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Exploring the relationship between sports media use, sports participation behavior, and sport commitment: a mixed-methods study using structural equation modeling and qualitative insights

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Abstract

Background This study investigates the complex relationships between sports media use (SMU), sports participation behavior (SPB), and sports commitment. With the increasing consumption of sports media, it is essential to understand both the quantitative and qualitative dimensions of how media engagement correlates with participation and long-term commitment to sports.

Objectives The study aims to investigate the relationship between SMU and SPB, as well as the mediating role of SPB in sports commitment, using a mixed-methods approach. Additionally, it explores individuals' lived experiences to provide deeper insights into how media shapes engagement and commitment.

Method A mixed-methods design was employed, integrating quantitative and qualitative data. A survey of 484 participants from diverse demographic backgrounds was conducted, and structural equation modeling (SEM) was used to analyze the relationships among variables. To complement these findings, semi-structured interviews were conducted with a subset of participants to explore their narratives surrounding media roles, sports behavior, and commitment. Thematic analysis was applied to interpret qualitative data.

Results Quantitative findings revealed significant positive relationships between SMU and SPB and between SMU and sports commitment. SPB was found to partially mediate the relationship between SMU and sports commitment. The qualitative findings supported these results, highlighting key themes such as motivation, role modeling, and identity formation through media exposure. Participants described how sports media inspired them to engage in sports and reinforced their long-term commitment.

Conclusions This study demonstrates that SMU plays a significant role in fostering sports participation and commitment, with SPB as a key mediator. The integration of qualitative insights strengthens these findings by illustrating the personal experiences and psychological mechanisms that drive engagement. These results underscore the potential of sports media for promoting sustained participation and commitment, offering practical implications for policy-makers, educators, and sports organizations aiming to leverage media for greater sports engagement. Future research

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should explore cultural differences and the role of specific media content types to refine further our understanding of the media's correlation with sports behavior.

Keywords Sports media use, Sports participation behavior, Sports commitment, Structural equation modeling, Media roles

Introduction

Participation in sports has become increasingly important in modern society, with growing recognition of its physical, psychological, and social benefits [1–3]. This section examines current trends in sports activity, the psychological construct of sports commitment, the role of media in sports engagement, and the particular relevance of these factors in the post-COVID era, ultimately justifying our mixed-methods approach.

Recent decades have witnessed significant global growth in adult participation in sports [4, 5]. While walking remains the most accessible form of physical activity [6], involvement in organized sports offers unique benefits for physical fitness and overall health [7–9]. The COVID-19 pandemic has particularly highlighted the importance of sports and physical activity for maintaining immunity and mental health [10], with active individuals demonstrating better psychological resilience during lockdowns [11, 12].

The psychological construct of sports commitment has emerged as a critical factor influencing participation patterns [13–15]. Defined as the psychological determination to persist in athletic activities [16], sports commitment shows strong cross-cultural validity. Research demonstrates that higher commitment levels correlate with increased training frequency and competitive involvement [17, 18], with Japanese athletes showing a strong association between commitment and training intensity [19]. The Sport Commitment Scale (SCS) has been widely validated across various populations [20–22], although scholarly debate continues regarding its dual nature, which encompasses both volitional desire and external obligation [23, 24].

Media consumption patterns have undergone significant changes in recent years, creating both new opportunities and challenges for sports engagement [25, 26]. Contemporary digital platforms have transformed sports consumption from passive viewing to active participation [27, 28]. While excessive passive media use may correlate with reduced physical activity [29], interactive sports media engagement (such as fantasy sports) shows positive associations with participation [30, 31]. The pandemic accelerated these trends, dramatically increasing virtual sports consumption during lockdown periods [32, 33].

The COVID-19 pandemic created a unique natural experiment for examining the bio-psycho-social aspects of sports participation [34–36]. From a biological perspective, regular participants demonstrated better immune function [37]. Psychologically, active individuals showed lower rates of pandemic-related anxiety and depression [38]. Socially, sports provided crucial maintenance of social connections during periods of isolation [39]. These findings underscore the multidimensional benefits of sports participation that our study examines.

