



Beginner-Coaches and Connectivity of Knowledge: Real-World Coaching and Self-Reported Importance of Prior Playing Experience

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
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Abstract

In what amounts to essentially being a part two to our previous work with six beginner-coaches that found noticeable benefits to reflective practice, yet a number of possible drawbacks such as time constraints and at times over-focusing on negative emotions (Hamblin & Crisp, 2022), we build upon the aims of that study that related to what beginner-coaches (in recreational sport fields) considered ideal coach learning within in-situ, practice-based contexts. Through revisiting the data of the first study (Hamblin & Crisp, 2022) and exploring an additional theme related to how the beginner-coaches identified sporting experience as a beneficial prerequisite to their own coaching practice, the present study sought to further investigate, and build upon, the findings and aspects of the first study. Continuing to explore how beginner-coaches who operate more within recreational (although still competitive) sport fields perceive in-situ, ideal learning, and continuing the same methodological approach, the present study conducted semi-structured interviews with another five beginner-coaches, adding to the six in the first study for a total of 11 participants.

Transcriptions were analysed using thematic analysis and the themes found included sporting experience, traditional learning, and the benefits of reflective practice which highlights the ways all of the beginner-coaches (within both 'part one' and the present study – 'part two') felt they learn best. Importantly, these findings showed the self-reported importance of actually coaching ('real world' applications) and, of particular note, what were considered by the beginner-coaches to be the significant benefits of having accrued playing experience prior to starting coaching. These findings then may well provide further evidence to uphold and develop methods of coach education in the future to facilitate learning.

Keywords: Coach development, beginner-coaches, scaffolding knowledge

Introduction

The scale and complexity inherent in the various contexts that exist within sport coaching, arguably render them difficult to discuss and analyse at times. Recreational sport, disability sport, and youth sport, all illustrate additional coaching contexts alongside the more widely

accepted, and understood, performance sport. However, literature does offer some consensus in that at the centre of coaching contexts content, variety, and complexity, a relatively wide, yet convergent discourse and understanding demonstrates how sport coaching operates. This is perhaps best explained as an extremely multifaceted, yet all-encompassing system. Indeed, many authors have

conceptualised the process of coaching in practice, in different contexts, through such terms as youth, recreational, disability, and performance coaching (for instance, Côté et al., 2007; Crisp & Brackley, 2022; Trudel & Gilbert, 2006), and wider policy approaches applied within the UK context, such as the SportsCoach UK (now UK Coaching) 4x4 model have defined coaching through youth, participation, performance, and high-performance contexts.

Fundamentally, however, all definitions related to coaching contexts will in some way refer to a standardised, underlying approach to conceptualising a number of essential distinctions around performance and participation sport coaching, irrespective of whether outcomes are related to physical, skill, or psychosocial development, and/or social policy objectives. All told then, these contexts can be seen, in one way or another, to encapsulate contexts of recreational, developmental, and performance sport (i.e. Trudel & Gilbert, 2006), and participation for youth, participation for adults, performance for youths, and performance for adults (e.g. Côté et al., 2007). And ultimately, despite the wide differences that may present themselves within these contexts, there exists a perennial *reciprocal* (two-way) identification throughout – that sport coaches look to support participants (Jones, 2006).

There has also been a relatively thorough consideration of how sport coaches learn, oftentimes through formal (qualifications etc.), non-formal (i.e. short courses), and informal learning (unstructured, interaction with others), and how these intersect and coalesce into processes of developing effective coach knowledge, behaviours, dispositions, and practice (Cushion et al. 2010). Yet despite these detailed considerations, and meta-analyses of coach learning (Smith et al., 2022), many proponents of sport coaching research in the field of coach development and learning have articulated how many questions remain – fundamentally related to identifying what coaches can do to develop sufficient knowledge and practitioner bases for effective, applied coaching practice.

Coach development in the UK

Moreover, and using the UK as an example, an on-going reliance on the voluntary sector calls into question how, and why, there is not more investment in understanding the mechanisms by which coaches can learn. Sport coaching in the UK then, in general, and the community sport coaching sector/context, in particular, has been affected by historical patterns of restricted knowledge, understanding, and limited opportunities to develop outside of what can be considered the performance sport context. Indeed, historically, it is widely recognised that much sports coaching education has been predominantly confined to performance-based outcomes (Taylor & Garratt, 2008; Crisp, 2016, 2018a). Much of this is a direct reflection of the fact that up until the late 1960s, govern-

ments had a distant approach to sport – unless it benefited political wherewithal through established (‘popular’) professional sport, or international success. Admittedly, during the 1970s government policy began to draw closer with the wider nuances that sport inhabited and potentially offered to other areas of social interest (not just performance, but also recreational and even transformative), such as through the establishment of the GB Sports Council which fundamentally altered this relationship and manner in which governments used sport (Coghlan & Webb, 1990; Roche, 1993; Houlihan, 1991, 1997).

Successive documents such as the *Wolfenden Report* (Wolfenden Committee, 1960) and the *Second Report of the Select Committee of the House of Lords on Sport and Leisure* (Cobham Report, 1973), also engendered the use of sport (and by implication its coaches) by bringing it to the attention of a wider body of policymakers concerned with the welfare state (Roche, 1993). In the same period of time, a formalised call for a more integrated direction within coaching was called upon by the then GB Sports Council regarding the professionalisation of coaching and establishing a framework within it (Department for Culture, Media and Sport [DCMS], 2002; Sports Council, 1991; UK Sport, 2001). Preparation for this occurred during the 1986 Commonwealth Games Conference whereby it was suggested that due to the nature of coaching’s performance-based outcomes, internal developments, recognition and systems (including the National Coaching Foundation [NCF] that had been set up in 1983 to organise coaching) were important in the acceptance of the professional status that coaching sought (Chelladurai, 1986; Taylor & Garratt, 2008).

As part of a wider effort to professionalise coaching during the 1990s, the NCF looked to introduce National Vocational Qualifications (NVQ) frameworks to transform existing coaching awards into recognised qualifications (Twitchen & Oakley, 2019). Subsequently, in 2002, the establishment of a Coaching Task Force reviewed the role of coaching and aimed to recognise it as a profession (Taylor & Garratt, 2008). From then, the emergence of a centralised approach to vocational education and training became apparent in the formation of a coherent, formalised, and recognised qualification system. The initiation of the United Kingdom Coaching Certificate (UKCC) levels 1-4/5, as recommended by the Coaching Task Force, provided a pathway with generic content across National Governing Bodies (NGBs) for individual coaches to obtain accredited awards with a clear professional development structure (Crisp, 2018b; Cushion et al., 2010). Furthermore, NGBs needed to meet a set of operational standards and through achieving these, successfully endorsed NGBs underwent professional induction of its coach-education practice and delivery, and any coach holding a UKCC award was subject to professionalisation (Taylor & Garratt, 2008).

However, this system's generic approach often failed to accommodate individual coach needs. Thus, it was reviewed and the Sport England report *Coaching in an Active Nation: The Coaching Plan for England* (2016), found there was a huge emphasis on professional standards, and not necessarily focusing on how coaches can prioritise connections and facilitate behaviour change. A move was therefore made away from 'coach education' and towards coach learning and development. In this way, Sport England sought to develop a broader definition of coaching with a person-centred approach that fosters improvement and ownership through lifelong learning habits (Sport England, 2016).

'Traditional' coach learning – pathways, competency, and reflection

There are, perhaps, two main ways in which coach education in the UK can be conceptualised. The first suggests coaches experience, learn, and progress through the developmental stages of novice, competent, proficient, and expert, with the four-stage Coach Development Model (CDM) providing reference to this progression (Schempp et al., 2006). The second is conceptualised through the United Kingdom Coaching Certificate (UKCC) model, whereby it offers a linear pathway to improve coaching expertise whilst simultaneously complementing (purposefully mirroring elements of, when appropriate) the NVQ and National Occupational Standards (NOS) competency-based criteria. In the same vein as Schempp et al.'s (2006) CDM, the UKCC model operates through four levels, beginner to master coach. At the beginners' stage, a coach may be deemed not (quite) competent, and a number of authors have highlighted how many beginner-coaches coach children within grassroots settings whilst assisting a more qualified coach (Berliner, 1994; North, 2009; Taylor & Garratt, 2008; Turner et al., 2012). At the next level, coaches work more autonomously and gain the necessary knowledge and skills to plan, deliver, and review coaching sessions on their own. Level three of the UKCC focuses on the planning, implementation, and evaluation of annual coaching programmes, essentially recognising those at this level as a 'lead' coach. And finally, level four allows experienced coaches to continue developing their methods and mastery of their craft (Turner et al., 2012).

However, these schema in and of themselves, and with no significant reference to how critical reflection and experiential learning can occur, can seem at first glance to remain fairly superficial. This is not to say that these models do not advocate professional expertise nor require an element of higher order thinking and professionalism in application, but much of the models' pivotal distinctions between levels are based on extensive (and progressive) education, knowledge, and what expertise

might look like in practice. (i.e. how roles are managed, responsibilities, know-how, and skills). Fortunately, coach development as a whole recognises, and stresses, that coach education necessitates the use of informal learning and 'meta-cognition' as a self-regulated skill to develop awareness, and control, of learning (Crisp, 2019a; Poitras & Lajoie 2013). As numerous and, indeed, the consensus of coaching literature pertains, essentialising theoretical frames through the prism of reflective practice is crucial to coach development, and particular reference is given to models that enforce metacognitive activities.

For instance, Kolb's Learning Cycle is an established model of learning that involves the acquisition of abstract concepts that may be applied flexibly to a range of situations. Its overall concept is 'do again, think again, conclude again, and reflect again' to ensure experience is transferred into knowledge and into creating successful practices (Kolb, 1984). Learning occurs when a coach progresses through stages of gaining concrete experience, observing and reflecting, forming an analysis and conclusion based on their reflection, and using conclusions within new experiences (McLeod, 2017). Other models have drawn from this, such as Plan-Do-Review which is based upon reflective practice in allowing coaches to gain a clearer picture of their sessions (Robinson, 2014; UK Coaching, 2020). Here, *planning* involves a clear focus on objectives that allows a coach to be prepared for a number of things that may happen within the delivery of a session, as well as a knowledge of how, why, what, where and when in relation to the environments they coach in (Robinson, 2014). *Doing* is the execution of the session plan with leading via instruction, demonstration, and correction. Finally, *reviewing* is to seek improvement through critical thinking (Miles, 2003).

Opportunities for learning then are necessarily negotiated with previous experience and disaggregating, reconfiguring, and iterating through a range of possibilities – inevitably increased and conceptualised through previous thinking, experiences, and the scaffolding of each to reflexively assign importance, and become metacognitively aware of one's own strengths, weaknesses, and reasons for behaviour and practice.

Beginner-coaches

As our 'part one' (Hamblin & Crisp, 2022) study outlined, beginner-coaches are thought to have less than three years of experience whereby they lack a sense of responsibility and are therefore learning the norms of coaching (Schempp et al., 2006). and when studies do involve beginners, limitations of reflection are predominantly addressed (Burt & Morgan, 2014; Hamblin & Crisp, 2022; Winfield et al., 2013).

Yet most coaches often employ structured processes that provide a framework for greater reflection in encour-

aging methods of understanding that are linked to theory (Jackson, 2004; Johns, 1995). This is a consequence of the fact that these have been identified as essential elements of coach education, but they often offer minimal opportunities to facilitate the integration of new knowledge into practice – meaning these structures could arguably be questioned in terms of efficacy for beginner coaches. This is because, through limited coach education hours/contact at beginner coach level (i.e. entry or L1 coaching qualifications) a large proportion of knowledge, practice, and reflection is not necessarily covered, or employed through NGBs (Cushion et al., 2003). Indeed, alluding to notions of experience as essential to forming new pathways and approaches to learning and doing, automatically presents a juxtaposition, in the sense that there are contrasting perspectives on the construction of meaningful thought and conceptual self-analyses. Beginner-coaches then, in particular, perhaps lack deep connections and understanding (possibly even contradictory) between practical and theoretical discourses, and it is only possible to navigate out of this dialectic through critical reflection in an experiential field.

Acknowledging different developmental and starting needs, and integrating prior knowledge

There are, however, other means of initially establishing and meaningfully impacting on the development of new coaches (beginner-coaches) than just through NGB courses. Success here can be seen through effective partnerships between new learning and previous sports experience. The Professional Footballers' Association (PFA) in England, for example, offers subsidised courses and enhanced funding to current and ex-professional players, with the 'fast-tracking' of candidates and even preferential recruitment acknowledged for applicants for coaching roles from this pathway (Blackett et al., 2018). Similarly, support for the transition of elite athletes to coaching roles across a variety of different sports has also been noted to follow 'fast-tracking' principles, and even at times the appointment of ex-players/athletes to coaching positions with no requisite experience and not having followed any formal coach education or preparatory pathways (Rynne, 2014). Irrespective of any concerns related to recruitment processes that may favour ex-players and athletes, and the different 'starting points' for coaches (i.e. PFA/membership that can lead to 'better' starts for coaches), there is also a reasonable argument that prior knowledge can be used by new coaches, and is valued by recruiters (Chroni et al., 2021).

Although these kinds of starting points are not available to all beginner-coaches, many come to undertake sport coaching through previously having taken part in sport (Rowe, 2012) Indeed, researchers point out that many sports coaches initially interacted with, and learnt

from, other coaches through their own sports careers or activities within social settings (Blackett et al., 2018). Given the variety of starting points for sports coaches, and the mechanisms through which preferred candidates with prior playing experience have and are fast tracked in professional and elite sport coaching constructs (as evidenced by the work of Blackett et al., 2018, Chroni et al., 2021; and Rynne, 2014), the purpose of this study is to consider the impact of prior playing experience on learning and development in the context of beginner-coaches, without elite or professional playing experience, in recreational sport fields. Based on these considerations, and making connections to our previous work where we explored the benefits and limitations of reflective practice for beginner-coaches (Hamblin & Crisp, 2022), we query how they (beginner-coaches) feel they can bring about some progress and improve practice as coaches through having previously played (non-elite) sport, particularly coaching within grassroots, community, and participation contexts.

