Volume 2, Issue 3, pp 1-10
Article history:
Received 07 June 2025
Revised 13 August 2025
Accepted 20 August 2025
Published online 01 September 2025

Article type:
Original Research

The Future of Sport in Digital Natives: Psychological Well-being and Challenges for the Mobile–Game Generation

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How to cite this article:
Najafian Razavi, M., Farokhi, A., Sadeghi, M., & Ahmadpour, M. (2025). The Future of Sport in Digital Natives: Psychological well-being and Challenges for the Mobile–Game Generation. Foresight and Health Governance, 2(3), 1-10. https://doi.org/10.61838/jfhg.32

ABSTRACT

This study aimed to explore the perspectives of digital natives on the future of sport, with a specific focus on psychological well-being and the challenges associated with mobile–game engagement. A qualitative research design was employed using semi-structured interviews with 23 participants from Tehran, selected through purposive sampling. Data collection continued until theoretical saturation was achieved. Interviews lasted 45–70 minutes, were audio-recorded with consent, and transcribed verbatim. Thematic analysis was conducted using NVivo 14 software. Open, axial, and selective coding were applied to identify categories, subcategories, and concepts. Trustworthiness was enhanced through peer debriefing, reflexivity, and iterative coding. Four overarching themes were identified: psychological well-being, challenges of mobile–game engagement, future of sport participation, and coping strategies. Participants described gaming as both a stress-relieving and emotionally destabilizing activity, while also highlighting feelings of achievement, identity exploration, and social belonging. Major challenges included poor time management, family conflicts, health risks, and addiction tendencies. Future sport visions emphasized hybrid models integrating digital and physical activities, digital coaching, and educational gamification, but concerns about declining traditional sports were also expressed. Coping strategies involved parental mediation, peer influence, self-regulation, alternative activities, and awareness of risks. These findings indicate a dual role of mobile games, functioning as both barriers and gateways to sport participation and psychological resilience. The results demonstrate that while mobile gaming poses risks to psychological well-being and active lifestyles, digital natives also employ adaptive strategies to balance gaming with physical activity. Schools, families, and communities should adopt culturally tailored, hybrid interventions that integrate digital tools with traditional sport practices to enhance resilience and long-term well-being.

Keywords: Digital natives; sport participation; psychological well-being; mobile gaming; sedentary behavior; qualitative research; Tehran

Introduction

The rapid transformations in lifestyle brought about by digital technologies, urbanization, and shifting social dynamics have significantly influenced the movement behaviors of individuals across age groups. Particularly among

digital natives, the intersection of physical activity, sedentary patterns, and psychological well-being presents both opportunities and challenges. Scholars increasingly emphasize the necessity of integrating movement guidelines, promoting balanced behaviors, and understanding contextual factors that shape activity levels and sedentary practices. This article explores these dynamics with a focus on the future of sport in digital natives, situating psychological well-being and the challenges of mobile–game engagement as central themes.

Health-promoting environments such as schools have been identified as crucial platforms for influencing children's movement behaviors. Research demonstrates that schools with structured policies and programs can reduce sedentary time and foster active lifestyles among students (Valencia-Peris et al., 2025). These findings underscore the role of institutions in shaping children's habits during formative years, highlighting the need to extend such strategies into adolescence and young adulthood, where digital devices increasingly dominate leisure activities. At the same time, the role of parents is equally significant. Evidence from the Czech FAMIly Physical Activity, Sedentary Behaviour and Sleep Study illustrates that parental influence is a strong determinant of adherence to 24-hour movement guidelines among young children, emphasizing how family environments directly impact children's capacity to balance activity, rest, and screen time (Sigmundová et al., 2025).

Similar associations have been observed in diverse contexts. A cross-sectional study in Sri Lanka on movement behavior in 3–5-year-old children reported concerning patterns of limited activity and heightened sedentary time, reflecting the broader global trend of insufficient adherence to physical activity recommendations in early childhood (Dalpatadu et al., 2025). Moreover, the interplay of cultural, environmental, and socio-economic factors highlights that interventions cannot adopt a one-size-fits-all approach. Instead, there is a demand for localized strategies that respect the lived realities of children and families while maintaining alignment with global guidelines.