The complex relationships between media use, sports participation, and psychological commitment necessitate a mixed-methods approach [40, 41]. Quantitative methods allow us to test hypothesized relationships through structural equation modeling, while qualitative interviews provide a nuanced understanding of individual experiences. This dual approach is particularly valuable given (1) the need to examine both behavioral patterns and their psychological mediators and (2) the importance of contextualizing statistical relationships with personal narratives [42, 43].

Conceptual framework

The growing body of research on sports participation has established its multifaceted benefits for physical health [1], psychological well-being [2], and social connectedness [3]. However, significant gaps remain in understanding the interplay between digital media consumption, sports participation behaviors, and the psychological mechanisms sustaining engagement. While previous studies have examined these factors in isolation [4, 5], limited research has investigated their dynamic interrelationships, particularly in the post-pandemic context, where digital and physical sports engagement have become increasingly intertwined [6].

Three critical research gaps motivate this study. First, despite extensive documentation of the media's correlation with sports spectatorship [7, 8], there is an insufficient understanding of how different forms of sports media use translate into active participation behaviors [9]. Second, while sports commitment has been recognized as an essential psychological construct [10], its mediating role between media exposure and participation remains underexplored [11]. Third, the COVID-19 pandemic has fundamentally altered sports engagement

patterns [12]; yet, few studies have examined these changes through an integrated biopsychosocial lens [13].

The conceptual framework guiding this investigation (presented in Fig. 1) addresses these gaps by proposing an integrated model that examines (1) the direct correlations of sports media use with participation behaviors, (2) the mediating role of sports commitment, and (3) the reciprocal relationships between these variables. This framework builds upon and extends previous theoretical models by incorporating both quantitative pathways and qualitative insights, allowing for a more nuanced understanding of how digital and physical sports engagement interact in contemporary society.

In line with the above conceptual model, the following hypotheses are provided:

H1: Sports media use (SMU) correlates positively with sport participation behavior (SPB).

H2: Sports media use (SMU) correlates positively with sports commitment.

H3: There is a significant positive relationship between sport participation behavior (SPB) and sport commitment.

H4: Sport participation behavior (SPB) mediates the relationship between sports media use (SMU) and sport commitment.

In addition to the formulated hypotheses, this study incorporates a qualitative research question to gain a deeper understanding of the participants' experiences and perspectives. The inclusion of qualitative insights aims to explore the nuanced ways in which individuals engage with sports media, participate in sports, and develop a commitment to sports. The mixed-methods approach enables a more comprehensive exploration of the psychological and social factors that may not be fully captured by quantitative measures alone. The qualitative research question guiding this aspect of the study is as follows:

"How do individuals perceive the correlation of sports media with their participation behaviors and long-term commitment to sports?"

By addressing this research question, the study aims to uncover the personal narratives and contextual factors that shape how exposure to sports media translates into active engagement and sustained commitment to sports. This qualitative dimension enriches the overall analysis by providing a comprehensive understanding of the media-participation-commitment relationship from the participants' perspectives.

Methodology

Procedure

The study employed a sequential mixed-methods design with distinct quantitative and qualitative phases. For the quantitative phase, ethical approval was obtained from the institutional review board (IRB-2023-045) before commencing data collection. Researchers recruited participants through university sports clubs and administered paper-based questionnaires during scheduled training sessions over four weeks. Trained research assistants provided standardized instructions and remained available to address participant questions. Completed surveys were checked for completeness before data entry. The qualitative phase commenced after preliminary quantitative analysis, during which we purposefully selected 20 participants representing the maximum variation in sports commitment levels, media consumption patterns, and sports disciplines. Semi-structured interviews were conducted over 8 weeks, either face-to-face or online, based on participant preference, with each session lasting 45–60 min. All interviews were audio-recorded with the participants' consent, and member checking was performed with five participants to enhance validity. Data collection continued until thematic saturation was achieved at 18 interviews.