Essentially a part one to this paper, our previous work related to how beginner-coaches learn and operate within recreational fields focused on two areas. The first, the benefits and limitations of reflective practice for beginner-coaches, and the second, to explore how beginner-coaches viewed and perceived ideal learning mediation in the context of in-situ coaching practice. The beginner-coaches in the first study comprised of three male coaches and three female coaches all aged between 18 to 25 years old, all with between twenty months to three years of coaching experience, and a sports coaching representation across nine sports. All of them coached young people in recreational fields, five of the coaches were part time, one full time, and three held coaching qualifications (two at level one, one at level two), and three had at the time of the study no coaching qualifications (note – not a necessity to work within all recreational sports fields in the UK, the site of the first study, and indeed the present study). The part one study (Hamblin & Crisp, 2022) was undertaken through conducting semi-structured interviews with six beginner-coaches, and thematic analysis revealed that the use of reflective practice resulted in an increase in perceived additional competency and critical thinking. Additionally, however, a more critical approach to reflective practice was illustrated through a number of reported limitations, principally centred on constraints of time, and how a negative focus within the participants' reflections could cause unfavourable feelings, increase anxiety, and adversely affect self-confidence (Hamblin & Crisp, 2022)

In line with the philosophy of this paper, one that questions how learning and progress for beginner-coaches may be influenced through having previously played sport, over an extended period of revisiting the data from the first paper, we were able to assess and interpret ad-

ditional themes related to knowledge gained through sporting experience. These essentially outlined how prior playing experience was seen as a key contributory factor in their accumulation of confidence and initial coaching knowledge capital.

Acknowledging that the data set from the first study could be considered quite thin, and seeking to further question the idea that sporting experience may well be considered a helpful, ancillary process by which beginner-coaches may feel that prior playing experience is useful, the purpose of the present (second) study was to provide an increased understanding of how beginner-coaches position, signify, and illustrate their beliefs of the extent to which playing experience may have mediated, shaped, and influenced their learning process and applied practice.

In order to do this, we extended our initial, unpublished findings from our 'first paper' research (Hamblin & Crisp, 2022) through carrying out further research with another five beginner-coaches with similar criteria as our first study, for a total sample size of 11. Importantly, given the first study was undertaken through a constructivist (ontological) view, an interpretivist (epistemological) approach, and a qualitative method (semi-structured interviews), we deliberately sought to replicate that in this study and - whilst looking to confirm data from the first study - used the same philosophy of methods and an inductive approach whereby theories are derived from the data (Bryant & Charmaz, 2007), as opposed to a specific hypothesis-deductive approach.

Our two aims then for this (second) study were: 1) in a confirmatory, extended fashion to the first paper, further investigate the manner in which beginner-coaches describe any perceived benefits to having played sport before in their coaching habits, behaviours, and development and practice, and 2) to determine the extent to which formal coach education can be situated and substantiate improved coaching performance for beginner-coaches.

Method

Our previous study on beginner-coaches was constructed through ensuring that the coach sample met two criteria. The first criterion was that, per Schempp et al.'s (2006) work, beginner-coaches are still learning how to coach and have no more than three years coaching experience. And our second criterion was based upon existing UK coach levels that place level three coaches as 'head coaches', with the inference that level two coaches have still not fully developed the expected competencies to demonstrate expertise. Accordingly, the second criteria meant that the participants had no more than a level two coaching qualification.

For our first paper, a qualitative research method was considered suitable given we sought to undertake our study from an inductive position that emphasises an understanding of human behaviour (Smith, 2010). This enabled patterns, processes, and differences to be explored based upon multiple realities which facilitated the exploration of feelings, values, and perceptions of coach learning held by beginner-coaches (Braun & Clarke, 2014; Connolly, 1998). Whilst questionnaires may have been appropriate as they quickly provide large amounts of data, information can be superficial (Munn & Drever, 1990), and we felt that the use of interviews allowed a freedom of expression that helped develop reliable and valid data as a depth of knowledge was provided through the use of open-ended questions and a clear guide allowing responses to be compared (Hutchinson & Skodol-Wilson, 1992; Smith, 1992).

As stated previously, the rationale for this second paper was based (in part) on our *revisitation* of the data of the first paper, and the identification of a particular (unpublished) theme related to how previous sporting experience seemed to contribute, and underpin the participants' interpretation of the processes that they felt had supported their own coaching development. Seeking to move beyond our previous narrative and findings in the first paper that were related, fundamentally, to issues connected to reflective practice, we sought to extend and explore our research agenda for this second paper. In order to more systematically investigate this theme related to previous (non-elite) playing experience as beneficial to coaching knowledge, and compare and combine with our previously unpublished findings, we continued this research under the guise of identifying patterns among our results, and used (as previously mentioned) an additional five participants with the same selection criteria as the first paper (less than three years' experience, and no more than a level two qualification), but also used the additional criteria of ensuring the new participants had all played (recreational, not professional) sport as well. Note, this new criteria was not one that was specifically asked for in the first paper, but all of the participants in that study had played sport previously. See Table 1 for full participant demographics.

In essence then, this study was designed to act in a confirmatory fashion to the first paper, and sought to interpret the nature and meaning of how previous sporting/playing experience could be considered a benefit for the construction of knowledge and applied practice of beginner-coaches. Whilst the first paper used just semi-structured interviews, for the present study we also used informal observations (i.e. we did not use any observational instruments) alongside short interviews related to the 'extra' theme from the first paper, as a way of ensuring validity. The observations, of the additional five beginner-coaches for this second study, in *action*, was used

Table 1. Coach Characteristics/Experience

Coach	How long coaching	Qualification	Preferred sport (experience/playing)	Gender
1	1.5 years	1	Football/gymnastics	F
2	1.5 years	0	Football/multi-sports	M
3	1.5 years	0	Football	F
4	2 years	0	Football	M
5	2 years	1	Football/swimming	F
6	3 years	2	Multi-sports (football player)	M
7	2 years	0	Flag football/American football	M
8	1.5 years	2	Basketball	M
9	1.5 years	0	Basketball	M
10	1.5 years	1	Basketball	F
11	2 years	1	Flag football	M

to help provide some detail as to how they coached, but far more so fundamentally to ensure that a more natural environment could (we hoped) foster more natural interview processes and ensure that the research participants were more comfortable and did not suppress their ideas, thoughts, and perceptions, to comply with our research agenda (that of ‘confirming’ what we had identified as an additional theme from the first iteration of data collection and analysis in our first paper).

In short, we sought to increase validity of this study by fostering a more narrative form of interviewing and meeting the coaches ‘on their turf’. To be clear, we did not just undertake interviews in and of themselves, but focused more on collating a series of conversations (and field notes) in order to more accurately ascertain their thoughts through a more narrative tone.

In total, the five additional coaches for this second study were observed between two and four times each in their sessions, and as stated each time questions (semi-structured interviews) were asked related to extending (and reinforcing) the previously held, yet unpublished, themes of experiential learning and the addition of self-reported importance of prior playing experience for beginner-coaches. The observations and questions then (‘on their turf’), facilitated a series of unfolding narratives with the beginner-coaches related to their perceptions and thoughts of the importance of previous playing experience for their coaching.

In summarising the specifics of the methods then, the first study (Hamblin & Crisp, 2022) used semi-structured interviews lasting between 36 and 45 minutes for the six participants, all of which were undertaken through Skype in order to comply with the then COVID-19 government guidelines regarding non-essential travel. The present study also used semi-structured interviews, with open questions such as ‘what strategies do you use in practice/’,

‘how do you feel that any previous qualifications might have helped you/’, ‘where do you think you have learned the most from/’, and ‘how much do you think playing sport previously has helped?’ were used to encourage the beginner-coaches to outline their reflections and thoughts on how they had developed as coaches and what had benefited them. The interviews lasted between 25-40 minutes, recorded on iPad and transcribed verbatim. A key difference between the first and present study, however, was the lifting of COVID-19 guidelines that allowed the researchers to enter the coaching environments of the sample and ask the questions before and after their sessions, as well as to observe and make field notes. The field notes were descriptive, and included observations and thoughts such as who was being coached, what the setting was like, what relationships between the coaches and players looked like, what activities took place, and any informal conversations (snippets) that took place between the researchers and the coaches. In total then, the data analysis used 11 beginner-coaches, six from the first study, and five from the second.

In terms of data analysis, much of the same system used in the first paper of transcribing the interviews verbatim was undertaken. Influenced by the research aims of this study (to extend the first paper’s unpublished findings related to perceived benefits of having played sport before coaching, and to question the role and impact of formal coach education for beginner-coaches), a qualitative approach and thematic analysis was used to identify themes, and the new data was labelled and coded in ways that were related to the research aims/questions, and then combined with the unpublished data of the first study (Hamblin & Crisp, 2022).

More specifically, however, whilst the present study sought to build upon some of the existing data from

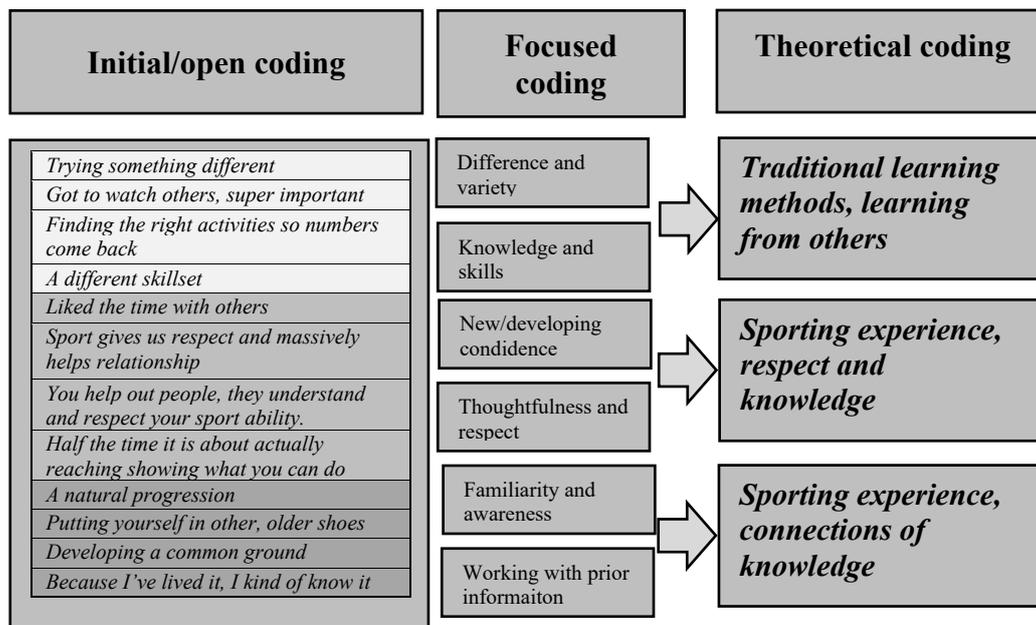


Figure 1: Coding and final higher order themes and key dimensions

the first study, it also (as mentioned previously) used an inductive approach, one based on grounded theory (Charmaz, 2006; Strauss & Corbin, 1990) whereby theories are derived from the data. Of particular note here then, per grounded theory principles, in research that follows an inductive approach that systematically analyses the data (in this instance generated through interviews and short observations/recorded snippets and comments within sessions), it is not the ‘frequency’ of coding that matters, rather the more impactful relationships between significant reoccurring sets of data, and the way in which these can be pieced together as a ‘story’ that allows theory to emerge more naturally (Glaser, 1978).

The present study then, followed a process of aggregating and making sense of disparate data, and conceptually and coherently categorising and integrating themes through identifying possible relationships between categories. This iteration between levels of coding, in this instance, initial/open, focused, and then theoretical coding, generated the new themes within this paper. See Figure 1 (above) to see how the data were interpreted to arrive at the codes and theory. The next section outlines and discusses the findings and implications.

Discussion

In the following section, we present the findings collated, reviewed, coded, and refined, from the observations and interview data as three themes. The first, ‘*Traditional learning methods – formal coaching qualifications, and informally learning from others*’, the second ‘*Sporting*

experience – modelling, confidence, and respect’, and the third ‘*Sporting experience – underpinning, scaffolding, and connecting learning*’. In all then, this section outlines the themes that emerged from the data analysis of both studies (first study emerging, second study confirmatory) related to experiential learning and how prior playing experience was seen as a key contributory factor to confidence and initial coaching knowledge. Anonymised quotes are used to illustrate the themes and the beginner-coaches have been given numbers, with no relation to the pseudonyms in the first paper, to differentiate between them. As a combined results/discussion section, each theme will also be compared to existing research in this area, and explained in terms of wider theory and practice.

Traditional learning methods – formal coaching qualifications, and informally learning from others

All participants suggested that achieving a coaching qualification is an ideal method for learning. Those who did not hold a coaching qualification (three from the first study, two from the second) agreed that it was something they would like to complete as they believe it would expand their knowledge and understanding of the sport, skills, and techniques needed to more effectively deliver their sessions. Six participants who hold a qualification confirmed these expectations in explaining that they felt the qualification had increased their competence. For example, coach three discussed that since having gained their coaching qualifications they have increased their self-efficacy:

“Having that qualification expands my knowledge which motivates me because if someone asks me to

coach something, I can do it without a problem because I am capable and confident to deliver it. I think it helps me know how to get the best out of my drills as I have a bit more of a structure to follow with new techniques to use. I don't have to use so much trial and error and make it up to see what feels right for myself because obviously there are proven ways of doing stuff and ways of getting more out of people".

This demonstrates how the qualifications enhanced their ability to deliver sessions which supports previous research (e.g. Campbell & Sullivan, 2005; Wright et al., 2007), where conclusions have been drawn from the idea that efficacy increases for knowledge of game strategy, technique, and skill by undertaking a coaching course. Furthermore, other studies (e.g. Chase et al., 2005; Hammond & Perry, 2005; Maleté & Feltz, 2000; McCullick et al., 2005) suggest that coaching qualifications increase one's sense of competence and confidence due to becoming more efficient in employing a range of delivery methods.

Certainly, when considering how coaching courses seek to underpin the whole rationale of how coaches can appropriately and competently function within the enterprise of coaching, it is no surprise that in this study all the participants believed that gaining actual coaching experience enables (or would enable in the thoughts of those yet to qualify) them to learn about real-life situations which facilitates their development. This 'real-world' coaching, irrespective of whether the beginner-coaches had yet completed a coaching qualification, was considered crucial. For example, beginner-coach 11 explained:

"I think I improved my coaching by doing a lot of practical stuff. Experience helped me improve so much. Just being out there doing it myself because without doing any practical you're not really gonna be able to coach in the real world. This just made me a better coach cos then you are able to actually look and see what works, what doesn't work, and just see things happen in practice".

This suggests that by actually coaching, one is better equipped to face its realities. Consequently, this is supported in existing literature (e.g. Crisp, 2020; Ehiyazaryan & Barraclough, 2009; North, 2010) that explains the importance of real-world experience as it can closely relate to situations one is likely to encounter in the future, thus making one more prepared. Additionally, much literature suggests that coaching experience is a primary source of knowledge whereby – as a mechanism of experiential knowledge and informal education – it contributes to practical applied behavioural change as it provides richer learning experiences (Coaching Association of Canada, 1996; Gould et al., 1990; Salmela, 1996; Wright et al., 2007).