The long-term consequences of inadequate movement behaviors extend into later life. Research on Portuguese older adults, for instance, revealed that latent profiles of physical behavior directly influence physical fitness and functional capacities, showing how patterns established earlier in life persist into older age and determine overall health trajectories (Zymbal et al., 2024). Such findings provide compelling evidence that attention to movement in youth is not merely about immediate health benefits but also about setting a foundation for lifelong well-being. The cumulative nature of these behaviors makes the study of digital natives particularly pressing, as this generation is both highly immersed in technology and at a critical stage of psychosocial development.

Muscle strength, physical functionality, and resilience to aging are also influenced by early and sustained activity habits. For example, research on older adults demonstrated that both isolated and combined effects of sedentary behavior and physical activity substantially impact muscle strength (Machado et al., 2024). By extension, young populations who establish sedentary lifestyles due to mobile–game immersion may face diminished health reserves in adulthood. Addressing these risks requires innovative approaches that leverage the same technologies which contribute to sedentary behavior, transforming them into tools for engagement, motivation, and health promotion.

Psychological well-being is another critical dimension in this discourse. Studies on vulnerable populations, such as deaf and hard-of-hearing adolescents, indicate that psychosocial factors strongly predict psychological well-being, suggesting that social integration, self-esteem, and meaningful activity are central to mental health outcomes (Ashori & Rashidi, 2024). For digital natives, whose identities are increasingly shaped in hybrid digital-physical spaces, sport and active play can provide vital opportunities for resilience, self-expression, and social connection. Without adequate balance, however, prolonged screen time and sedentary leisure can exacerbate feelings of isolation, stress, and reduced well-being.

Sedentary behaviors and their determinants are highly variable across regions. A study of Ethiopian preschool children revealed significant challenges in adhering to WHO guidelines, with socio-demographic factors playing a substantial role in explaining disparities (Abdeta et al., 2024). Similarly, findings from Bosnia and Herzegovina indicate concerning levels of inactivity among preschool children, echoing trends seen in many middle-income countries (Užičanin et al., 2023). These results stress the importance of considering both structural and cultural contexts when addressing inactivity, ensuring that interventions are sensitive to resource availability, social norms, and community infrastructures.

Global guidelines offer a framework, yet they also reveal important discrepancies. A systematic review comparing national and international sedentary behavior and physical activity guidelines for older adults found variations in quality and emphasis, with some lacking clear strategies for integration into policy and practice (Huang et al., 2023). Such inconsistency creates challenges for coherent implementation and monitoring, particularly when addressing digital natives who are simultaneously influenced by local practices and globalized media cultures. This highlights the urgent need for harmonized frameworks that acknowledge technological realities.

Screen time is one of the most visible manifestations of sedentary behavior in youth. Research on Thai adolescents found high prevalence of excessive screen time and identified multiple factors influencing these behaviors, including peer influence, urban settings, and academic pressures (Chinapong & Amornsriwatanakul, 2023). These findings resonate globally, illustrating how digital devices are both indispensable for education and socialization yet detrimental when displacing physical activity. The duality of mobile technologies as both enablers and barriers to health makes them a focal point of the discussion around the future of sport.

Interventions that integrate physical play with digital experiences show promise. For example, qualitative research in Turkey demonstrated that rural youth who engaged in games like bocce developed greater awareness of sedentary risks and were more motivated to be active (Erol et al., 2024). Similarly, family-centered approaches show potential; parents and children who engaged in joint physical activities were more likely to establish sustainable routines and counteract sedentary behaviors (Rainham et al., 2022). These examples illustrate the potential for culturally grounded, play-based interventions to shift the balance away from passive consumption toward active engagement.