Participants

A total of 484 participants were selected from three universities in China for this study, comprising athletes actively involved in university sports clubs with representation across genders (58% male, 42% female) and twelve different sports disciplines to ensure diversity in sports

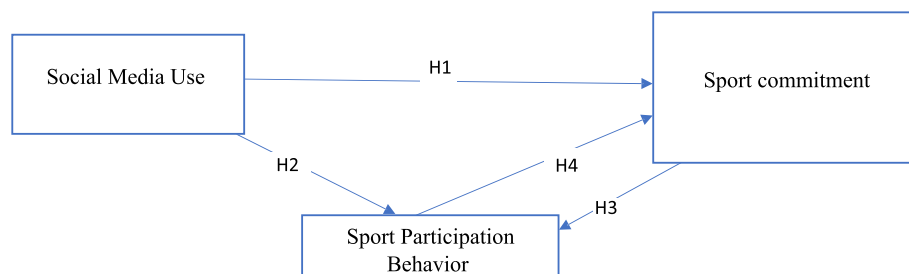


Fig. 1 Conceptual model for the quantitative phase

participation behaviors (average 16.13 h/week, $SD = \pm 13.29$) and sport commitment levels. The demographic profile included age ($M = 20.3$ years), gender, sport type, and years of participation ($M = 4.2$ years), providing a robust foundation for structural equation modeling (SEM) analysis, with the sample size exceeding the minimum recommendation of 200 participants for SEM. For the qualitative phase, 20 participants (10 male, 10 female) were purposefully selected to represent varying commitment levels (high = 7, medium = 8, low = 5), sports media consumption patterns, and eight different sports disciplines. While gender and sport type were recorded, these demographic factors were not analyzed in depth as the study focused primarily on psychological constructs. The qualitative sample size, although relatively small, was justified through preliminary saturation testing, where no new themes emerged after 18 interviews. Potential biases were addressed through random verification of training hours with coaches (20% of the sample) and member checking with participants to validate interpretations.

Instruments

Three instruments were employed: (1) The Sport Commitment Scale (Scanlan et al., 2016) measured enthusiastic ($\alpha = 0.89$) and constrained commitment ($\alpha = 0.82$) using 11 Likert-scale items (e.g., "I am dedicated to keep playing this sport" for enthusiastic commitment); (2) A modified Screen-Based Media Usage Scale adapted from Booker et al. [44] with four items specifically revised to focus on sports-related content (e.g., "How many hours do you spend watching or reading about your sport online?" rather than general media use), with modifications clearly explained to participants and pilot-tested for clarity; and (3) Sports Participation Behavior measures including weekly athletic hours (with average time reporting moved to the participants section as demographic data) and competition frequency. The qualitative phase employed a semi-structured interview guide that covered media consumption, participation roles, commitment factors, and pandemic consequences, refined through pilot testing with 5 participants to ensure that the questions effectively captured the sports media use construct.

Data analysis

Quantitative analysis using SPSS 28 included descriptive statistics, reliability testing, and correlation matrices before conducting two-stage SEM in AMOS (measurement model evaluation with $CFI = 0.93$, $RMSEA = 0.06$, followed by structural model testing and bootstrapped mediation analysis with 5000 samples), assessing model fit through multiple indices (χ^2/df , CFI , $RMSEA$, $SRMR$). The claim about using meta-analytical techniques was removed as the study did not employ accurate meta-analysis methods. The qualitative analysis involved NVivo-assisted thematic analysis of transcripts, conducted through open, axial, and selective coding, with inter-coder reliability ($\kappa = 0.82$), and negative case analysis, paying special attention to potential biases in participant self-reports regarding media significance. Findings were integrated through joint displays and triangulation, providing a comprehensive examination of the media-participation-commitment relationships while acknowledging the study's focus on psychological rather than demographic factors, as outlined in Fig. 1's conceptual framework.