However, despite this claim, it is also understood that experience alone does not guarantee competence but rather, one must reflect on experiences to learn (Bell, 1997; Douge & Hastie, 1993; Martens, 2012). In this study then, the results correspond to how further facilitating personal growth and meaningful improvements to coaching mirror how behavioural change within the context of in-situ coaching and 'real-world' contexts are traditionally seen through theory to be actualised.

In this vein, data analysis highlighted that the participants found learning from others valuable. Nine participants noted how observing others helps them learn new ideas and enables them to compare themselves to different coaches and practice. An example of this can be seen in beginner-coach four's comments who explained how they can use others' coaching as a benchmark against their own:

"Reflection to me is about looking back and seeing what you did well and then compare yourself to other people and reflect on other people's coaching. You can apply that to yourself and just like reflect on yourself and others. I just try and pick up on stuff that they've done and then implement it, or like I'll think about how it might be similar or different to how I do things. I have been able to learn techniques from other coaches by watching their sessions with a range of groups. It helps me see how different ages learn so I know how advanced or simple my session needs to be for them".

This demonstrates how participants find it useful to compare and contrast their own coaching with others' coaching. Consequently, these results agree with prior studies (e.g. Erickson et al., 2008; Lemyre et al., 2007; North, 2010) that suggest coaches use observation to identify bad practice to avoid, confirm their own 'good' practice, and to challenge themselves to improve such as through identifying new methods of delivery.

Additionally, all participants believed feedback from more experienced coaches helps them learn. Findings demonstrate how they valued their opinions as they considered them to have more substantial knowledge than themselves, and thought this would provide great detail and support. Moreover, the beginner-coaches in this study believed them to be trustworthy through giving honest feedback, as beginner-coach six explained:

"I can always learn from feedback from experienced coaches because they'll look at the fine details. Getting feedback is huge because they know more than me quite simply, so I listen. They're going to tell me the truth and tell me what I can work on. They might be wrong, they might be right, but you just need to test it out yourself".

This illustrates how the beginner-coaches value constructive criticism for improvement which is supported in the work of Smith and Fortunato (2008), who discussed how supervisors are likely to provide honest feedback if there are seen to be perceived benefits that would result from their honesty. Conversely, concerns surround the reliability of feedback whereby negative feedback may be avoided to limit interpersonal conflict (London, 2001; Waldman & Atwater, 2001). Consequently, it is well worth noting that these more experienced coaches may not always provide valuable feedback if they are avoiding any chances of providing criticism, as comments may not always be a true reflection of one's performance.

Sporting experience – modelling, confidence, and respect

All of the beginner-coaches talked about the importance of demonstrating a competent image of themselves to their participants, and they all felt that previous playing experience really allowed for an initial level of respect to be established. As beginner-coach two said:

“Having knowledge on how to correctly perform skills, and knowing how to effectively use them in a game from your past experiences, is crucial to being able to provide good demonstrations of complex skills and establishing yourself as a role model for the team”.

Whilst there was an appreciation of other learning methods, and as the section/first theme above (*Traditional learning methods – formal coaching qualifications, and informally learning from others*) outlined an appreciation of how coaching ‘badges’ were helpful in increasing confidence and an understanding of delivery methods, there was also a viewpoint that formal coaching systems were in some sense limited – in comparison to having played a sport before – when it came to actively promoting positive coaching behaviours and facilitating development. Indeed, and notwithstanding their beliefs that there were inherent, built-in advantages to taking coaching qualifications, previous playing experience was seen as even more beneficial than specific coaching qualifications by all of the beginner-coaches in the study. An example of how this was articulated can be seen in the comments of beginner-coach eight:

“Far more valuable than a coaching certificate in and of itself. So much of it is about confidence, and certainly trying to get people to listen and respect you. If you can do things, or you’ve been any good at any sport, you’ll get some respect. It’s a bit like someone smaller and weaker than you telling you how to bench. Yeah, they may well know more than you but your gut feeling is that you shouldn’t have to listen to them because you’re bigger and stronger! I know it’s not ideal, but it’s kind of human nature”.

The beginner-coaches also used phrases such as “commitment”, “understanding”, “gained respect”, and “admiration from players” to describe how they found the transition from playing to coaching less problematic because of the way in which they saw their own coaching as informed, positively, by their previous playing experience and – in turn – how they felt participants viewed them as more competent or knowledgeable because of this. As coach ten said, in relation to their perceived importance of playing sport before coaching “it’s everything really”. All of the beginner-coaches also discussed the importance of how any development of confidence helped sustain their interest and engagement with the craft of coaching. An example can be seen in beginner-coach one’s comments

“Because I’ve played, I just know the sport. There’s got to be a kind of feel for a game that must be really hard to get without playing. A tempo, right? how do refs control a game, how do you warmup, how do you work as a team in that sport. I’d even say a culture... who does what, what’s the best way of doing things, how’s the best way of leading? Because I’ve played, I’ve got I think a reasonable idea of a lot of this. Certainly enough for me to be comfortable and confident in what I take into my coaching”.

In a related fashion, confidence levels of master athletes has been discussed in literature before. A key influence here, for example, is the work of Wilson et al. (2004), who outlined how master athletes valued their ability to demonstrate sport with expertise, and how any social comparisons with peers, both led to increased confidence. Indeed, when we consider impression management, these findings are quite broadly in agreement with the work of Manley et al. (2008), who demonstrated how third-party reports and reputations of coaches, including playing experience, positively influenced athletes’ expectancies about coaches

Sporting experience – underpinning, scaffolding, and connecting learning

All the participants discussed how they believed playing experience is an ideal tool for learning within in-situ practice-based contexts. They suggested that previous participation as players had enabled them to gain a greater perspective and knowledge of sports which makes them feel more prepared, as suggested by beginner-coach four, for example:

“I feel that because I played football I am now in a better position to coach because I don’t have to wing it by any means. I actually know what’s gonna be going on in the game situations, what actually happens on the pitch and off the pitch depending on the position, and how the team plays together. It also helps me think

more about game-related aspects I can include in my sessions which is a huge thing”.

Beginner-coach nine described the connection between their own experience within playing sport, as directly transferable to their newer experience of coaching:

“Being a team leader as a player translates into being a team leader as a coach – keeping your team motivated, attentive, and engaged. If you’ve experienced it, or more to the point done loads, I’d have thought it’s a lot easier to do right?”.

Indeed, the whole sample also outlined how previous playing experience increased their capacity to construct their knowledge and coaching (social) world, coaching application, and the beginner-coaches’ ability to identify appropriate training activities. An example from beginner-coach three showed how they were conscious of how playing, knowing more people (connections), and being involved in sport helped them:

“You know what, it’s a bit like a thief, although better obviously! But you try and get in the habit of nicking bits from everyone. Just whatever sport really, not just ones you’re really involved with but whatever you’ve played. One, you get a bit of a better understanding of how something ‘ticks’, and two you can try and put things together in your own way, such as a philosophy of play and style”.

Indeed, all of the beginner-coaches stressed that their understanding of what they considered ‘good play’ (a form of knowledge capital) and even their subsequent coaching approaches had been influenced by previous playing experience. However, alongside this idea of how playing experience supported their development and understanding, some of the coaches also made a point of the role that their own coaches had played in highlighting effective practice activities, as well as reinforcing what were perceived as good habits. Beginner-coach five stated:

“Having played before, it makes things pretty easy, because I play...I kind of know what makes good play when I’m playing my position, it’s kind of natural to see what works and what doesn’t. And having coaches who have pointed that out before for me helps massively. When you know what is good, and have had good coaches use certain drills that you can see and feel work really well, then I just use them as the basis and adapt them”.

This illustrates how playing experience can increase a coach’s inside knowledge of a sport. Similar to the cur-

rent findings, research by Lemyre et al. (2007) suggests that this type of previous playing experience increases a coach’s versatility, access to sport-specific material, and understanding of technical information needed to demonstrate during practices.

These findings also, in many respects, mirror a number of tenets that underpin the concept of accelerated learning. The work of Jacobsen (2015) and Farrell and Van de Braam (2014), for instance, outlines how condensed programmes, qualifications, or education systems/courses, allow for deeper, potentially more significant immersion and thus can compress learning. Of course, this is reliant on suitably appropriate and meaningful experiences and elicited responses, and the first author has outlined how coaching within the special educational needs (SEN) and disability context ‘accelerated’ a number of student-coaches’ learning through facilitating educational and reflective transitions (Crisp, 2019b). However, whilst in the present study the application and/or use of accelerated learning to explain how the beginner-coaches developed some idea of what constitutes ‘game sense’ and in identifying appropriate training activities, we feel that simply having played sport may not be enough to facilitate coach learning. Instead, we see that any previous experience in playing sport, may lead to a process that – when placed in the context of learning to coach – may be more developmental in nature. A process, so to speak, that accounts for how more intensive, immersive learning (in this instance playing, and being coached as well), can build upon existing knowledge.

At first glance, the concept of ‘scaffolding’ perhaps helps here in that learning is facilitated through inquiry instruction and support to complete tasks, based on what learners can do, can do unaided, and can do with assistance (Cho & Cho, 2016). The work of Allen and Reid (2019), for instance, illustrates how directing the learning of coaches through scaffolding and providing assistance and structure supports the individual needs of coaches in planning, delivering, and reflecting on their practice.

Indeed, in our first paper (Hamblin & Crisp, 2022), we referred to how scaffolding strategies, such as through a mentor, could be employed to support coaches in their development. However, this means that the process of learning is essentially negotiated through an arbiter of some form (i.e. teacher, lecturer, mentor, whoever can provide students with tasks and feedback), and not necessarily based upon or dependent on prior knowledge.

In the context of the findings here then, whereby the participants felt that previous playing experience smoothly facilitated transitions to coaching, the concept of ‘connective knowledge’ fits well. This is in terms of how relationships, networks, and understanding and familiarity of different contexts that are associated (in this instance playing and coaching sport), can lead to

connective knowledge (Downes, 2008; Priaulx & Weinel, 2018). Similar to constructivism, yet predicated on understanding how other contexts (and networks) can be seen as primary sources of knowledge creation and development, it is in this sense then that ‘connective knowledge’ seems to illustrate the process and phenomena whereby the participants in this study identified previous or contemporary playing experience as essential to their coaching development. Framing, and understanding, these findings in this fashion is especially salient when we consider the rich, deep, and significantly related properties of sport participation and sport coaching.

Conclusion

This study was designed to complement and build upon our first paper on beginner-coaches (Hamblin & Crisp, 2022). Revisiting our initial data and unpublished findings from our research from the first paper, we then extended the data set to explore, in more detail, how beginner-coaches reported the importance of prior playing experience as an influential feature of their confidence, coaching knowledge, and ability to coach, as well as to investigate how meaningful they found formal coach education.

The findings showed that the coaches felt that it is not necessarily ‘traditional’ (formal coach education) coaching courses that are of most benefit to their development, and as discussed in the first theme (*Traditional learning methods*) that experiential learning and actually coaching were seen as key to behavioural change. In many respects, this is not something of great surprise, given that a plethora of research and the general consensus agrees that experiential learning – essentially becoming better coaches by actually coaching – is perhaps of most importance for coach development when structured and facilitated in fashions that place a premium on reflective outcomes. Indeed, the findings in this paper continued to show that the beginner-coaches value gaining coaching experience (including qualifications) through doing sports coaching as this is seen to prepare them for its realities, but also, and crucially since this extends existing literature, through playing experience as this (from the perspective of the beginner-coaches in this study) increases one’s true understanding of a sport. This is particularly germane given, as this paper has previously outlined, the over-reliance on the voluntary sector for sport coaching and specifically for the community sport coaching sector/context, where expectations of sport coaches (who are most often volunteers) exceeds their understandably (because of time and limited resource/training) more limited pedagogical expertise (Pill et al., 2022).

The key difference in the findings of this paper then, ones we argue are novel, are the distinctions that

the beginner-coaches made in terms of highlighting previous playing experience as crucial to their development and confidence as coaches. Overall then, the positioning in this study of prior playing experience as central to development of coaching skills, in particular through more fully understanding the culture and practice of a sport (including coaching, but also gameplay, and importantly a pre-existing familiarity that could then be built upon) and positively underpinning the confidence of the beginner-coaches, are all evidence of how knowledge and practice could be constructed through ‘connections’ of prior learning and understanding within a related field. In essence a co-production of knowledge then, one that works on the centrality of interconnective processes between playing and coaching sport.

Whilst we have highlighted what we believe is the novel nature of these findings, we are also aware that in some sense they may well seem self-explanatory. Indeed, earlier in the paper we outlined the well-trodden path that many professional footballers take in terms of coaching, and this pathway – whilst acknowledging the professional edicts of, for instance, the PFA that in much part seeks to find employment for its members post playing career – seems to be one that exemplifies how previous playing experience can be beneficial for ex-players. In this paper though, the distinction lies in the fact that the beginner-coaches were not, and had not been, professional players, and all of them were still playing sport. The present study then provides an in-depth examination of how increased confidence, the development of knowledge, and the sense of familiarity that players can gain and transition to coaching are not then, exclusive to the context of high-performance sport. Given the fact that this paper extensively outlined the history and practice of coach education in the UK, and revisiting our position that recognising other, complimentary processes that can contribute to sufficient knowledge and practitioner bases for coaches (such as previous playing experience), we believe that this study has additional merit and relevance for coach educators to consider.

However, this research is not without its limitations. Much like the first study (Hamblin & Crisp, 2022), we acknowledge the limits of what can be accomplished by a relatively small sample size, and posit that the results cannot necessarily be generalised to the wider population (Faber & Fonseca, 2014). Whilst we attempted to ensure that our methodological rigour could be enhanced through informal observations in the coaches’ ‘natural environment’, we recognise that – without detailed observational notes – this was, whilst well intentioned, perhaps somewhat superfluous and any impact in terms of research methodology and validity was limited to becoming more well acquainted with the participants (although we argue that this in and of itself is advantageous). The thrust of the research method then was through interviews, and here

we are also mindful of the manner in which qualitative research undertaken in this way (interviews) is oftentimes fundamentally based on individual perceptions, and even just recollection of memories at times, something that research tells us is not always detailed, accurate, and reliable (Sutton & Austin, 2015).

We are also aware, as mentioned, that this research was undertaken with a small sample size (indeed, the sample was as a series of criteria particularly concise and close in terms of experience, background, and even types of sport with all essentially having experienced, played, and coached invasion/ball sports), and that as the study was undertaken using an interpretive, grounded theory style (searching for ‘narratives’ and impactful and meaningful data as opposed to frequencies of data), this significantly reduced any likelihood of finding differences between ‘subgroups’ (which were purposefully avoided through the sample). Essentially, the totality of this sample (including the sample from the first study), all felt that previous playing experience was of benefit, irrespective of sport, coaching qualifications, experience, or age. Yet this is not to say that further, larger (in terms of participant numbers and breadth and scope of sports played and coached) would not find differences or infer any possible interactions between the dependent variables.