Barriers and motivators for physical activity vary across populations. A Canadian study among undergraduate students reported that while many recognized the benefits of exercise, barriers such as time constraints, academic pressures, and lack of facilities prevented them from meeting recommended guidelines (Pellerine et al., 2022). These barriers mirror the experiences of digital natives globally, whose competing commitments and digital habits often displace opportunities for active living. Similar findings emerge in multi-country contexts. For example, a seven-country study on youth with autism spectrum disorder revealed that those who adhered to 24-hour movement guidelines had significantly better health-related outcomes, underscoring the universality of these behavioral determinants (Li et al., 2022).

Professional organizations have also highlighted the necessity of considering sedentary patterns in clinical and public health contexts. The European Childhood Obesity Group has argued that it is insufficient to measure only activity levels without also accounting for the intensity and patterns of sedentary time (Julian et al., 2022). Such perspectives broaden the conceptualization of health-related movement, stressing the interplay of activity, sedentary behavior, and psychological dimensions. At the same time, guideline development itself requires participatory and collaborative processes. The adoption of the Australian 24-hour movement guidelines illustrates how integration across physical activity, sedentary behavior, and sleep can be achieved through systematic stakeholder engagement and adaptation to local conditions (Okely et al., 2022).

International recommendations increasingly emphasize the role of schools in shaping sedentary behavior. A global consensus outlined school-related sedentary behavior recommendations for children and youth, stressing the role of educators, curricula, and institutional support in promoting activity (Saunders et al., 2022). Yet, effective translation of such recommendations requires cultural and contextual adaptation. For example, research in Singapore demonstrated that psychiatric patients faced significant barriers to physical activity, showing how clinical and mental health contexts complicate the picture (Seet et al., 2021). Similarly, research in Zimbabwe revealed how preschoolers' movement behaviors were strongly linked to local resource availability, underscoring the necessity of context-specific strategies (Munambah et al., 2021).

Taken together, these findings reveal a consistent pattern: across diverse settings, populations, and age groups, adherence to movement guidelines remains inadequate, and sedentary behaviors—often linked to screen use—pose significant risks. At the same time, there is growing evidence that interventions grounded in schools, families, communities, and digital platforms can create pathways to healthier futures. For digital natives in particular, the central

challenge lies in reconciling the ubiquity of mobile gaming and digital devices with the essential human need for physical activity, social interaction, and psychological well-being.

The present study aims to address this gap by qualitatively examining the perspectives of digital natives in Tehran regarding the future of sport, with a specific focus on psychological well-being and the challenges of the mobile–game generation.

Methods and Materials

This research employed a qualitative design to explore the perspectives of digital natives regarding the future of sport, with particular attention to psychological well-being and the challenges posed by mobile–game culture. A purposive sampling strategy was applied to recruit participants who could provide rich and relevant insights into the research problem. The final sample consisted of 23 participants residing in Tehran, selected based on their active engagement with mobile games and familiarity with sports culture. The study adhered to the principle of theoretical saturation, and data collection continued until no new themes emerged, ensuring comprehensiveness and depth of analysis.

Data were gathered through semi-structured interviews, which allowed participants to express their views openly while also enabling the researcher to probe into specific topics related to digital gaming, sport participation, and psychological well-being. An interview guide was developed to provide consistency while leaving flexibility for emerging topics during the conversations. Each interview lasted between 45 and 70 minutes and was conducted in a quiet and private setting to ensure confidentiality and focus. With participants' consent, all interviews were audio-recorded and subsequently transcribed verbatim for analysis. Ethical considerations such as informed consent, anonymity, and voluntary participation were strictly observed.

The data analysis process followed a thematic approach, enabling the identification of recurring patterns and conceptual categories across participants' narratives. NVivo 14 qualitative data analysis software was used to organize, code, and interpret the transcribed interviews systematically. Initially, open coding was carried out to capture the raw ideas expressed in the interviews. This was followed by axial coding to cluster related codes into broader categories. Finally, selective coding was applied to refine the themes and establish meaningful connections that explain the experiences of digital natives with respect to sport and mobile–game engagement. The use of NVivo ensured rigor, transparency, and traceability in the analytical process. To enhance the trustworthiness of findings, strategies such as peer debriefing, iterative coding, and researcher reflexivity were employed.