Results

Quantitative results

Table 1 presents the descriptive statistics and correlation coefficients for the key study variables. The results show that sports media use (SMU) had the highest mean ($M = 3.32$, $SD = 0.83$) and strong internal reliability ($\alpha = 0.86$). SPB had a mean of 2.89 ($SD = 0.79$) with $\alpha = 0.78$, while sport commitment had the highest reliability ($\alpha = 0.92$) but a slightly lower mean ($M = 3.53$, $SD = 0.76$). Significant positive correlations were found between SMU and SPB ($r = 0.46$, $p < 0.01$) and between SMU and sports commitment ($r = 0.39$, $p < 0.01$), suggesting that greater engagement in sports media use is associated with both increased SPB participation and commitment. The correlation between SPB and sports commitment was also significant ($r = 0.36$, $p < 0.01$), indicating a meaningful relationship between sports involvement and commitment.

Convergent and discriminant validity

Table 2 reports the results of convergent and discriminant validity tests. The average variance extracted (AVE)

Table 1 Descriptive Statistics and Correlation Coefficients

	M	SD	Cronbach's α	1	2	3
SMU	3.32	.83	.86	1		
SPB	2.89	.79	.78	0.46**	1	
Sport commitment	3.53	.76	.92	0.39**	0.36**	1

SMU Sports Media Use, SPB Sports Participation behavior. $p < .01$

Table 2 Convergent and Discriminant Validity

Variable	AVE	MSV	ASV	CR
SMU	.361	.389	.289	.793
SPB	.423	.691	.272	.772
Sport Commitment	.293	.323	.233	.804

AVE Average Variance Extracted, MSV Maximum Shared Variance, ASV Average Shared Variance, CR Composite Reliability

values show that SPB (0.423) demonstrated the highest convergent validity. At the same time, sport commitment had a lower AVE (0.293), indicating that some of its items may not capture the intended construct variance as strongly. The maximum shared variance (MSV) and average shared variance (ASV) were lower than the AVE values, confirming adequate discriminant validity. The composite reliability (CR) values exceeded 0.70 for all constructs, indicating good internal consistency reliability.

Structural model analysis

Table 3 presents the fit indices for three alternative structural models: the Direct Model (A), the Full Mediation Model (B), and the Partial Mediation Model (C). All three models demonstrate a good fit according to widely accepted thresholds for confirmatory factor analysis. Specifically, each model reports Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values above 0.95, Root Mean Square Error of Approximation (RMSEA) values below 0.05 with narrow confidence intervals, and Standardized Root Mean Square Residual (SRMR) values at or below 0.05—indicating well-fitting models.

Despite the acceptable fit across all models, Model C (Partial Mediation) consistently shows the best fit. It achieves the highest CFI (0.985) and TLI (0.980), along with the lowest RMSEA (0.025) and SRMR (0.030), suggesting an excellent representation of the data. In contrast, Model B (Full Mediation), while reflecting a strong fit (CFI=0.970, TLI=0.965, RMSEA=0.035), performs slightly less well than Model C across all indices. Model A (Direct association), although reaching the minimum thresholds for good fit (CFI=0.955, TLI=0.950, RMSEA=0.043), remains the weakest among the three, particularly in its relatively higher RMSEA and SRMR values.

Path estimates

The path analysis presented in Table 4 supports the hypothesized associations among the study variables across the three structural models. In the Direct path model, Sports media use (SMU) demonstrated a statistically significant positive association with sport commitment ($\beta=0.193$, $t=2.37$, $p<0.05$), indicating a direct relationship. However, when potential mediating mechanisms were examined, the Full Mediation Model revealed a substantial and significant path from SMU to sport participation behavior (SPB) ($\beta=0.465$, $t=4.79$, $p<0.001$), as well as from SPB to sport commitment ($\beta=0.305$, $t=3.67$, $p<0.01$), suggesting that the association between SMU and commitment may be explained through SPB. In the Partial Mediation Model, both the direct path from SMU to sport commitment ($\beta=0.102$, $t=1.89$) and the indirect paths via SPB remained statistically significant, with SMU to SPB ($\beta=0.442$, $t=4.61$, $p<0.001$) and SPB to sport commitment ($\beta=0.348$, $t=4.01$, $p<0.001$).