Future research then could (and should) use a larger sample size and, moreover, some form of objectively comparing beginner-coaches who have played sport, and those who have not, could also be undertaken. Indeed, whilst on the one hand we believe that actively promoting connections between previous playing experience into coaching practice and coach development design could be beneficial, we are also wary of – in any way – shaping and forming opinions and practice that may well disadvantage those who have not played sport before in their development as coaches, or any interactions they have within coach education. A salient and germane question here then, is the extent to which – outside of personal beliefs – previous playing experience may advantage coach development, and studying how those who have not played sport before yet coach seems, intuitively, an area that should be investigated.

In summary then, whilst the findings of this study are not necessarily generalisable, they do explore and detail some of the conceptual intricacies inherent within coach education, and illustrate how learning can be mediated – through connective knowledge – within and through previous playing experience, relationships, and pre-existing familiarity. This mediation of learning and prior knowledge can then potentially transformatively effect (positively) the confidence and practice of beginner-coaches. Because of this, we suggest that coach development and learning could consider, and thus manage, ‘connections’ of prior learning and understanding within the related field

of prior playing experience, and implement these findings to ensure delivery is most effective for beginner-coaches.

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Does Digitalization Accelerate the Winner-Takes-All Effect in the Sports Industry?

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
- D) manuscript preparation
- E) obtaining funding

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Abstract

Today media and sports are indivisible, having a kind of inseparable, mutually influential relationship. Media attracts audiences and generates profit through sports. In its turn, sports content is disseminated, transmitted, and popularized through the media. Thus, theoretically, sports and media exist in symbiosis. However, practically, this relationship is complex and includes many factors. First of all, in recent decades, the process of overall digitalization (and digital transformation) of all fields of life has had a crucial impact on sport, media, and their interrelationship. This paper aims to conceptualize and analyze the possible impact of digitalization on “winner-takes-all” (WTA) (winner-takes-most, WTM) dynamics in the professional sports industry, notably for spectating audiences, and answer the question: “Can digitalization be seen as a driver of ecosystem change and how it should be tested?” This conceptual model paper seeks to construct and develop a theoretical framework that can explain and predict relationships between concepts of digitalization and key sport spectating variables: audience, TV rights, and revenue through a prism of WTA. We found that the technological change in the sports media market and the greater global-orientated strategy of leading sports organizations have re-sorted and compressed many market shares, but the effect of technological disruption has been significantly less pronounced for the most powerful digital leaders in the industry. To this end, we represent digitalization as the main accelerating factor of the WTA effect (along with other auxiliary effects) in the sports industry and propose future research directions and perspectives.

Keywords: Sports, winner-takes-all, digitalization, network effect, snowball effect

Introduction

Today, media and sports are indivisible, having a kind of inseparable, mutually influential relationship. Media attracts audiences and generates profit through sports. In its turn, sports content is disseminated, transmitted, and popularized through the media (Zheng & Mason, 2022). Thus, theoretically, sports and media exist in symbiosis. However, practically, this relationship

is complex and includes many factors. First of all, in recent decades, the process of overall digitalization and digital transformation (adaptation of the system to operate with the integration and use of information and communication technologies) of all fields of life has had a crucial impact on sport, media, and their interrelationship. It is worth mentioning that digital transformation is viewed as a means to align economies, institutions, and society with the current state

of technological progress on a systemic level (Unruh & Kiron, 2017).

This paper conceptualizes and analyses the possible impact of digitalization on the “winner-takes-all” (WTA), winner-takes-most (WTM – a situation in which a single “winner” receives all the rewards, and the rest of the participants receive nothing) dynamics in the professional sports industry, notably with spectating audiences. Can digitalization be seen as a driver of ecosystem change and how it should be tested? Technological change in the sports media market and the greater global-orientated strategy of leading sports organizations have re-sorted and compressed many market shares and been affected by various dynamics, but the influence of technological change has been significantly less discussed for the most powerful digital leaders in the industry. Organizations that experience a decrease in globalization and lack innovative strategies often see a drop in technology advancement and a shift in market dominance towards highly advanced “superstar” cutting-edge organizations. The mass dissemination of technological advances mainly reflects the massive access to sports content and relocations of spectators (Glebova et al., 2020), rather than a diversification of sports content channels in the incumbent information economy, suggesting that the current trend is primarily driven by technological advancements rather than anti-competitive forces (Glebova et al., 2022; Schwellnus et al., 2018).

The rest of this paper is organized in the following manner. With a focus on the global context, we first identify key constructs and qualitatively review the relationships between the process of overall digitalization and the professional sports industry, to explain the nature of impact and identify and systematize all variables. As a model paper (Jaakkola, 2020; Reese, 2022), this article begins with a presentation of the focal phenomenon and accompanying constructs, followed by further explanation. Next, we analyse the disruptive changes that have occurred in the interdependent relationship between sports and media due to the rapid development of digital technologies, globalization, and the reorganization of the professional sports environment, altering the responsibilities of various parties involved. We conclude by summarizing philosophical discussions, practical implications, and navigating future research directions.

Also, we summarize arguments in the form of a graphic that depicts the main terms and their salient relations, as a set of insights, suggestions, and propositions that are logical statements derived from the conceptual framework. Propositions are logical statements derived from the conceptual framework. They condense the main idea of an argument into a concise form. However, at the same time, this simplicity also highlights any weaknesses in the logic of the argument.

Theoretical framework and rationale

Digitalization and globalization in the sports industry

The emergence and mass diffusion of digital technologies has transformed the sports media landscape, creating a complicated cross-media environment that blends together many contrasting constructs, such as popularity and personalization, or structure and agency, bringing corresponding changes within the professional sports industry (Zheng & Mason, 2022). Westerbeek (2021) argues that sports continue to grow in importance as a platform for communication and mass engagement in the ongoing globalization of sports, taking into account a historical perspective and outlining periodical shaping of the modern sports industry. Thus, today, the sport has become a significant global industry (Riot et al., 2018), which constitutes a truly global market fuelled by the universal appeal of sports competitions. The popularity of sports and the advent of broadcasting and internet access have paved the way for a lucrative and fertile global market, shaped by the collaboration between sports brands and media as they move towards digitalization. For instance, Velagapudi (2020) focuses on the evolution of marketing strategies, from traditional to modern and digital methods, and examines how Wimbledon’s traditional image has evolved into a global brand through these changes, mainly through social media. Caldas et al. (2020) report the conceptualization of a multi-sided platform for sports facilities since multi-sided networked markets are a result of digitalization and “*network effects are one of the most powerful key strategic assets that can be created by technology innovation*” (pp.276–277).

Spectating audiences

Herold et al. (2021) conceptualize professional clubs as economic platforms, and the absence of in-stadium spectators due to network effects (Tamir, 2022) may alter the roles of stakeholders based on the presence of network effects. Caulfield and Jha (2022) find, in turn, that fans can benefit from the increased operational efficiency of innovative technologies in stadia. Notably, tools provide means for fan engagement, which, on one hand, improve fan customer experience, and on the other hand, increase customer retention, sales, and profitability (Adamson et al., 2006; Glebova et al., 2022). Thus, technology providers and related stakeholders are in an advantageous position, since sports are rapidly digitized and, as a result, their services are increasingly in demand.

TV rights and the broadcast industry

The growing and evolving popularity of mediatory watching and televised sports content has influenced the broadcasting sectors and sports leagues (Cave & Crandall, 2001). At the same time, retrospectively, sport has

played a significant role in the growth of television in general, especially during its emergence as a dominant global medium between 1960 and 1980 (Whannel, 2009). TV and broadcasting transformed sports have had a reciprocal affect on all aspects of the industry: economic, political, and cultural (Glebova et al, 2022). Furthermore, Whannel (2009) notices that from the 1970s onward, it was not regular weekly sports broadcasting that commanded the largest mass audiences but the occasional major events, such as the Olympic Games and football World Cup. Since digitalization and the internet have expanded the number of tools and channels, the amount of shared domestic sport-watching leisure have decreased significantly, but it is still relevant today. Andreff and Staudohar (2000) explained how domestic TV rights changed the business model of some professional clubs and leagues. Since the rise of digital platforms and even more thanks to developments in internet protocol television (Scelles et al., 2020), digitalization has increased the WTA phenomenon and foreign TV rights have become increasingly important (e.g. Premier League).

Revenues

With the development of mass media, TV rights income has become the most important source of revenue for the professional sports industry (Zheng & Mason, 2018; 2022). Markets can be seen as multi-sided when two or more customer or participant groups have direct interactions (Rochet & Tirole, 2006). Professional sports have evolved into a multi-sided market centred around the professional league as the main platform, with various stakeholders, such as fans, media, sponsors, and hosts, playing important roles. (Mason, 1999; Zheng & Mason, 2018). In turn, as complex organizations leagues generate revenues from multiple sides through various channels: fans via loyalty programs, content distribution, and ticket sales; the media through broadcasting rights and advertising; sponsors via sponsorship fees; and hosts via benefits provided for a particular event (Mason, 1999). With the growth and digitalization of the sport's fan base, the media, sponsors, and hosts have been transforming their targets and strategies, then providing multiple sides of it, turning it into a marketing opportunity. However, this kind of competitive sports management must involve innovative tools, often only affordable for "superstar" leading service and product providers. Today, both production activities and innovation management are organized through complex networks (de Vasconcelos Gomes et al., 2021).

Savić et al (2018) link "images of athletes" and "material rewards, compensation, and honors awarded to the winners", representing it as a model for the marketing and sales of sports products, illustrating the WTA phenomenon among athletes, where the winners in the image take all (most) benefits. In this regard, researchers emphasize an

increasing need for connections between the public, the media, and sports, in order to create a positive image and reputation on the sports market and reduce the WTA impact on different aspects of the sports industry (Stevens, 2013; Vaughan & Madigan, 2021).

Winner takes it all, Network effect, Snowball effect

Evens and Donders (2018) describe escalating changes in television and claim that disruptive technology is mediated by the prevailing power structures (Szreder, 2021) and institutional inter-relationships in the industry. The outcome of continuous platform competition, as part of the ongoing transformation of the television industry, reflects where structural power lies in the globalized media economy in which particular market leaders have powerful and stable (often growing) positions. Bühren et al. (2020) carried out an experiment to investigate the effect of market incentives and forecaster personal traits on herding behavior in sports betting markets. They found that self-reported knowledge and WTA (Winner Takes All) incentives led to a decrease in anti-herding behavior. WTA incentives and self-reported knowledge improved forecasts. Rietveld and Schilling (2021) show how network effects generate WTA dynamics that influence strategies, such as pricing and quality.

Methodology

While reviewing the literature, we focused on the consideration and justification of the choice of theoretical constructs and theories. We also prioritized the manner in which terms and constructs are integrated to produce the arguments, since we believe it is pivotal in building, sharpening, and polishing the argumentation. We employ literature that tackles the main constructs associated with the potential intersection of digitalization and the WTA phenomenon: the understanding of spectator audiences (Glebova et al., 2022) sheds light on the central phenomenon of technology-enabled applications, and research from various fields explores the potential impact of digitalization on WTA.

Since this is a conceptual paper (Reese, 2022), it is not based on research but aims to develop hypotheses. It is likely to be discursive and covers philosophical discussions on the WTA phenomenon in sports and a kind of synthesis of scholarly work and thinking at an intersection of sports digitalization and consuming audiences.

This article can be defined as a conceptual model paper (Jaakkola, 2020). Therefore, it seeks to construct and develop a theoretical framework that can explain and predict relationships between concepts of digitalization and key sport spectating variables: audience, TV rights, and revenue through a prism of "winner takes it all"

effect, involving potentially related terms such as digital platforms, snowball effect, and network effect. Thus, we describe the entity of WTA and identify related issues – the process of digitalization – and explain how it works by disclosing antecedents, outcomes, and contingencies related to the focal construct. This involves a form of conceptualization that creates a nomological network around digitalization and WTA concepts, employing a formal analytical approach to examine and detail the proposed causal linkages. To this end, in this article, we identify previously under-explored inter-connections and possible relations between constructs of digitalization, sport-consuming audiences, TV rights, revenue, and winner-takes-all effect and then explain why the elements are linked and interrelated and may affect each other.

This paper contributes to the field of sport management and marketing by delineating an intersection of digitalization and WTA in the sports industry: the goal is to detail, describe, and depict digitalization and its relationship to other WTA through the prism of spectating audiences, revenues, and broadcasting rights. Since it is a conceptual article, the creative scope is unfettered by data-related limitations, allowing the emerging phenomena of digitalization and WTA to be explored and modeled using a qualitative approach (Netland et al., 2012), focusing on how and why digitalization impacts the sports industry. To this end, this paper provides a roadmap for understanding WTA by disclosing the concept of digitalization, how it changes, and the key constructs and factors by which it operates, including the moderating conditions that may affect it.

Results and discussion

The WTA effect refers to the phenomenon whereby a small number of firms or individuals dominate a market or industry. In the sports industry, this effect can be seen in the growing dominance of a few major teams or individuals, as well as the increasing financial disparity between these top performers and the rest of the field. The process of digitalization in the sports industry can have some effects that speed up its rate of progression. One is the winner-takes-all effect, from which the leading companies or athletes tend to reap the most benefits. Additionally, the process can be sped up by the increasing the use of technology in sports, which allows for better communication and tracking of performances.

The digitalization process in the sports industry can accelerate due to the winner-takes-all effect in several ways:

1. Increased investment in technology: Superstars, successful teams, and organizations are more likely to have the financial resources to invest in technology that can give them a competitive advantage of being innovative and equipped, such as advanced performance-tracking and analytics tools.
2. Facilitated sports content access: Any game or any sporting event can be (co)watched and then replayed, regardless of the physical location of a viewer.
3. Greater focus on fan engagement and sport-spectating audiences: The top teams and athletes have a larger fan base, which can be leveraged to drive digital engagement and monetization (Adamson et al., 2006).
4. The rise and dominance of streaming platforms: WTA can lead to the emergence of a few dominant streaming platforms that can attract a large audience, leading to digitalization in the broadcasting of sports.
5. Development of innovative business models: WTA can also lead to the development entrepreneurship and of new innovative business models, such as Uberization, pay-per-view, or membership-based models, which can drive digitalization in the sports industry, increasing the snowball effect.