Findings and Results

The study participants consisted of 23 digital natives from Tehran, including 12 males (52.2%) and 11 females (47.8%), with ages ranging from 15 to 24 years. In terms of education, 8 participants (34.7%) were high school students, 10 participants (43.4%) were undergraduate students, and 5 participants (21.7%) were postgraduate students. The majority were unmarried (20 participants, 87%), while 3 participants (13%) were married. Regarding gaming experience, 15 participants (65.2%) reported playing mobile games for more than three years, 5 participants (21.7%) had between one and three years of experience, and 3 participants (13%) had less than one year. Average weekly gaming time also varied, with 9 participants (39.1%) playing fewer than 10 hours per week, 10 participants (43.4%) between 10 and 20 hours, and 4 participants (17.3%) more than 20 hours.

Table 1. Main Themes, Subthemes, and Concepts from the Qualitative Analysis

Category (Main Theme)	Subcategory	Concepts (Open Codes)
1. Psychological Well-being in Digital Natives	Stress Management through Gaming	Escaping daily stress; relaxation during play; temporary distraction; coping strategy
	Emotional Fluctuations	Irritability after long play; mood swings; gaming excitement; frustration from losing
	Sense of Achievement	Progress in game levels; pride in winning; comparing achievements with peers
	Social Belonging	Feeling connected in online games; team spirit; in-game friendships; reduced loneliness
	Identity Construction	Creating avatars; experimenting with roles; self-expression in gaming space

	Motivation for Sports	Games sparking sports interest; role models in sport-themed games; linking exercise with fun
2. Challenges of Mobile–Game Engagement	Time Management Issues	Sleep disruption; neglect of homework; loss of time awareness; reduced outdoor activity
	Physical Health Risks	Eye strain; sedentary lifestyle; headaches; posture problems
	Academic Distraction	Reduced study hours; multitasking with poor focus; declining grades
	Family Conflicts	Parental complaints; arguments over device use; secretive play
	Addiction Tendencies	Compulsive checking; urge to replay; anxiety without device; tolerance for longer play
	Financial Concerns	In-app purchases; phone bills; hidden expenses
	Privacy and Safety	Sharing personal info; risky online interactions; lack of parental control
3. Future of Sport Participation	Hybrid Sport Models	E-sport tournaments; mixed digital-physical activities; gamified workouts
	Digital Coaching and Training	AI fitness apps; motion sensors; VR training sessions
	Accessibility and Inclusivity	Free apps for disadvantaged youth; online training for girls; low-cost digital sports
	Decline of Traditional Sports	Reduced stadium attendance; less outdoor play; fewer local clubs
	Integration with Education	School gamified PE; digital competitions; teacher-led online challenges
4. Coping Strategies and Positive Adaptations	Parental Mediation	Setting limits; co-playing; negotiating screen time
	Peer Influence	Encouragement from friends; peer competition; group gaming events
	Self-Regulation	Monitoring playtime; balancing gaming with school; self-imposed rules
	Alternative Activities	Joining sport clubs; family outdoor activities; artistic hobbies
	Digital–Sport Balance	Combining exergames with real sport; setting weekly routines; using gaming as warm-up
	Awareness of Risks	Recognizing health effects; reflecting on overuse; planning to reduce screen time

Category 1: Psychological Well-being in Digital Natives

Stress Management through Gaming: Many participants described gaming as a strategy to escape daily pressures, relax, and temporarily distract themselves from stress. As one student explained, *"When I play for half an hour, I forget all the stress of my exams, it's like I press a pause button on life."* This highlighted how digital play often served as a coping mechanism for psychological strain.