Table 3 Fit Indices of Alternative Models

Model	χ^2	df	$\Delta\chi^2$	CFI	TLI	RMSEA (90% CI)	SRMR
Direct Effect Model (A)	660.000	619	—	.955	.950	0.043 [0.038, 0.048]	.050
Full Mediation Model (B)	610.000	620	-50.000	.970	.965	0.035 [0.030, 0.041]	.040
Partial Mediation Model (C)	570.000	616	-40.000	.985	.980	0.025 [0.020, 0.030]	0.03

$\Delta\chi^2$ Chi-square difference test, CFI Comparative Fit Index, TLI Tucker-Lewis Index, RMSEA Root Mean Square Error of Approximation (90% confidence interval), SRMR Standardized Root Mean Square Residual

Table 4 Path Estimates of the Models

	Direct effects model	Full mediation model	Partial mediation model
SMU → Sport Commitment	.193 (2.37*)	—	.102 (1.89)
SPB → Sport Commitment	.373 (3.56**)	.305 (3.67**)	.348 (4.01***)
SMU → SPB	—	.465 (4.79***)	.442 (4.61***)
SMU → Sport Commitment	.193 (2.37*)	—	.102 (1.89)

These findings indicate that SPB partially mediates the relationship between sports media use and sports commitment

* SMU = Sport Media Use; SPB = Sport Participation Behavior; * $p<.05$, ** $p<.01$, *** $p<.001$

These findings suggest that while SMU shows a modest direct relationship with sport commitment, the stronger and more consistent association is observed through the mediating role of SPB. This pattern of results, particularly in the partial mediation model, supports the theoretical proposition that sport participation behavior is a key linking mechanism between media use and sustained commitment in sports contexts.

Qualitative findings

The qualitative analysis revealed nine key themes regarding how sports media predict.

athletes' SPB and commitment (SC). Table 5 presents these themes with representative examples and an integrated discussion.

Media as a source of motivation

Sports media serve as a crucial source of inspiration for many athletes. Participants frequently described how exposure to professional athletes or motivational content helped them stay committed to their sports. For instance, Participant 1 stated, *"Watching professional athletes on social media gives me a lot of motivation. It makes me want to push myself harder during training."* Similarly, Participant 3 noted, *"Whenever I see athletes break records or achieve something amazing, it reminds me that I can do more and reach higher in my sport."* These examples show how sports media can motivate athletes, encouraging them to strive for excellence.

Media's role in skill acquisition

Sports media is also a valuable educational tool, enabling athletes to learn new techniques or enhance their skills. Participant 5 explained, *"I've learned so much about strategy and technique just by watching analysis videos of matches. It's like having a personal coach on YouTube."* Likewise, Participant 8 shared, *"Whenever I'm unsure of how to improve, I watch tutorials or professional games to*

pick up tips. It helps me a lot during training." These statements illustrate how sports media is a resource for self-guided skill development.

Building identity and sport commitment

Media plays a role in reinforcing participants' identities as athletes and their commitment to long-term involvement in sports. Participant 6 mentioned, *"Seeing sports content online makes me feel more connected to the culture of my sport. It reminds me why I fell in love with it in the first place."*

Participant 9 echoed this sentiment, *"Being immersed in sports media constantly reminds me that I'm an athlete, and it motivates me to stay committed to my sport, even when it gets tough."* These responses highlight the media's psychological role in fostering and sustaining sports commitment.

Social media as a platform for social support

Participants highlighted how social media provides them with a network of support, including connections with peers and coaches. Participant 2 explained, *"I follow a lot of athletes on social media, and we share tips or motivate each other. It's great to have that community, even if it's online."* Similarly, Participant 7 stated, *"When I post about my progress, my friends and teammates encourage me. It keeps me accountable and motivated."* These quotes illustrate how social media facilitates community and support, which helps maintain participation and commitment.