By synthesizing the literature pool, we have identified key variables (mediators, moderators) and then built a theory that could predict the impact of digitalization on WTA effects in the sports industry. This involved a particular kind of formal reasoning, supported by research from multiple disciplines and real-world applications, using method theories and deductive reasoning to explain relationships between key variables, facilitated by theories in use.

Some authors argue that the existing network effects in digital platforms lead to WTA dynamics, which poses a threat to competition (Carballa Smichowski, 2018; Szreder, 2021). On the other hand, other researchers have minimized the significance of the WTA phenomenon and related factors (Evans & Schmalensee, 2017; Inoue, 2019). In this regard, there are two main contrast assumptions raised, which require further testing (Efron, 2004): the null Hypothesis (H0) and the Alternative Hypothesis (H1).

H0: Digitalization does not impact and accelerate the WTA effect dynamics in the sports industry

H1: Digitalization accelerates and increases the WTA effect dynamics in the sports industry

Sports markets have been disrupted by digitalization and the emergence of multi-sided platforms (a service or product that directly or indirectly connects two or more stakeholders). After having discussed all the existing arguments from the literature for and against the existence of WTA dynamics, we demonstrate that there are reasons to argue that the sports industry can be considered as the WTA industry, where network effects are enhanced by the snowball effect (Carballa Smichowski, 2018; Netland et al., 2012).

The snowball effect refers to a situation in which a small initial advantage or disadvantage grows larger over time, and can be used to describe how a team or player that starts winning or losing tends to continue doing so. For example, in the sports industry, the snowball effect can exacerbate the WTA dynamic.

In terms of digitalization, the snowball effect could exacerbate the WTA effect in the sports industry. Digital technologies such as big data analytics and advanced scouting can give teams and players an advantage in terms of training and performance, and the teams and players that can access and utilize these technologies are more likely to win. This could lead to a situation where particular “equipped” teams or players dominate the competition, while others struggle to keep up.

In the professional sports industry, the network effect can play a role in the WTA phenomenon in several ways. (1) Sports organizations (for example, a football club) that are consistently successful tend to have a larger fan base and generate more revenue, which can give them a financial and reputational advantage over their competitors (Glebova et al., 2022). Consequently, it allows them to afford better players, coaches, innovations, and facilities, which can further improve their chances of winning. (2) “Winners” (leading athletes, teams, and

players) often have more opportunities to participate in high-profile events and gain exposure, which can attract more fans and increase their visibility. This can lead to more endorsement deals, merchandise sales, personal and team brand promotions, and other revenue channels. (3) A successful team can also attract top talent, which can include athletes, coaches, scouts, managers, marketers, and other staff members.

In this way, the network effect can amplify the WTA phenomenon in the professional sports industry. Subsequently, the snowball effect can also amplify the network effect and WTA dynamics. Furthermore, the snowball effect can accelerate the network effect in the sports industry by creating a self-reinforcing cycle of success. For example, when a team or player starts winning, they gain a competitive advantage in terms of the fan base, revenue, and exposure, which can, in turn, give them an even bigger advantage in terms of resources and talent.

The sequence is simple: an athlete who starts winning may attract more fans, which leads to increased ticket sales, influencer marketing channels, merchandise sales, and other revenue streams. Thus, the increased revenue can be invested to acquire better coaches and facilities, which can help the athletes continue to win and grow professionally, both in sports performance and in image.

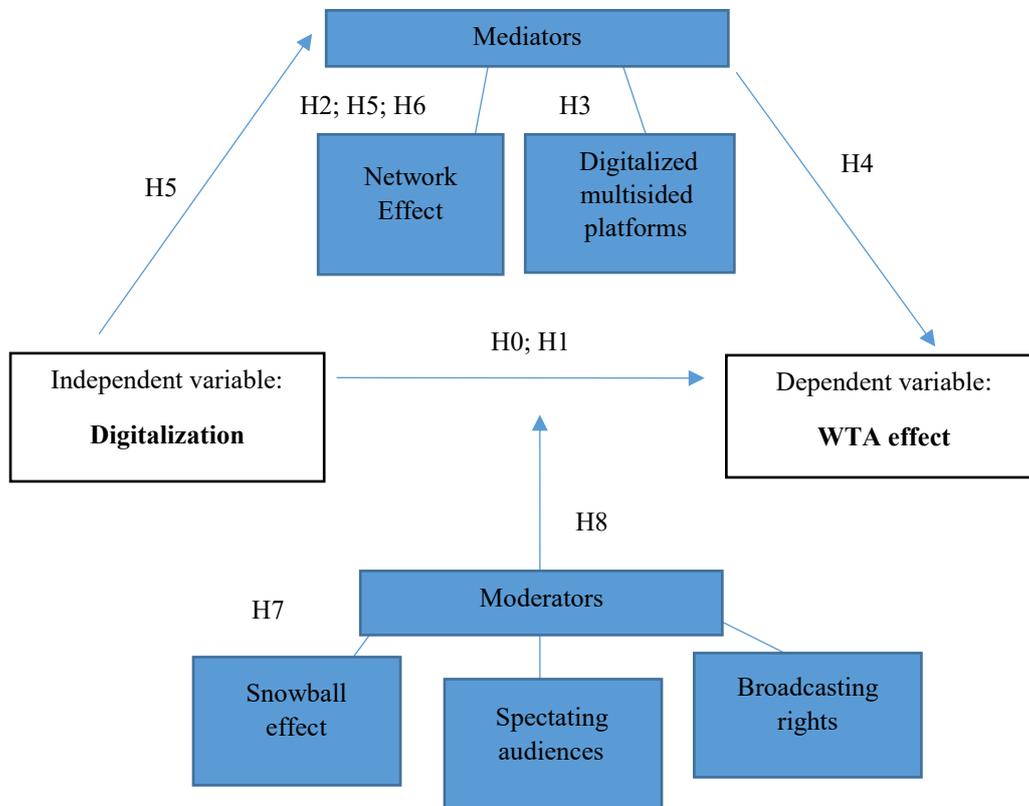


Figure 1. Conceptual modeling at an intersection of digitalization and WTA effect

Note: H (hypothesis)

Generally speaking, the more the team wins, the more fans they attract and engage and the more revenue they generate as a result. This can further enhance their competitive advantage on the sports battlefield and marketing battlefield (successful players can attract more endorsements, sponsorships, and media attention; this can lead to increased popularity and revenue for the player, which can further enhance their performance and belonging to a “higher league”).

Subsequently, mediating variables (mediators: network effect, digitalized multisided platforms) explain the process through which digitalization and WTA are related, while moderating variables (moderators: snowball effect, spectating audiences, broadcasting rights) affect the strength and direction of that relationship (Gunning & Rossi, 2022). Mediators (network effect and multi-sided platforms) are causal results of the independent variable (digitalization) as well as a preceding effect of the dependent variable (WTA effect). This leads us to construct the following hypotheses:

H2: The level of digitalization in the sports industry increases network effects

H3: The dissemination of multi-sided platforms in the sports industry is increased by digitalization

H4: The network effect in the sports industry positively affects the WTA effect

H5: Digitalization leads to an increase in the network effect

H6: An increase in the network effect leads to a growth in the WTA dynamics

H7: The snowball effect accelerates the H1

H8: Spectating audiences and broadcasting rights impact the relationship between digitalization and WTA dynamics

The observed literature mostly discusses indirect aspects of WTA dynamics in sports digitalization. Indeed, this research is so far merely theoretical and mostly provides empirical evidence about the network effect and WTA dynamics, in general, and also in sports (broadcasting, spectating audiences).

Conclusions

Overall, the winner-takes-all effect in the sports industry can lead to increased investment in technology, a greater focus on fan engagement, facilitated content access, the dominance of streaming platforms, and the development of new business models, which can accelerate the process of digitalization in the sports industry.

This process can accelerate due to the WTA effect in several ways. First, the technology is readily available to all organizations, so no matter how small or large they are, they can take advantage of it. Second, the increasing

popularity of sports has made them more susceptible to market forces, which, in turn, has driven up the costs of acquiring and using digital technology. This has forced smaller organizations to seek innovative and cost-effective ways to digitize their operations in order to remain competitive. Finally, the winner-takes-all effect has created a sense of urgency among sports organizations to digitize their operations in order to stay ahead of their competitors. Furthermore, the formulated hypotheses suggest that, by analysing key variables, a theory has been built to predict the impact of digitalization on the WTA in the sports industry. The ideas presented in this conceptual paper can be used as a starting point for further research or as a way to introduce a new perspective on an existing field of study.

In conclusion, the intersection of digitalization and sports media consumption is an important and rapidly developing field of study. However, there is currently a lack of a unifying theoretical framework to guide this research. Adopting a communication and media studies perspective can provide valuable insights into how digital technologies have changed the sports media landscape, as well as the relationships between stakeholders. Further research in this area will help to better understand the impact of digitalization on sports media consumption and ultimately inform the development of effective strategies for the digital transformation of the sports industry. In this paper, by developing hypotheses about the impact of digitalization on sport consumption through the prism of the stakeholder approach, we suggest prospective research directions and an agenda, as well as a conceptual analysis of the impact of digital transformation on the sports industry. These results invite scholars to pursue research on competitive sports market dynamics in digitalized sectors of the industry and to produce more complete and precise empirical evidence.

Ethics approval and informed consent

This paper is not reporting studies on human subjects, human data or tissue, or animals. It has been written with integrity, fidelity, and honesty. The authors take full responsibility for this manuscript.

Competing interests

The authors have no competing interest in commercial associations or financial interests to declare.

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Philosophy of Sports: Analyzing Sports Effects for Leadership Excellence

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
- D) manuscript preparation
- E) obtaining funding

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Abstract

Leadership effectiveness is one of the significant concerns in the business world. While attaining goals, leaders offer direction, encouragement, and inspiration. They aid in creating a vision and uniting people behind a common goal. The literature on leadership has shown that leaders are less effective, affecting organizations, the environment, and society. This ineffectiveness is believed to be due to their rigidity, arrogance, narcissism, and ill-being. The research on leadership has shown that, among other factors, stress is one of the leading causes of this inefficiency, affecting leaders' well-being, attitude, relationships, and organizational productivity. As a result, leaders have poor awareness of how their environment is evolving. For that reason, stress management and a leader's well-being (mental and physical fitness) become the primary concern for business organizations. Leaders are the frontrunner of organizations, leading organizational objectives such as profit maximization, continuous improvement, employee management, and stakeholder satisfaction. In order to manage the corporate goal and workplace stress, they must ensure their well-being (mental and physical fitness). This paper proposes sports to enhance leaders' well-being and team-building 'we' attitudes, which help leaders to improve the organizational productivity. This paper employs content analysis methodology to justify how sports enhance leadership effectiveness. The time has come to understand the philosophy of sports, which has several benefits that guide practitioners to maintain a balance in their professional and personal life. This paper highlights sport as a vehicle for social change and personal development in leadership effectiveness.

Keywords: Philosophy of sports, leadership development, team building, wellbeing

Introduction

Maintaining, sustaining, and leading organizations successfully is one of the challenges for contemporary leaders. The literature on leadership has shown that "*leaders at all levels of organizations are under ever-increasing pressure because of the competitiveness and complexity of the global economy*" (Roche et al., 2014, p. 467). For that reason, they go through stress that affects their well-being,

relationships, and effectiveness. Pressure at the workplace is standard for practitioners; it becomes a center of debate when it affects organizational productivity. Neglecting employee and leader stress at the workplace will cost organizations productivity, efficiency, medical costs, and compensation, among other things. They are the frontrunners of organizations, leading organizational objectives such as productivity, customer satisfaction, brand values, and employee satisfaction (Kanungo & Mendonca, 1996;

Razak & Muhamad, 2022). In order “to succeed in today’s world, organizations should invest in developing their leaders’ skills, capacities, and knowledge” (Naderi, 2019, p. viii) and make them able to manage workplace stress. As Sison and Fontrodona maintain, a good business organization is “one that is well-governed, and that makes its members good” (2013, p. 612). Several studies prove that well-being is one of the keys to organizational productivity (Grawitch et al., 2006; Van De Voorde et al., 2012; Malinen et al., 2019). To achieve this, organizations should adopt practices that prevent or minimize workplace stress, help employees and leaders to overcome it and enhancing their leadership effectiveness. Organizational productivity depends on leadership effectiveness. In order to be an effective leader in the twenty-first century, one must strike a strategic balance between short-term and long-term business goals. To enhance this balance accordingly, leaders must have five qualities: well-being, a team-building (‘we’) attitude, a decision-making capacity, a sustainable approach, and strategic development (see Figure 1) (Oyinlade, 2006; Amanchukwu et al., 2015; Shanafelt, & Noseworthy 2017). In order to enhance these aspects in business leaders, organizations started adopting strategies like training, coaching, and

performance reviews (Ulrich & Smallwood, 2013). Unfortunately, nothing works effectively, and organizations and leaders should understand that these aspects cannot be achieved through such strategies. The time has come to realize that to achieve the elements mentioned above, leaders must be physically and mentally fit; well-being is the foundation for leadership effectiveness (see Figure 1). As mentioned in Figure 1, well-being is the foundation element and leads other features in achieving efficacy. This paper suggests sports to enhance these aspects and the well-being of leadership, as it is a vehicle for social change and personal development. Leaders can learn many things from sports by being team members, like creating plans and collaborating with teammates to ensure success. A leader who participates in sports is more equipped to inspire others, set practical goals, and find effective solutions to challenges in order to gain a competitive edge. Sports enhance leaders’ effectiveness, provide a road map, and inspire team members to achieve a common goal that is good for all. For several reasons, the time has come to understand and incorporate sports philosophy into daily life. Sport encourages physical and mental activities, helping leaders achieve mindfulness and resolving workplace stress.