Emotional Fluctuations: However, gaming was also associated with rapid changes in mood. Several interviewees mentioned feeling excited during gameplay but also irritated or frustrated when losing. One participant said, *"Sometimes I shout at the screen because I lose again and again, my mood changes so fast."* Such fluctuations reflected both the stimulating and destabilizing emotional effects of gaming.

Sense of Achievement: Participants emphasized feelings of accomplishment when advancing through game levels or winning competitions. These achievements often became a source of pride, particularly when compared with peers. A 19-year-old noted, *"I feel proud when I reach a level that my friends cannot, it gives me confidence."* Gaming thus provided a digital arena for success and recognition.

Social Belonging: The interviews revealed that mobile games created a sense of belonging and connectedness. Many participants highlighted the friendships and teamwork cultivated in multiplayer settings. One remarked, *"I don't feel alone when I play with my online friends; we are like a real team."* Such experiences reduced feelings of isolation and strengthened social identity.

Identity Construction: Some participants used gaming as a space to experiment with identity, role-play, and self-expression. Avatars allowed them to present different versions of themselves. A young female participant reflected, *"In the game I can be stronger, braver, even a leader; in real life I don't have this chance."* This illustrates how gaming platforms functioned as arenas for identity exploration.

Motivation for Sports: Interestingly, several respondents reported that sports-themed games stimulated an interest in physical activity. For example, one said, *"I started playing basketball because of a mobile game; it made me curious to try the real sport."* In this way, digital experiences sometimes translated into tangible engagement with sports.

Category 2: Challenges of Mobile–Game Engagement

Time Management Issues: Participants frequently reported losing track of time during gaming sessions, resulting in disrupted routines and neglected responsibilities. As one teenager expressed, *"I wanted to play for 20 minutes, but suddenly it was midnight, and I hadn't studied at all."* This lack of time awareness reflected a widespread struggle among digital natives.

Physical Health Risks: Several respondents highlighted health concerns such as eye strain, headaches, and poor posture. Sedentary habits were also noted. A 17-year-old remarked, *"After hours of playing, my back hurts, but I still continue; it's hard to stop."* This showed the tangible physical consequences of prolonged play.

Academic Distraction: The influence of mobile gaming on academic performance was another recurring theme. Many participants admitted reduced study hours and difficulty focusing. As one university student said, *"When I'm playing, I cannot concentrate on my homework, I always postpone it."* This confirmed the disruptive potential of gaming on educational priorities.

Family Conflicts: Conflicts with parents were frequently mentioned, as excessive gaming created tension in households. A participant explained, *"My mother always complains that I'm on the phone, we argue almost every night."* Such accounts reflected intergenerational disagreements around gaming.

Addiction Tendencies: Signs of problematic or addictive use appeared in several narratives. Respondents described compulsive urges and anxiety when separated from their devices. One noted, *"I get nervous if I don't play for a day, I feel like something is missing."* This revealed dependency patterns linked to mobile gaming.

Financial Concerns: Some participants brought up unexpected financial consequences, such as in-app purchases and rising phone bills. A participant said, *"I didn't notice I spent so much on coins and gems, my father was shocked at the bill."* These expenses became a hidden burden for families.

Privacy and Safety: Finally, concerns about privacy and online safety emerged, particularly among younger players. Sharing personal details with strangers was reported as risky. One 16-year-old reflected, *"A stranger asked me for my Instagram in the game, I felt unsafe."* This pointed to vulnerabilities in digital interactions.

Category 3: Future of Sport Participation

Hybrid Sport Models: Participants anticipated a future where digital and physical sports would increasingly merge. Many mentioned e-sport tournaments and gamified workouts. A participant noted, *"I think soon sports will be half physical, half digital, like playing with VR."* This highlighted evolving expectations of sport.

Digital Coaching and Training: The idea of using apps and AI-driven tools for training was frequently expressed. Respondents discussed motion sensors and VR-based coaching. One said, *"I follow a fitness app that counts my moves; it feels like having a coach in my pocket."* Such innovations redefined sport participation.