Media-induced pressure and performance anxiety

While media can be motivating, some participants also experienced negative associations, particularly in the form of pressure and anxiety. Participant 10 revealed, *"Sometimes, I feel like I'm not good enough when I see how far professional athletes have come. It makes me doubt myself."* Participant 12 similarly shared, *"Watching elite*

Table 5 Themes of the Sports Media association with athletes' behavior

Theme	Key Influence	Example Quote
Motivation Source	Inspires training effort	"Watching professionals makes me push harder."
Skill Acquisition	Facilitates learning techniques	"Analysis videos are like a personal coach."
Identity Building	Reinforces athlete identity	"Media reminds me why I love my sport."
Social Support	Provides peer connections	"We share tips and motivate each other online."
Performance Pressure	Creates anxiety through comparison	"Seeing elites makes me doubt myself."
Entertainment Distraction	Can displace practice time	"I watch for hours instead of training."
Goal Setting	Inspires measurable targets	"I write goals after motivational content."
Competition Spark	Fuels competitive drive	"Seeing others' progress pushes me."
Time Management	Encourages participation balance	"I prioritize practice over just watching."

athletes all the time can make you feel like you'll never measure up, and it can cause anxiety before competitions." These quotes emphasize the potential downsides of media exposure, where comparison with professionals leads to performance anxiety.

Media as a source of entertainment and distraction

Participants noted that while media could be educational, it could distract from sports participation. Participant 4 shared, *"I sometimes get caught up in watching sports content for entertainment and realize I've spent hours on it instead of practicing."* Participant 11 agreed, saying, *"It's easy to just sit and watch games all day, but that doesn't help me improve physically."* These statements reflect the dual role of sports media as both entertainment and a potential distraction from physical activity.

Media and goal setting

Athletes also used media to help set and adjust their athletic goals. Participant 14 explained, *"I see athletes online setting these big goals, and it pushes me to do the same for myself. I'll even write down goals after watching motivational content."* Participant 18 said, *"I follow some fitness influencers who share their progress, and it makes me want to set my own short-term and long-term goals."* These insights demonstrate how media can inspire athletes to set specific, measurable goals to improve their performance.

Media's role in fostering competition

Media exposure also intensified participants' competitive spirit, encouraging them to push themselves compared to others. Participant 13 stated, *"Seeing other athletes' progress on social media makes me want to outdo them. It's a healthy competition that keeps me going."* Participant 19 noted, *"When I see people in my sport breaking records or getting better, it fuels my desire to be the best in my group."* These responses illustrate how media promotes a sense of competition, which can enhance sports participation and performance.

Media, Time Management, and Prioritization

Participants reflected on how media consumption is associated with their time management and decision-making around sports participation. Participant 15 remarked, *"I used to spend hours watching sports videos, but now I balance that with actual practice."* Similarly, Participant 20 stated, *"Media has helped me be more mindful of how I spend my time. I prioritize my sport over just watching others do it."* These quotes show how participants became more aware of managing their time effectively to balance media consumption and actual participation in sports.

These participant quotes illustrate how sports media play a multifaceted role in influencing athletes' motivation, skill development, identity, competition, and time management while presenting challenges such as distraction and performance pressure.

Discussion

The current study examined the relationships among sports media use (SMU), sports participation behavior (SPB), and sports commitment, with a focus on the mediating role of SPB. Rather than reiterating numerical results, this section interprets and contextualizes the findings to explore their theoretical and practical implications. The findings support the proposition that exposure to sports media is associated with increased engagement in sports activities. This finding aligns with previous evidence suggesting that sports media fosters interest, introduces new practices, and promotes physically active behaviors [6, 7, 21]. Media acts not only as a source of information but also as a motivational tool that encourages viewers to translate observed behaviors into action [1, 3, 6].

While media exposure alone may not fully cultivate strong attitudinal loyalty to sports, it appears to be a significant precursor to behavioral involvement, reinforcing psychological commitment. This layered relationship aligns with the Sport Commitment Model, which emphasizes enjoyment and perceived benefits as precursors to sustained engagement [13, 15, 40]. Notably, participation in sports emerged as a robust predictor of sport commitment. This reinforces the notion that sustained behavioral engagement, through repeated participation, deepens emotional and cognitive ties to the sport [23, 24, 41]. In this context, the role of SPB as a mediator suggests that while media exposure may initially spark interest, the transition to active involvement solidifies commitment.