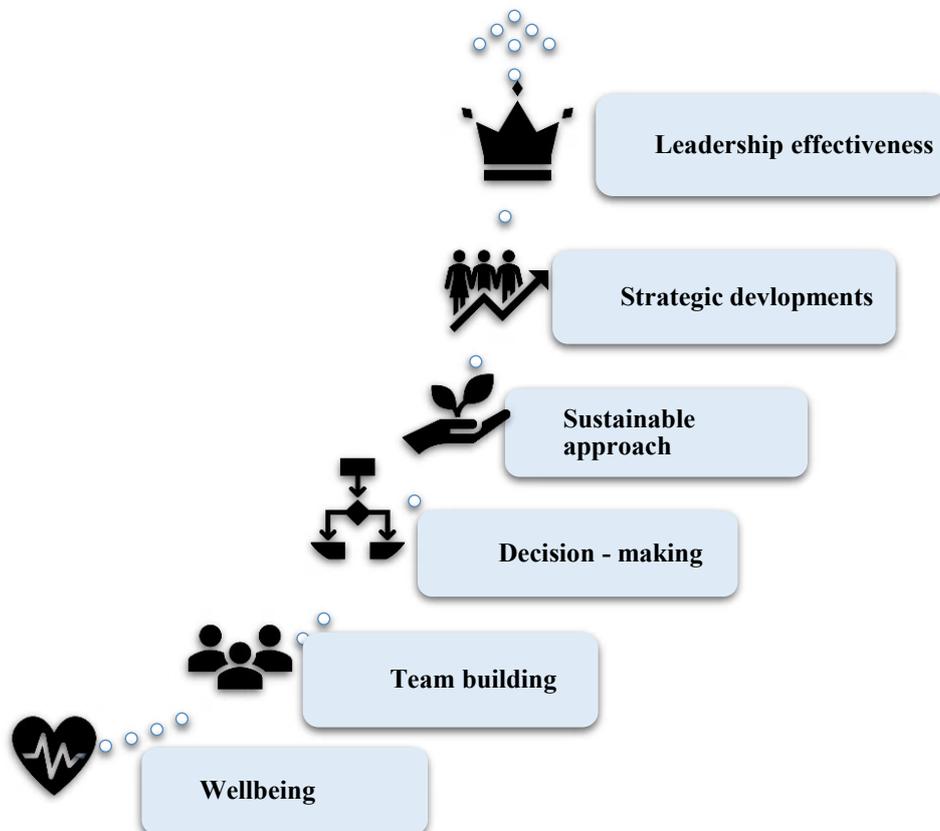


Figure 1. Five aspects of leadership excellence

Source: Own study.

Methods

A qualitative methodology based on content analysis of literature was used in this study to investigate features of sports practices for leadership well-being (physical and mental fitness). Content analysis is a research method used to analyze and interpret the content of various forms of communication, such as written texts, speeches, or media. It provides valuable insights into patterns, trends, and underlying meanings within the analyzed content, making it useful in social sciences, communication studies, and philosophical research. This study also shows the value of a ‘we’ attitude for team building to enhance leadership excellence and organizational productivity. However, the background of the study is created by looking through the secondary literature on sports and leadership effectiveness. It is grounded in secondary sources, such as articles, books, and other websites.

Results

We used qualitative methodology based on narrative analysis to interpret sports for leadership to resolve workplace stress and enhance effectiveness. The detailed discussion depicts sports philosophy, focusing on physical and internal exercise, and broadly speaks about oriental discipline. Sport is a vehicle for personal development, which helps leaders to achieve physical and mental well-being. Sport is a method of self-discovery that combines physical activity, competence, commitment, and character. It helps to build resilience, boost emotional intelligence, improve creative capacity and thinking ability, and make practitioners focus. These qualities help leaders to build strong relationships with their followers and customers, while stress narrows one’s perspective and diminishes one’s relationship with others. Sports also help to gain psychological capital. Hence, practicing sports is essential for business leaders. It is a therapeutic practice – one might establish a mental state by focusing on the present moment while calmly noticing and accepting one’s feelings, thoughts, and bodily sensations. Additionally, it enhances concentration, self-confidence, and self-control, and guides practitioners to follow ethical ways when faced with challenging situations. In order to maintain workplace stress, leaders should behave like a sportsperson, which helps leaders to manage organizations effectively. Sports simultaneously improve the intellectual, emotional, and spiritual levels, which allows leaders to manage stress and, as a result, enhances their effectiveness. Its benefits cognition, attention to vigorous intensity, and stress reduction. In order to make leaders stress-free and effective, organizations should adopt sports in their curricula. Employee well-being is one of the keys

to organizational productivity. In the competitive world, a small but growing number business executives are moving towards these practices. The literature on leadership has shown that eminent business persons move towards different physical activities to enhance self-confidence and self-resilience, such as Dan Schulman (PayPal CEO) – Krav Maga, Adena Friedman (Nasdaq CEO) – Taekwondo, Elon Musk, and Fredrik Eklund among others. Fredrik Eklund, one of the famous figures in the U.S. business world, once said, “*He often performs a karate high-kick before he walks into the room. When asked why, he pointed out that it was a great way to release stress and mentally prepare himself for a big business meeting*” [2015]. The time has come to highlight the significance of physical activity, for business leaders to speak out about the benefits of physical activity, and to influence others to adopt it in their daily activities and organizational strategies. In order to manage workplace stress, business leaders should encourage physical activity among their employees by offering on-site gyms or fitness classes, providing standing desks, or facilitating walking meetings, since incorporating sports into daily life can offer many benefits to business leaders and employees, including improved physical health, reduced stress levels, increased social connections, and improved work performance, leading to improved organizational productivity.

Discussions

Leadership studies is a significant field in business research and much effort has been put into defining the nature and characteristics of leadership in the business world. Leaders are one of the significant pillars in business organizations; their activities justify whether organizations succeed or not. They are the frontrunners of organizations, leading organizational objectives and influencing employees to achieve common goals. Studies have shown that “*these men are charged with the responsibility of giving direction and the unity to the effort of any who participate in economic activity*” (Gordon, 1966, p. 3). For that, leadership effectiveness becomes the center of debate for practitioners, researchers, and activists. Accordingly, several scholars highlight this concern in their work (Barker, 2001; Antonakis et al., 2004; Trottier et al., 2008; Yammarino & Dansereau, 2008; Ahmad & Ibrahim, 2015; Guzmán et al., 2020), yet many of them have focused on empirical questions regarding the nature, style and characteristics of successful leaders. Several kinds of literature on leadership have shown successful leaders for successful business organizations (Weinberg & McDermott, 2002). Accordingly, organizations started to adopt training workshops, guidelines, reviews, and so on, to enhance leadership effectiveness. Unfortunately,

nothing works effectively; the time has come to understand that such strategies are ineffective in improving leadership effectiveness. Leadership is an ever-challenging position in the business world, where following any strategy is quite challenging for business leaders. In order to achieve excellence, leaders should maintain several qualities. Leadership effectiveness is multidimensional; “*Leaders must exhibit trust, vision, and communication skills and can handle pressure*” (Weinberg & McDermott, 2002, p.284). Additionally, they should develop relationships between employers and employees, since building relationships with subordinates is essential to leading successfully (Weinberg & McDermott, 2002). Literature in the field of leadership has shown that business leaders are currently more self-centric, which, due to extreme work pressure in a highly competitive market, affects relationships with their subordinates, team-building, and organizational productivity. Studies have shown that stress reduces the subordinate relationship (Creel, 2001; Schultchen et al., 2019), which affects personal and professional relationships and their effectiveness. As a result, they start to deteriorate, affecting the environment, organizational productivity, and society, in general. It is necessary to understand that to manage leaders effectively they must have well-being and a ‘we’ (team-building) attitude. ‘We’ attitude is one of the essential qualities for team-building; it enhances leaders’ positive attitude, communication, and employee collaboration and planning skills, which make leaders more effective. Leaders should understand that leadership is a two-way process of communication (Gardner, 2000; Allen & Carthy, 2017). They should engage, involve, and motivate employees to create a culture where the ‘we’ attitudes are enhanced. In order to achieve this, they must have mental and physical fitness. This paper suggests sports as a method for enhancing well-being and ‘we’ attitude among leaders, indirectly improving leadership effectiveness. Several studies in sports and business depict leaders’ significance in leading successfully (Jones, 2002; Kim et al., 2012; Di Simone & Zanardi, 2021). Both sports and business researchers highlight the significance of personal development; they are role models for their teams. Additionally, business leaders can learn a great deal from practicing sport. Sport is a vehicle that enhances team-building, decision-making capacity, relationships, and strategic development. Additionally, it improves mental and physical fitness, helping leaders to resolve workplace stress (Baker et al., 2003; Schulenkorf, 2012; Wisnu et al., 2022).

Sports have been a part of human civilization for thousands of years. Over centuries, sports have evolved and transformed, with new forms gaining and losing popularity. In the 21st century, sports have become a global phenomenon, with millions participating worldwide. Several studies have shown that sports are of increasing

interest in recent years for individual and public health (Smith et al., 2022; Taylor & Garratt, 2010; Moustakas et al., 2023). The twenty-first century has shifted sports toward a more data-driven approach. With the advent of advanced statistics and analytics, coaches and athletes can track and analyze performance metrics in real time, providing valuable insights that can inform practitioners about their training, strategies, and decision-making. Another trend in recent years is the increasing focus on athletes’ physical and mental health. Figure 2 depicts the comparison of four scales in student-athletes and non-athletes. In a survey conducted by Kenari (2014), four mental health scales were calculated separately. The findings confirmed that athletes have good mental health when compared to non-athletes (see Figure 2). Additionally, several kinds of literature (Downs & Jennifer, 2011; Malm et al., 2019; Baniyasi & Salehian, 2021) have proved that athletes and practitioners have good mental and physical health compared to others. As a result, the demand for sports has increased and, at the same time, the form and types have changed, according to the wishes of practitioners. Different sports are played worldwide, each with unique rules, equipment, and culture. The most popular sports include football (soccer), basketball, baseball, hockey, tennis, and golf. Other popular sports include cricket, rugby, volleyball, and swimming. In addition to traditional team and individual sports, many emerging forms of athletic competition have gained popularity recently, such as snowboarding, skateboarding, parkour, and e-sports, which involve competitive video gaming. As a result, researchers and practitioners move their focus to sports. Whilst sports are not a new area of research, several scholars (Laborde et al., 2016; Malm et al., 2019; Bilohur & Andriukaitiene, 2020) interpret sports in different fields. However, using sports for business leaders to manage workplace stress and leadership effectiveness is something new.

As discussed in the section above, leadership is challenging, and stress and challenges are common factors. In order to stay fit and maintain well-being, leaders should adopt sports and incorporate them into their daily activities. This will indirectly help practitioners to manage the stress that enhances leaders’ personalities. Sports have both physical and mental benefits that aid individuals in developing their character. Unfortunately, many individuals misunderstand sports, thinking they are all about physical fitness and health. Fewer individuals are aware of the psychological aspects of sports. Regarding its impact on health, sport is a double-edged sword. Physical exercise is one of the primary concerns for more sports; sports have numerous side impacts, like psychological development and personal growth (Nowak, 2014; Fraser-Thomas & Strachan, 2015; Eime et al., 2023). Sport has been recognized as a vital aspect of leading a healthy lifestyle.

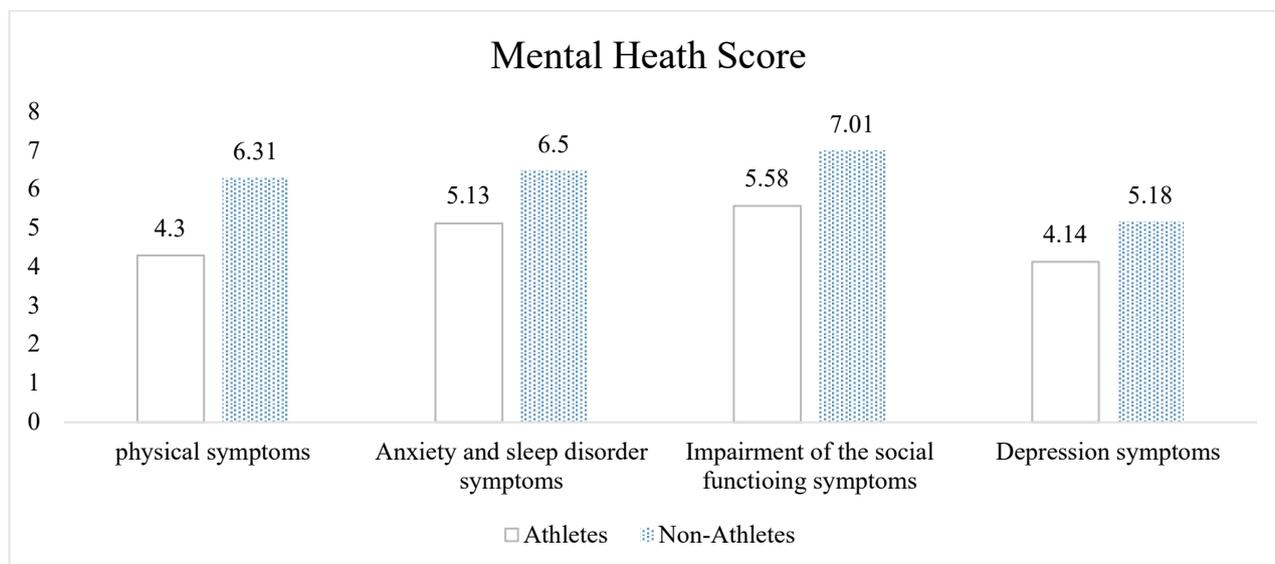


Figure 2. Comparison of four scales in student-athletes and non-athletes

Source: (Kenari & Morteza Alibakhshi, 2014)

Physical activity and exercise are essential for maintaining good health, and sports provide a structured and enjoyable way to achieve this. In addition to physical benefits, sports can positively affect mental health and well-being.

This section will explore how sport enhances both physical and psychological well-being. Sport offers a range of physical benefits, including improved cardiovascular health, enhanced strength and endurance, weight management, and reduced risk of chronic disease (Durstine et al., 2000; Haskell et al., 2007; Durstine, 2013). Participating in sports can also improve bone health and reduce the risk of osteoporosis (Andreoli et al., 2001; Nichols et al., 2007). Sport also helps to improve body composition, as it can help to build muscle mass and reduce body fat. Regular exercise can also help to manage weight and maintain a healthy body mass index (BMI). Additionally, sports can help to increase stamina and endurance, making it easier to perform daily activities. As well as the physical benefits, sports can positively impact mental health and well-being. Physical health and mental fitness are interrelated, and one affects the other, “*if the mind is relaxed, the muscles in the body will also be relaxed*” (Prashad, 2004, p. 191). Similarly, if the body is relaxed, the mind will be relaxed. It is necessary to understand that “*physical activity and exercise have significant positive effects in preventing or alleviating mental illness, including depressive symptoms and anxiety- or stress-related disease*” (Malm et al., 2019, p. 1). Studies have shown that practicing sport reduces stress and mental illness. Sports offer an opportunity to engage in social interaction, which can improve mood and reduce feelings of loneliness and isolation. Playing sports also provides a sense of accomplishment and self-esteem,

which can help combat depression and anxiety. Studies have shown that, exercise release endorphins, the body’s natural feel-good chemicals, which can help improve mood, reduce stress and anxiety, and promote well-being (Mathew & Paulose, 2011; Chow et al., 2012; Samełko et al., 2023). A survey conducted by Malm et al. depicts “*sport’s physiological and psychosocial health benefits, stemming both from physical activity and sports participation per se*” (2019, p. 1). Moreover, playing sports can improve cognitive function, including memory, attention, and decision-making. Regular physical activity has been shown to improve brain function, including increasing blood flow to the brain and promoting the growth of new brain cells. This can help to improve mental clarity and focus, making it easier to manage daily tasks and improve overall cognitive performance. The above discussion shows that sports have several benefits that boost overall health, including physical and mental fitness, which indirectly helps individuals to reduce stress (Wankel & Bonnie, 1990). In order to manage workplace stress, leaders should focus on physical and mental health. For that, leaders should incorporate sports into their regular activities. Along with physical and psychological well-being, sports also build resilience, develop teamwork skills, and enhance personality, self-awareness, self-confidence, and concentration; they also help practitioners focus, enhancing self-improvement and self-discovery that directs leaders towards effectiveness. According to a survey by Malm et al. (2019), robust scientific evidence establishes a strong connection between engaging in physical exercise or training and experiencing positive physical and mental health outcomes.