Accessibility and Inclusivity: Mobile platforms were also seen as democratizing access to sports for disadvantaged groups. For example, *"Girls in my neighborhood can join online sports groups without going outside,"* said one female participant. This demonstrated how digital sport could overcome social and cultural barriers.

Decline of Traditional Sports: Yet, some participants feared that digital trends might weaken traditional sports culture. A respondent said, *"Fewer of my friends go to the stadium, we just watch or play online."* Such observations raised concerns about declining outdoor engagement.

Integration with Education: Others envisioned opportunities for integrating gamified sports into school curricula. A 15-year-old noted, *"If my school used games in PE class, students would be more active."* This suggested ways to align education and digital sport in the future.

Category 4: Coping Strategies and Positive Adaptations

Parental Mediation: Parents played an important role in regulating gaming habits. Several participants described negotiated rules and shared play. One said, *"My father plays football games with me, then we go out for a real match."* Such mediation transformed gaming into bonding experiences.

Peer Influence: Peers also influenced gaming behavior and sport engagement. A participant observed, *"My friends challenge me in the game, but also invite me to real football, so it balances out."* Peer encouragement often redirected gaming energy toward physical activity.

Self-Regulation: Some participants demonstrated self-monitoring strategies, such as limiting playtime. A student said, *"I set an alarm, after one hour I stop, otherwise I can't control myself."* These practices reflected emerging self-discipline among digital natives.

Alternative Activities: Engaging in hobbies and offline activities was reported as a counterbalance. One participant mentioned, *"When I feel I play too much, I go painting or join my cousins in the park."* Alternative engagements offered restorative balance.

Digital–Sport Balance: A strong theme was the conscious effort to combine digital play with physical sport. One interviewee explained, *"I warm up with a fitness game, then go jogging outside."* This balance represented a practical integration of gaming and sport.

Awareness of Risks: Finally, awareness of the risks associated with overuse was common. Many participants expressed the intention to reduce screen time. A 20-year-old said, *"I know it affects my health, so I try to play less, maybe only weekends."* Such recognition signaled growing maturity in managing gaming habits.

Discussion and Conclusion

The findings of this study provide valuable insights into how digital natives perceive the role of sport in their lives, the psychological benefits and risks associated with mobile–game engagement, and the strategies they adopt to balance digital and physical activities. Four central themes emerged from the analysis: psychological well-being, challenges of mobile–game engagement, the future of sport participation, and coping strategies. These themes highlight the complex and sometimes contradictory relationship between screen-based leisure and physical activity among youth in Tehran. The results contribute to the global conversation about movement behaviors by demonstrating both commonalities and context-specific features in the experiences of digital natives.

The first theme underscored the dual role of digital gaming in influencing stress management, emotional regulation, and identity formation. Many participants reported that gaming served as a coping mechanism, providing temporary relief from academic pressures and daily stressors. This aligns with studies showing that children and adolescents often turn to digital platforms for relaxation and social connectedness (Ashori & Rashidi, 2024). At the same time, the study highlighted emotional fluctuations—participants described heightened irritability or frustration following long gaming sessions. These findings resonate with research demonstrating that excessive sedentary screen time is associated with poorer psychosocial outcomes and reduced psychological well-being (Abdeta et al., 2024).

The sense of achievement and belonging experienced by participants reflects a broader global pattern in which digital play creates opportunities for identity construction and socialization. Similar findings were reported in Thai adolescents, where screen-based behaviors were tied to peer dynamics and the development of self-concept (Chinapong & Amornsriwatanakul, 2023). However, the interviews also revealed that games sometimes stimulated interest in real-life sports, with some participants reporting that mobile sports games encouraged them to try new activities offline. This bridging effect between digital and physical domains suggests that technology, when properly leveraged, could act as a motivational gateway for physical activity, echoing calls for integrated approaches in global guidelines (Okely et al., 2022).