Integrating SPB into the media-commitment pathway aligns with self-determination theory, which posits that internalized motivation emerges through meaningful activity [42]. Media may trigger external motivation, but sustained commitment is more likely when individuals experience competence, autonomy, and relatedness through active participation in sports.

The qualitative findings further reinforce the model, illuminating the media's multifaceted role. Participants described how exposure to sports content inspired them to adopt athletic behaviors, reinforcing the motivational power of observing elite athletes [7, 16]. Media served as a virtual coach, offering instructional content that enhanced skill acquisition and tactical understanding—findings echoed in the work of Marín-Montín [8] and López-Carril et al. [12].

Additionally, the media shaped participants' athletic identity. Engagement with sports content led many to view themselves more strongly as athletes, enhancing emotional investment and resilience. This finding is consistent with the Sport Commitment Model and supported by empirical studies that emphasize the role of internalized identity in long-term commitment [13, 17, 40].

Social media also served as a support system. Participants highlighted how interactions with online peers and communities provided emotional encouragement and motivation, consistent with prior research that links social support to persistence in physical activities [43, 44, 45]. Nonetheless, the media's contribution was not uniformly positive. Some participants reported feelings of inadequacy when comparing themselves to elite performers. This dual role—media as both motivator and stressor—has been identified in earlier studies [29, 33], suggesting that uncritical consumption of idealized content can erode self-efficacy.

Moreover, participants acknowledged that excessive media consumption sometimes distracted them from actual practice. This finding echoes concerns raised by Drenowatz and Greier [32] and Kaiser-Jovy et al. [34], who observed a negative association between high media use and physical activity among adolescents. Another noteworthy theme was the use of media in personal goal setting. Watching athletes set and achieve milestones inspired participants to do the same, reinforcing the goal-setting role of media influencers [41, 46, 47]. This modeling effect aligns with social learning theory, highlighting how virtual role models can enhance motivation. Finally, the media facilitated a sense of competition and benchmarking. Participants reported that observing peers' achievements on social media encouraged them to push harder. This aligns with findings on social comparison in media contexts and its ability to enhance performance and persistence [30, 36].

Despite these contributions, several limitations merit attention. This study relied on self-report measures, which may introduce biases related to social desirability. Although precautions were taken to assess method bias, including a single-factor test, such designs inherently limit inference strength [28, 48, 49].

Additionally, the sample consisted of individuals already engaged with sports media, which may limit the generalizability of the findings. To address this, future studies should examine less engaged populations and employ longitudinal or experimental designs to determine whether media use directly correlates with behavior and commitment over time [27, 38, 50].

Furthermore, while this study highlighted the positive relationships among SMU, SPB, and commitment, it also revealed concerns about negative self-perceptions. One

participant noted feeling discouraged by the idealized portrayals in media. This underscores the need to balance promotional efforts with realistic representations of diverse athletic experiences [33, 34, 51].

In conclusion, this study advances understanding of how sports media shapes behavioral and attitudinal outcomes in sports participation. While media can spark initial interest, it is through participation that enduring commitment is formed. Thus, sports organizations and educators should not only harness media for outreach but also create accessible opportunities for participation [52, 53]. One participant stated, *"Watching sports inspired me, but it was joining a local league that truly made me committed."* [54]

Conclusions and Implications

This study suggests that sports media use (SMU) may be associated with sports participation behavior (SPB) and sports commitment, with SPB potentially serving as a partial mediator of this relationship. The observed positive correlations among these variables indicate a possible role of media in promoting sports engagement. Rather than establishing causation, the findings suggest a trend in which increased exposure to sports media is associated with greater participation and may support a more substantial commitment to sports. The structural model's fit indices support the plausibility of the hypothesized relationships. However, further validation across diverse populations and contexts is needed to confirm the robustness of both direct and indirect pathways.

