.e., prejudiced views against women who identify as 'female gamers'). This is in line with the findings from other studies including the study [58], where it was observed that female gamers often use male avatars to shield themselves from potential discrimination.

Though current interventions largely emphasise inclusivity and participation [10], the findings synthesised in this review largely stress the importance of focusing on systemic inequalities and structural barriers that prevent meaningful and successful

representation of women in esports [17, 42]. Coupled with perspectives from marginal communities [21], the findings generally indicate that discourse and intervention strategies are particularly at risk of tokenism and inadvertently perpetuating existing (regressive) norms and stereotypes at the intersection of gender and other variables of positionality. These findings provide a valuable lens for policymakers in the industry to evaluate current interventions and develop effective policy measures to tackle systemic gender issues within esports and boost female representation in the industry.

4 Limitations

As an initial and up-to-date attempt at rigorously assessing current quantitative and qualitative literature on the topic, this systematic review poses several implications for future research on the state of representation of women in esports that must be viewed concomitantly with its four key limitations.

First, the absence of a formal risk-of-bias assessment of the selected studies in this systematic review prevents it from considering the methodological limitations or biases in the included studies, thereby affecting the rigour and generalisability of its overall findings. As such, any analysis or interpretation of the findings of this review must consider that quality appraisal and reporting of the confidence of the evidence item were omitted during the review process.

Second, the review was not registered in a formal registry, limiting its transparency in protocol adherence and potentially impacting the strength of the research and its outcomes.

Third, this systematic review is limited (in its scope) in exploring and engaging with specific genres and games in esports within its broader discussion, which could potentially serve as focal points for exploring issues that may vary across the esports industry.

Fourth, this systematic review aimed to align with psychosocial perspectives, and thus relevant databases were chosen for the literature search while excluding sources such as the *ACM digital library* and *Scopus* database—which may help extract interdisciplinary perspectives and context-specific information regarding developing trends in the esports industry and its impact on the state and representation of women.

5 Implications for future research

The present systematic review ultimately sets the stage to address the key issues regarding the representation and barriers to women in esports and presents the following implications for subsequent research in this area. First, the relationship between offline cultures and esports culture(s), and the intersecting barriers they may pose to women, necessitate context-specific investigations to take into account any variability that may exist. At the same time, a sufficient number of (online) community discourse studies [45] may help map the evolving landscape of esports culture(s) and the narratives (and any discrepancies) present within esports communities, focused on the perception, representation, and challenges surrounding women in esports.

Second, for both quantitative and qualitative studies assessed in this systematic review limitations were acknowledged in methodology and sampling, and using diverse and larger samples (with female representation) strongly recommended alongside longitudinal approaches to achieve a higher degree of generalisability concerning the context of

female gameplay intention/motivation, experience of toxicity, and coping mechanisms adopted in engaging in esports.

Third, the implications for psychological wellbeing for women in esports remain an underexplored area of research. In particular, the prevalence of gaming disorders such as problematic gaming [59] in female esports players or the nature and prevalence of unhealthy coping mechanisms driven by the challenges and adversities faced by women in esports—self-objectification, for example [60–62] remain incomprehensively understood, and this area of research largely remains unexplored within the empirical literature. More generally, mental health problems of clinical significance (e.g., depression, anxiety, isolation, and addiction) which may affect women in esports due to consistent exposure to systemic issues such as discrimination, objectification, harassment, and bullying, need to be comprehensively understood as similar associations have been revealed and established in other contexts, such as discrimination in society and the workplace [63–65] and understood within the broader scope of mental health in esports [66, 67].

Fourth, while focusing on sociocultural nuances, research on intervention strategies must also consider the socioeconomic challenges associated with esports, particularly for women who wish to sustain professional careers in light of a financially volatile public image of the esports industry (McLeod et al., 2022). More significantly, data on female earnings in esports will also benefit from a global and up-to-date post-pandemic assessment, as there is limited empirical research on how the COVID-19 pandemic impacted the esports industry. Finally, current literature points to a notable gap in research knowledge about initiatives for promoting psychological wellbeing in women in esports (or lack thereof), and this should fall in line with the evolving understanding of the various types of coping mechanisms utilised by competitive female gamers to combat discrimination and other barriers to participate in esports.

6 Conclusion

In this systematic review, the current empirical literature was assessed to comprehensively determine the present state and representation of women in esports. In addition, implications for research focusing on the psychological wellbeing of women in esports, factors affecting female participation in esports, and current interventions to boost the state and representation of women in esports were derived. Results presented from the systematic review suggest that many systemic and structural barriers exist for women to participate in esports alongside limited opportunities to pursue a professional career within esports. Of these, the toxic and hostile culture of esports is the primary barrier, where women are negatively stereotyped, are more likely to be victimised by male players and audience members, and are less likely to be appraised for their competitive video gaming skills. While esports is also projected as a market rife with financial opportunities, it is largely unequal and poses barriers to many esports athletes (mainly women) from achieving financial success. These issues continue to affect participation, while female esports athletes engage in various coping mechanisms, such as resilience and in-game gender swapping. Current knowledge (which includes this systematic review) demands an expansion of research efforts taking into account global perspectives and interventions to boost the state and representation of women in esports within evolving esports culture(s), along with the broader psychosocial implications of being a female esports athlete.

Author contributions
Both authors, Daria J. Kuss and Sundara Kashyap Vadapalli, contributed equally to this work. They were involved in the conceptualisation, data collection, analysis, and writing of the manuscript. Both authors read and approved the final version of the manuscript.

Data availability
No datasets were generated or analysed during the current study.

Declarations

Competing interests
The authors declare no competing interests.

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