The second theme addressed the significant challenges that mobile gaming presents for digital natives. Participants frequently described difficulties with time management, including disrupted sleep patterns, neglect of academic responsibilities, and conflicts with family members. These accounts are consistent with findings from Canadian undergraduate students, where excessive screen time interfered with the ability to meet physical activity guidelines due to competing demands and lack of time (Pellerine et al., 2022). Similarly, studies of psychiatric populations in Singapore reported overlapping patterns of sedentary behavior, stress, and compromised daily routines, showing that excessive sedentary engagement is not confined to healthy youth but spans different demographics (Seet et al., 2021).

The physical health risks described by participants, including eye strain, posture problems, and headaches, confirm evidence from systematic reviews that long sedentary sessions are detrimental across age groups (Huang et al., 2023). Furthermore, the tendency toward compulsive or addictive play reported by participants echoes findings from multi-country observational studies, which emphasize that meeting the 24-hour movement guidelines is crucial for safeguarding mental health and reducing dependency risks (Li et al., 2022).

Family conflicts arising from gaming behaviors further illustrate the intergenerational tensions created by technological immersion. Prior research in Ethiopia has similarly documented how socio-demographic factors shape adherence to guidelines, with family support and parental supervision acting as critical determinants of balanced behaviors (Abdeta et al., 2024). The evidence from our study supports these conclusions by showing that lack of parental mediation often translated into heightened tension within households.

Finally, the financial burden of in-app purchases and privacy concerns expressed by participants point to new challenges that traditional studies of physical activity have rarely addressed. These issues reflect a changing digital economy where gaming ecosystems foster monetization and social networking, increasing the stakes for families. While these aspects extend beyond the scope of conventional movement guidelines, they must be considered in future policy adaptations, especially as sedentary practices intertwine with financial and safety risks.

The third theme illuminated participants' visions for the future of sport, which increasingly involve hybrid, digitally mediated models. Respondents anticipated that e-sports, VR-based training, and gamified workouts would play a significant role in shaping how sport is practiced and experienced. These expectations echo findings from rural youth interventions in Turkey, where games such as bocce served as an entry point to increase awareness of sedentary risks and foster positive associations with activity (Erol et al., 2024). Similarly, in Bosnia and Herzegovina, research revealed how local adaptations to digital and physical activities shaped movement patterns in children, showing that hybrid strategies must consider cultural and contextual variations (Užičanin et al., 2023).

Digital coaching and training, mentioned frequently by participants, align with broader international trends toward app-based monitoring, AI-driven guidance, and motion-sensor technologies. These approaches have been shown to enhance engagement and make physical activity more accessible, particularly in populations with limited resources or restricted mobility (Machado et al., 2024). At the same time, the participants' concerns about the decline of traditional sports, such as reduced stadium attendance and local club participation, confirm global fears of diminishing communal sport practices. The European Childhood Obesity Group has highlighted similar issues, noting that traditional sports and outdoor play must not be overlooked in favor of digital alternatives (Julian et al., 2022).

The integration of sport into education, as envisioned by several participants, also echoes international recommendations. The International School-Related Sedentary Behaviour guidelines emphasize the importance of leveraging school structures to reduce inactivity and embed healthy habits (Saunders et al., 2022). Moreover, the Health-Promoting Schools framework, which has demonstrated effectiveness in shaping students' active and sedentary behaviors, offers a model that aligns with participants' calls for gamified physical education (Valencia-Peris et al., 2025).

The final theme highlighted adaptive strategies that youth use to manage the risks of gaming and maintain balance. Parental mediation was one of the most important strategies, with participants reporting that co-playing and negotiated screen-time limits reduced conflicts and promoted family cohesion. This finding is supported by evidence from the Czech Republic showing that parental impact strongly influences children's ability to adhere to 24-hour movement guidelines (Sigmundová et al., 2025). Similarly, research in Canada and Australia underscores the importance of family-based and collaborative approaches in sustaining activity patterns (Okely et al., 2022; Rainham et al., 2022).