Several limitations should be considered when interpreting these findings. First, the cross-sectional design limits causal inference; longitudinal or experimental studies would be needed to confirm the directionality of relationships. Second, self-reported measures of media use and participation may be subject to bias. Third, the sample may not generalize to all populations, especially those with limited access to sports media or digital platforms.

From a practical standpoint, these findings have potential implications for policymakers, educators, and sports organizations. For policymakers, investing in digital and traditional sports media campaigns that highlight participation opportunities could contribute to increasing public engagement in sports. Public health initiatives may benefit from integrating sports media content that emphasizes the benefits of physical activity and offers accessible participation options.

For educators, incorporating sports media into curricula and extracurricular programs might enhance student engagement and motivation. Schools could consider using sports documentaries, athlete interviews, and social media campaigns to encourage physical activity.

Additionally, educators should be aware of potential challenges, such as unrealistic portrayals and performance pressure, and implement media literacy programs to help students critically assess sports content.

The study proposes the value of media strategies to support participation and commitment within sports organizations. This includes developing engaging content, featuring relatable athlete role models, and promoting grassroots participation opportunities through digital platforms. Organizations should also explore interactive formats, such as live-streamed training sessions or virtual coaching, to enhance engagement and encourage a shift from passive consumption to active participation.

Future research directions

While this study provides valuable insights, several areas warrant further exploration

Future research should explore several key areas to deepen our understanding of how sports media predict participation and commitment. One critical avenue is examining cultural differences in media use, as media consumption habits and their roles in sports engagement may vary across different cultural contexts. Cross-cultural comparisons could provide valuable insights into how individuals from diverse backgrounds respond to sports media and whether cultural factors shape the relationship between media use and sports participation. Additionally, longitudinal studies are necessary to investigate how sports media use correlates with commitment over time. Tracking changes in involvement and commitment across different life stages could reveal whether the media role is sustained or diminishes over time.

Another important research direction is identifying the role of specific media content in shaping sports engagement. Different types of sports media—such as live broadcasts, social media content, or instructional videos—may have varying levels of effectiveness in promoting participation and commitment. Understanding which formats have the most predictive power could help stakeholders tailor their media strategies effectively. Furthermore, while this study focused on the positive correlation of sports media, future research should examine the potential negative consequences of media exposure, including body image concerns, unrealistic expectations, and performance pressure. A more systematic investigation of these negative correlations would provide a balanced perspective on the role of media in sports engagement.

Lastly, experimental and behavioral studies could offer more objective evidence of the media's correlation with sports participation. Utilizing experimental designs or tracking real-world behavior through fitness apps, participation records, or wearable technology

could validate self-reported data and provide a more accurate assessment of how media sports is associated with engagement.

By addressing these research gaps, future studies can provide a more comprehensive understanding of the complex relationship between sports media, participation, and commitment across different populations and contexts. While sports media plays a crucial role in fostering engagement, its effectiveness is maximized when paired with real opportunities for active participation. Stakeholders—including policymakers, educators, and sports organizations—should strategically leverage media to encourage sports participation while researchers continue to explore its diverse roles in cultural, behavioral, and psychological contexts.

Supplementary Information

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Supplementary Material 1.

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Clinical Trial

Not applicable.

Authors' contributions

L.W, M.S.M, and N.E.Z.A designed the study, L.W, M.S.M, N.E.Z.A, W.Q collected the data,, N.E.Z.A and W.Q analyzed and interpreted the data, L.W, M.S.M, N.E.Z.A, and W.Q drafted the manuscript, proofread the paper, agreed to be accountable, and verified the submitted version.

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Data availability

Data is provided within the manuscript or supplementary information files.

Declarations

Ethics approval and consent to participate

The Institutional Review Board of Universiti Malaya approved this study and issued a letter indicating no side effects on the participants. All experiments and methods were carried out by relevant guidelines and regulations. Informed consent was obtained from all subjects.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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