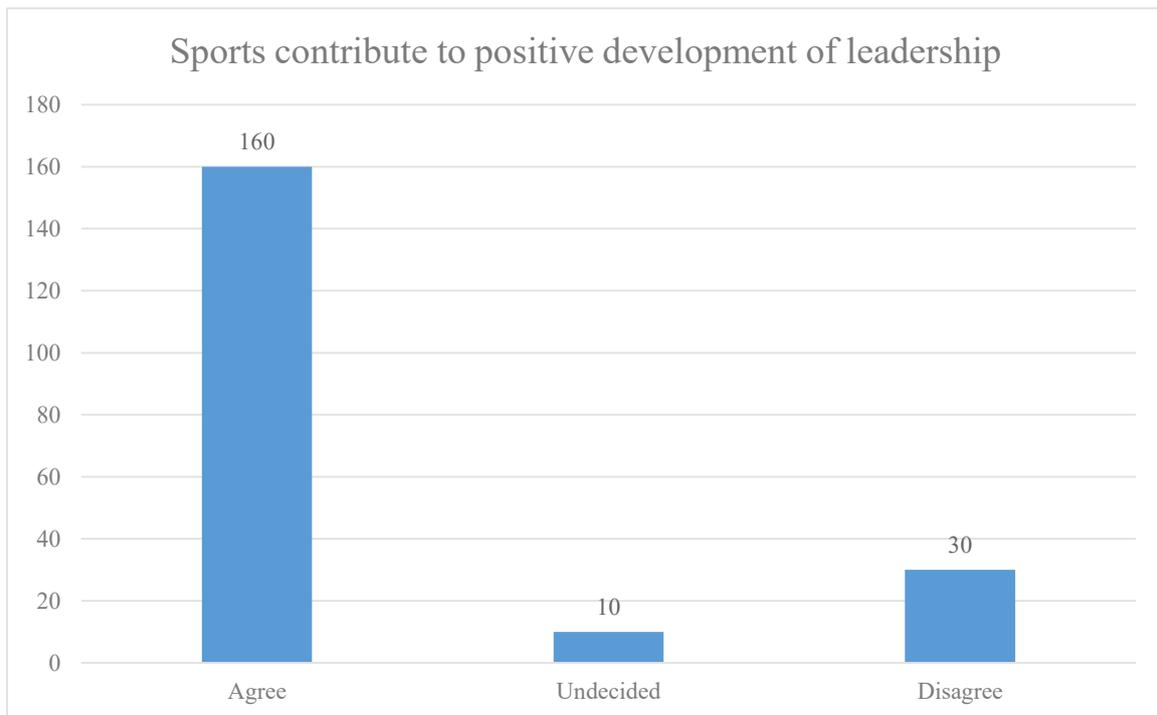


Figure 3. Sports Effect on Leadership Development

Source: (Kim Dong Hak, 2022)

In order to enhance leadership effectiveness, business leaders should train as systematically as athletes (Loehr & Schwartz, 2001). Business leaders and sports athletes have similar journeys of discovery (Orlick, 2015). Of course, sport is not a business, but there are some interesting similarities that business executives should learn from sports (Laurent & Bradney, 2007). The literature on sports has shown that sports provide a more comprehensive approach to leadership development than most management and leadership development programs (Frawley, 2018). Leaders learn about building resilience from sports; sports require dedication, perseverance, and the ability to handle setbacks. Business leaders who participate in sports can develop these qualities, which can help them overcome challenges in the workplace. Sports depict the strength of the team to achieve a common goal. Business leaders who participate in sports can develop their ability to work collaboratively with others, which is essential for success in many business settings. It simultaneously enhances leaders' 'we' attitude and helps them to build a solid team to achieve the common good. In order to maintain these 'we' attitudes, leaders should depict competence, commitment, and character to their followers. These are the factors that build a strong relationship between leaders and followers. Teamwork and team-building are fundamental qualities that sports teach participants. Teamwork is one of the basic skills for

sports; it inspires members to contribute their fair share, enabling the group to accomplish its primary objective. In order to set an example for their followers and to be productive, leaders need to have aptitudes that help them in building teams. However, a person can acquire the positive leadership traits and conduct required to succeed in a dynamic, challenging workplace by participating in sports. As discussed in the section above, sports promote health and wellness. Business leaders prioritizing their physical health through sports can improve their overall well-being and potentially reduce the risk of burnout. Additionally, it offers opportunities for individuals to develop their leadership skills by taking on roles such as team captain or coach. Business leaders who participate in sports can develop their leadership abilities, which can translate into effective leadership in the workplace. These qualities enhance a leader's decision-making capacity, which is one of the significant aspects in sports that direct participants to tackle challenging situations (Sağın et al., 2022). It also enhances resilience, self-control, and self-confidence, which enable leaders to make decisions during difficult situations. For that, leaders should adopt some practical knowledge for overall enhancement and finally apply it in the field example in decision-making, for example. Effective decision-making requires a multidimensional effort, a strong team, communication, and a self-disciplined attitude. All three dimensions depend

on each other for effective performance. Teams work effectively when leaders can influence their teammates. In order to achieve this, leaders must have communication skills. Such skills are a significant aspect of how leaders inspire, acknowledge, and appreciate the work of their teammates. Along with communication skills, leaders should be self-disciplined, and their activity should be a model for their associates to follow. Sport is a perfect way to achieve this self-discipline. It helps individuals to develop self-control and comprehension on an individual level. Sports provide each participant with different challenges, which means each individual faces a unique set of problems in sports; it helps the practitioners to understand how they fit into the team and how they can each progress individually. The same thing applies to business leaders. These are the qualities that direct them to take a sustainable approach. A sporting attitude helps leaders to realize that business cannot function without the environment and society. In order to sustain themselves in a highly competitive world, business leaders should direct their concern toward the environment and society in which they work. These qualities are enhanced through sports and move leaders towards strategic development

that indirectly resolves workplace stress and improves leadership effectiveness. Sports have a significant impact on leadership development. A survey conducted by Kim Dong Hak (2022) has found that a significant majority of 160 out of 200 participants agreed that sports play a crucial role in developing leadership skills (see Figure 3).

Leaders should incorporate sports into their daily life; it enhances their well-being and improves physical and mental fitness, indirectly guiding leaders in team-building and decision-making (see Figure 4). Well-being and decision-making capacity enhance a sustainable approach that leads leaders toward development (Caddick & Brett, 2014). Through Figure 4, this paper argues that incorporating sports into the lives of leaders has a positive impact on their effectiveness. This model depicts, sports in leadership have a two-way effect: on the one side enhancing well-being through physical and mental fitness and on the other side promoting strategic development through a collective mind-set, effective decision-making, and sustainability. Ultimately, these factors contribute to leaders becoming more effective in their roles as a consequence they are able to manage their organisations in a better way lead towards development.

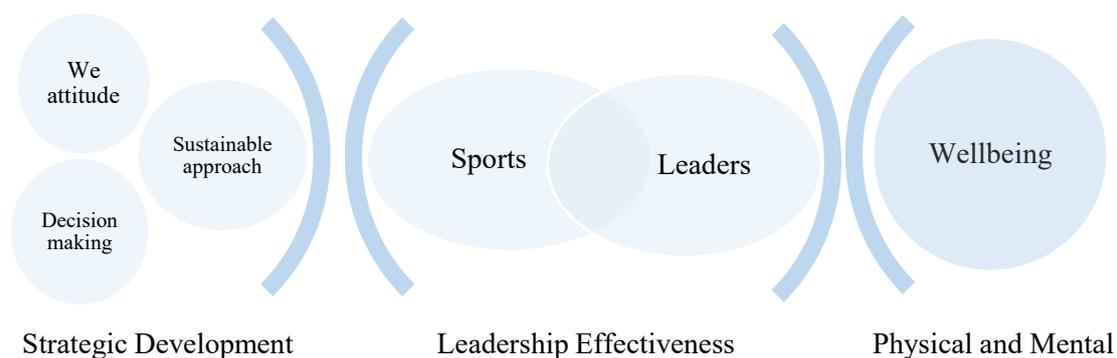


Figure 4. Sports effective for leadership effectiveness

Source: own study

Conclusion

In conclusion, sports offer a valuable lens for analyzing the effects of teamwork and collaboration on leadership, as a shared sense of purpose, open communication, and mutual support among team members often characterize successful teams. Sports also demonstrate the importance of leadership in setting a positive example and motivating others to achieve their goals. Influential leaders in sports and other settings demonstrate a commitment to excellence, a willingness to take risks, and a focus on continuous improvement. In order to achieve that, leaders must have

physical and mental fitness. Well-being is the foundation of other aspects (Figure 1) that lead towards team-building, decision-making, a sustainable approach, and in the end, towards strategic development. Ultimately, there is a positive answer to whether 'we' matter for leadership excellence. In order to enhance this 'we' attitude, leaders should incorporate sports activities into their personal and professional strategies and influence their employees to adopt sports. However, we do not proclaim that this strategy applies to everyone; instead, we merely show a potential new method. In this case, the fundamental presumption is that leaders will enjoy learning lessons from sports

for themselves and enlist the help of sports instructors to convey studies more effectively. Of course, additional research and surveys are required to confirm our findings.

Competing interests

The authors declare no competing interests or financial interests.

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Productive Organisational Energy and Performance in Estonian Football Organisations

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
- D) manuscript preparation
- E) obtaining funding

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Abstract

Sports governance is a broad domain in which many ambitious goals are expected to be considered by top management. Attending to productive organisational energy may be the key to consolidating and amplifying efforts by members of sports organisations at individual, group and organisational levels in order to achieve those wide-ranging goals. The aim of the article is to discover whether Estonian football organisations with higher results for the dimensions of productive organisational energy also show higher performance. Overall, we reached about 14% of the population of players, coaching staff and management from football organisations in Estonia. Productive organisational energy was measured using affective, cognitive and behavioural dimensions (Cole et al., 2012). Rankings in the league tables for 2020, 2021 and 2022 reflected the performance of the football clubs. The results demonstrated that football clubs that had higher levels of productive organisational energy were mostly placed in the top half of the league table. All three dimensions of productive organisational energy were similarly relevant in regard to performance. The connection between productive organisational energy and performance has so far been analysed only in business organisations and in one health service organisation. We brought the topic to the sports context and distinguished three dimensions of productive organisational energy while comparing the performance of organisations, which has not been done before. We also conducted the first empirical study that considers whether dimensions of productive organisational energy are balanced in better performing clubs.

Keywords: Productive organisational energy, organisational performance, sports organisations, football, team management

Introduction

The bar for sports governance is quite high, as democracy and participation, ethics, and integrity, as well as accountability and transparency are all expected (Muñoz et al., 2023). Therefore, there is an abundance of possible ways to measure the performance of sports organisations. For example, one could consider financial aspects, human

resources, communication with members and the public, performance of athletes and teams, and the skills of staff, among other things (Madella et al., 2005; Winland et al., 2010; Koski, 1995). Whatever aspects we take into account, according to the meta-analytic review by Van Iddekinge et al. (2023), the main contributor to performance is the effort of organisational members. This means that, with all the financial and human resources, with the

best facilities and other conditions, top results are not achieved when organisational members do not cooperate. Moreover, fluctuations in performance for seemingly no reason are a reality, especially in sports (Solomon & Malik, 2022). Therefore, the role of the psychological side of performance is increasingly coming to light in recent studies about sports (Gécsi et al., 2022; Boyd et al., 2018). Consequently, it is important to find concepts that help us understand the mechanisms that mobilise people to perform their best, whatever the criteria for measuring performance. One of these certainly under-researched aspects especially in the sports sphere is productive organisational energy (henceforth POE). Among other important concepts of organisational behaviour that could be considered for mobilising organisational members (e.g. work engagement, organisational culture etc.), POE stands out because of its unique ability to manifest at individual, group and organisational levels, and to act as a link between the mentioned levels (Vogel, 2017; Schiuma et al., 2007). It is also valuable for its ability to amplify the joint efforts of organisational members (Schiuma et al., 2007; Vijayalakshmi & Bhattacharyya, 2012). As Pain and Harwood (2008) stress, well-coordinated individual, team and organisational efforts are crucial in sports. Hence, we find it appropriate to select POE as our research focus.

Energy, according to Schiuma et al. (2007), is something that reflects “the power, the drive, the ‘get up and go’ to overcome problems at work, to dispel tiredness and to go the extra mile” (p. 69). In the literature, at the collective level, this kind of energy is called POE. We draw on: 1) Interaction ritual theory, which illustrates how joint encounters and experiences encourage solidarity and shared energy among people (Collins, 1993) and 2) Social contagion theory, which expresses how emotions, attitudes and behaviours can transmit among individuals (Owens et al., 2016).

Prior research proved that POE is connected to the performance of the organisation (Schudy & Bruch, 2010; Cole et al., 2012; Kipfelsberger et al., 2019; Owens et al., 2016). However, previous studies have been conducted based on a wide range of sectors in business organisations (Schudy & Bruch, 2010; Cole et al., 2012; Kipfelsberger et al., 2019;) and one single health organisation (Owens et al., 2016). However, we argue that it is very important to pay attention to POE, specifically in team sports organisations, because POE covers both collective aspects and psychological aspects. Thomas et al. (2019) highlight that the collective side of it is more relevant in team sports than individual sports. Duarte et al. (2012) illustrate this by conceptualising sporting teams as “functional integrated super-organisms”. From the psychological side, high energy levels can assist, for example, in terms of psychological momentum (Mach et al., 2022), team confidence (Fransen et al., 2015). For these reasons, our first contribution to

the field is to investigate whether POE and performance are connected in sports.