Peers also played a significant role in shaping participants' engagement. The study revealed that peer encouragement often redirected gaming habits toward physical activity, reflecting patterns reported in Thai and Sri Lankan youth, where social influences were among the strongest predictors of sedentary and active behaviors (Chinapong & Amornsriwatanakul, 2023; Dalpatadu et al., 2025). These results highlight the importance of peer-based interventions that leverage social motivation to foster healthier choices.

Self-regulation strategies, including setting alarms or balancing gaming with school responsibilities, demonstrated participants' awareness of the risks associated with overuse. Such strategies align with findings from undergraduate populations who cited personal time management as a critical barrier to achieving activity goals (Pellerine et al., 2022). Awareness of risks, reported by many participants, suggests a level of reflexivity that could be nurtured through targeted interventions to strengthen resilience and health literacy.

Finally, the role of alternative activities such as outdoor play, sports clubs, and artistic hobbies reflects evidence from multiple global contexts that holistic lifestyle approaches are most effective in balancing sedentary risks (Munambah et

al., 2021; Zymbal et al., 2024). These results demonstrate that while mobile gaming poses challenges, digital natives are not passive recipients of technology but active agents capable of developing adaptive strategies.

Overall, the findings of this study both reinforce and extend global evidence on movement behaviors, sedentary patterns, and psychological well-being. The convergence of results across diverse contexts—from Ethiopia and Zimbabwe to Bosnia, Canada, and Thailand—illustrates the universality of the challenges faced by youth (Abdeta et al., 2024; Chinapong & Amornsriwatanakul, 2023; Munambah et al., 2021; Pellerine et al., 2022; Užičanin et al., 2023). At the same time, the Tehran-based participants highlighted unique socio-cultural features, such as family conflicts over gaming and concerns about declining traditional sport participation, that require context-sensitive solutions.

The discussion also underscores the critical role of global guidelines in shaping national and local interventions. The inconsistencies across movement recommendations identified in systematic reviews (Huang et al., 2023) highlight the importance of harmonization, while the Australian model of collaborative adoption offers a promising framework for adaptation (Okely et al., 2022). The evidence presented here contributes to these ongoing debates by illustrating how digital natives themselves conceptualize the future of sport, blending digital engagement with aspirations for real-world activity.

This study has several limitations that should be acknowledged. First, the research was conducted with a relatively small sample of 23 participants from Tehran, which may limit the transferability of findings to other cultural or geographic contexts. Second, as a qualitative study based on self-reported interviews, the data are subject to biases such as selective memory, social desirability, and underreporting of negative experiences. Third, while thematic saturation was achieved, the study did not include perspectives from parents, teachers, or policymakers, which could have enriched the understanding of systemic influences. Finally, the cross-sectional design captures participants' experiences at one point in time, preventing analysis of how behaviors and perceptions might evolve longitudinally.

Future studies could expand the sample to include diverse socio-economic groups, rural populations, and comparative cross-cultural perspectives to deepen understanding of the interplay between digital and physical activities. Longitudinal research would also be valuable in examining how movement behaviors established in adolescence influence health trajectories into adulthood. Moreover, mixed-methods designs that combine qualitative insights with quantitative measures of physical activity, sleep, and sedentary time could strengthen the evidence base. Finally, intervention studies that test the effectiveness of hybrid digital–physical programs, gamified physical education, and family-centered strategies would provide practical models for addressing the challenges identified.

For practice, educators and policymakers should prioritize integrating digital innovations into sport and physical education while safeguarding against excessive sedentary screen time. Schools can implement gamified physical education programs to align with youth interests, while parents can adopt co-playing and negotiated strategies to reduce conflicts and encourage balance. Community organizations and health professionals should emphasize the importance of hybrid models that combine digital motivation with real-world physical activity opportunities. Importantly, interventions must be culturally adapted, recognizing the specific contexts and challenges faced by digital natives in different regions.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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