Our second novel contribution is to distinguish three POE dimensions in the context of researching performance. Studies so far have looked at the aggregated POE value in their analysis (see, for example, Schudy & Bruch, 2010; Cole et al., 2012; Kipfelsberger et al., 2019; Owens et al., 2016). The authors of the present article find that using only the aggregated value of POE may result in the loss of some important information. It may well be that one of the POE dimensions plays a more important role in performance and another is less relevant, particularly because previous studies were based on business organisations and one on a health organisation. The situation may be quite different in the context of sports organisations, and more precisely football organisations. Consequently, we intend to discover how each of the POE dimensions is linked to performance in football organisations.

The third contribution is proving empirically the proposition by Liebhart (2013) that in order to achieve high performance all three POE dimensions need to be balanced and at a high level. Imbalanced POE dimensions would lead to low performance, according to Liebhart’s (2013) approach. In the mentioned study, mentoring tandems were analysed, but we intend to bring this idea to the organisational level.

The aim of the article is to discover whether Estonian football organisations with higher results for the dimensions of POE also show higher performance. The results of the article provide insights into football club management with regard to whether it is worth monitoring and improving POE in general or a specific dimension of POE in order to achieve better performance. Previous research indicates that the actions of managers matter with regard to POE. For example, ethical leadership increases POE (Grobler & Grobler, 2021) and a transformational leadership style is favourable for POE (Kunze & Bruch, 2010; Walter & Bruch, 2010). Although we use the example of football clubs, the results may be applicable in sports organisations in general. Estonian football clubs are a suitable research subject for the intended research because the clubs in Estonia are relatively small, the level of hierarchy is low, and different members of clubs (owners, management, training staff, players, etc.) are a close-knit community. Therefore, POE can become manifest and take effect. The football clubs in the first two tiers of our football league are also highly comparable due to the relative similarity of other important characteristics (e.g. size, structure, funding, players’ backgrounds, leagues attended, etc). Consequently, Estonian football clubs offer a unique and uniform platform for researching the connection between POE and performance.

The article is organised as follows. First, POE is defined and the elements that describe its nature are introduced. We also explain how POE is related to other con-

cepts of organisational behaviour, which further enables us to grasp the essence of POE. Second, previous study results about the connections between POE and performance are presented. Third, the data, measurement tools and data analysis methods are introduced. Fourth, the results of the study are presented, and finally, the results are discussed, and implications and limitations outlined.

Literature Review

The concept of productive organisational energy

In this subchapter we highlight how POE has been defined by different authors, and explore the similarities and differences in their views about POE. In this way, important elements that characterise POE are presented. We also discuss POE in light of other related constructs and highlight the mechanisms behind its functioning.

The analysis of definitions of POE has revealed that this concept is viewed very similarly by different authors, and in defining POE, researchers have mostly relied on three sources (Cole et al., 2012; Cole et al., 2005; Bruch & Ghoshal 2003). The most well-rounded version of the definition of POE, in our opinion, is presented by Cole et al. (2012), who define it as “the shared experience and demonstration of positive affect, cognitive arousal, and agentic behavior among unit members in their joint pursuit of organizationally salient objectives” (p. 447). We take this definition as the basis of our research because it contains all five vital elements that reflect the nature of POE.

First, POE is a collective phenomenon that is characterised by “shared experience” (Cole et al., 2012), “joint experience” (Schudy & Bruch, 2010; Borowik, 2013) or “common pursuit” (Walter & Bruch, 2010) in definitions by different authors. Work-related keywords are mostly mentioned in different POE definitions. For example, “unit members” (Cole et al., 2012), “staff” (Borowik, 2013), and “employees” (Walter & Bruch, 2010), but also a more general approach has been taken when pointing out “members of a collective” (Cuff & Barkhuizen, 2014; Schudy & Bruch, 2010), which could also apply in a non-work context, like charity work or sports.

Second, POE is multi-dimensional and contains affective, cognitive and behavioural dimensions (Cole et al., 2012). Sometimes, instead of “affective” the term “emotional” is used (see, for example, definitions based on Bruch & Ghoshal, 2003, and Cole et al., 2005). The affective dimension reflects feelings and emotions, the cognitive dimension entails intellectual processes in order to find constructive solutions to problems and generate good ideas, and the behavioural dimension means concrete actions towards making things happen (Cole et al., 2012).

Third, POE is multi-faceted. In the definitions, it is mostly referred to as a positive phenomenon (Cole et al.,

2012; Cole et al., 2005; Bruch & Ghoshal, 2003), but in wider discussions its negative side is also developed. For example, Quinn et al. (2012) argue that energy can be energising but also de-energising. Similarly, based on research of mentoring tandems, Liebhart (2013) found that overly high energy brings overly high intensity and can cause exhaustion. Along the same lines, Bruch and Ghoshal (2003) discuss the importance of the quality of energy and conclude that negative energy can cause aggression and resignation, depending on whether the intensity of the energy is high or low.

Fourth, POE embodies a kind of strong collective striving referred to as “pursuit” (Cole et al., 2012); “effort or endeavour to reach” (Borowik, 2013), “mobilization” (Walter & Bruch, 2010) or “intense force” (Kunze & Bruch, 2010) in definitions. As Quinn and Dutton (2005) explain, in order to transform the energy that people have into performance, some kind of effort is needed. What is more, individuals can invest only as much effort as they have energy to spend (Schiuma et al., 2007).

Finally, POE is capitalised on in order to achieve objectives (Cole et al., 2012), goals (Cole et al., 2005) or targets (Borowik, 2013). Cole et al. (2012), Cuff and Barkhuizen (2014), and Schudy and Bruch (2010) in their chosen definition emphasise that the objectives are salient. Borowik (2013) and Walter and Bruch (2010) mention just targets or goals without indicating that these goals need to be outstanding, and Kunze and Bruch (2010) do not mention goals in their chosen definition at all.

It is important to note that all five of these POE elements are also manifested in other concepts of organisational behaviour. For example, while POE is a collective phenomenon, so are organisational culture (Preskar & Žižek, 2020) and group cohesion (Cole et al., 2012). Similarly, multi-dimensionality is nothing unique, as many concepts of organisational behaviour have different dimensions (e.g. work engagement (Schaufeli et al., 2002) and burnout (Maslach & Leiter, 2008 etc)). Moreover, the affective, cognitive and behavioural dimensions are precisely prevalent also at the individual level through attitudes (Jain, 2014) and at the group level through relational energy (Owens et al., 2016).

POE is mostly discussed in the positive context but can also have negative consequences, as discussed before. Similarly, work engagement is considered predominately a positive phenomenon (Schaufeli & Salanova, 2011), but some authors believe it can also have a dark side in the form of workaholism, problems with work-life balance, etc. (Bakker & Demerouti, 2008). The existence of a strong drive to achieve goals is a similar characteristic in POE and, for instance, work motivation (Quinn et al., 2012), and also work engagement (Owens et al., 2016).

A thorough overview of the similarities and differences between POE and other concepts can be found, for exam-

ple, in Cole et al. (2012), Owens et al. (2016), Quinn et al. (2012) and Alexiou et al. (2019). A short generalisation from this is that despite obvious similarities with motivation, work engagement and others, POE is still considered a distinct concept which of course has correlations with other similar constructs.

As mentioned in the introduction to this article, organisations, especially sports organisations, gain considerable benefit from moving from a more individual-based approach to collective approaches like POE. Of course, we still value aspects at the individual level, such as high work engagement, motivation, organisational commitment, job satisfaction, positive attitudes, and so on, but the next step is to ensure that positive individual level attitudes and behaviours spill over to the collective level. Therefore, the collective result is not just the sum of individual results but possibly greater (Schiuma et al., 2007; Vijayalakshmi & Bhattacharyya, 2012). This can be explained using two theories: 1) interaction ritual theory (Collins, 1993) and 2) social contagion theory (Barsade, 2002). Interaction ritual theory proposes that individuals are drawn to and reach out to interact with other individuals that enable them to elevate their feelings (Owens et al., 2016; Quinn et al., 2012). For example, a spectator gets a much bigger rush of emotions when watching a sports competition with others. Social contagion theory, as the name suggests, manifests how people spread their emotions, attitudes and behaviours among each other (Owens et al., 2016). Consequently, in team sports, for example, every member of the team matters because they affect others positively or negatively (Vijayalakshmi & Bhattacharyya, 2012).

For example, when one or several players have a positive mindset and cheer the others on, this may help the team to win. Both interaction ritual theory and social contagion theory are highly relevant for explaining the nature of POE.

Connection between productive organisational energy and performance

In their meta-analytic review, Van Iddekinge et al. (2023) argue that the most vital basis of performance is effort. Based on their analysis, they also maintain that several individual, group and organisational level factors contribute to the willingness of organisational members to exert effort. For example, work engagement, motivation, group cohesiveness, leadership organisational culture, and others, are all found to be relevant here. However, what is special about POE is that it covers all the mentioned levels. Meaning that individual level energy spills over to the group level and group level energy, in turn, contributes to organisational level energy (Vogel, 2017; Schiuma et al., 2007). What is more, POE can serve as a link between factors at different levels and help to spread emotions, statements and actions. POE also amplifies organisational members' efforts, as discussed in the previous section of the article and which is illustrated by the bold arrow in Figure 1.

The connection between POE and performance seems logically derivable from the definition of POE. Naturally, if organisational members are jointly and energetically pursuing (exceptional) organisational goals, the end result is bound to reflect that. In addition, high performance

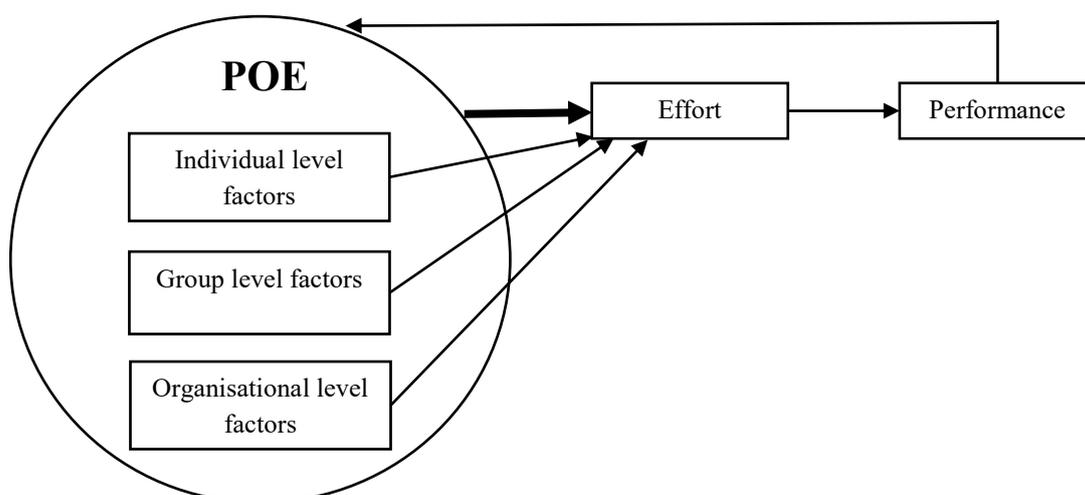


Figure 1. POE as a connecting link between individual, group and organisational level factors improving the efforts of organisational members and thus laying the ground for performance

Source: compiled by the authors relying on the ideas of Van Iddekinge et al. (2023), McEwan & Beauchamp (2014), Schiuma et al. (2007), Mach et al. (2022), Fransen et al. (2015), and Vogel (2017)

may in turn improve POE (McEwan & Beauchamp, 2014; Schiuma et al., 2007). As the studies of sports teams by Mach et al. (2022) and Fransen et al. (2015) very clearly illustrate, success can breed success. Although Vogel et al. (2022) argue that, on the one hand, very high performance may result in being overconfident and over comfortable, which may cause a decline in POE and a downward spiral to lower performance. On the other hand, low performance may also galvanise organisational members to show higher energy in order to prevent further low results (Vogel et al., 2022). Stancampiano (2019) stresses that one of the important tasks of leaders is to manage the energy of the organisation depending on the situation: “The leader or manager is there to deescalate energy when it rises, or allow it to get intense if it’s needed – and always brings it back to a place of productivity.” (p. 6). Energy can change over time, which complicates things even more. As Vogel et al. (2022) have very well illustrated, POE can change over the short term and the long term.

Nevertheless, previous empirical studies of POE and performance overwhelmingly prove their positive connection both with subjective (opinions of respondents) and objective performance. For example, Schudy and Bruch (2010) surveyed 17,772 participants from 118 companies from Germany from a wide range of sectors (e.g. manufacturing, service, trade, finance and insurance) and found that POE positively influences the financial, customer, and employee performance of firms. Similarly, Cole et al. (2012), based on 5,939 respondents from 92 companies in Germany, proved that in companies with higher POE, the organisation members believed more their firm’s performance was better than that of rival firms. Also, based on data from Germany (9,094 participants from 86 firms from the service, production, trade and finance sectors), Kipfelsberger et al. (2019) showed that POE is correlated to performance ($r = 0.25$). In a similar vein, Owens et al. (2016) analysed 123 participants from a health service organisation in the US and discovered that POE and objective organisational performance were correlated ($r = 0.27$). As the empirical results are very straightforward, we can set out a hypothesis as follows:

H: Football organisations with higher POE have higher performance.

Schiuma et al. (2007) point out that the three dimensions of POE merge and, in their interaction, reflect the overall energy level. However, Liebhart (2013) proposes that it is vital for high performance that all three POE dimensions are balanced and at a high level. For example, lower levels of emotional POE may, in Liebhart’s opinion (2013), risk breaking up the team, feelings of defensiveness and a lack of investment in mutual relationships, which in turn results in the team not achieving its potential. This author analysed mentoring tandems, but as energy at the individual and group level spills over to

energy at the organisational level (Vogel, 2017; Schiuma et al., 2007), this principle may also be relevant for the organisational level. Following social contagion theory (Barsade, 2002), energy is, so to say, ‘contagious’ and both positive and negative energy is transmitted between individuals and groups and manifests at the organisational level. Unfortunately, Liebhart (2013) did not research the aspect of the balanced dimensions of POE empirically at the organisational level and the authors did not find any other study that has done so.

Hence, although it is universally acknowledged that POE has three dimensions, none of the articles about the relationship between POE and performance distinguishes these dimensions in their empirical analysis (see, for example, Schudy & Bruch, 2010; Cole et al., 2012; Kipfelsberger et al., 2019; Owens et al., 2016). As we have already explained in the introduction, we think distinguishing the dimensions of POE in the context of performance may provide valuable additional information. As we have no empirical evidence, we pose the following research questions:

RQ1: Are all POE dimensions equally relevant for the performance of football organisations?

RQ2: Do football clubs with balanced POE have higher performance and with imbalanced POE lower performance?

Data and Method

Sample

To collect the data, 20 clubs from the first two tiers of the Estonian football league were contacted by email, Facebook and through personal contacts. Data was collected between April 13 and 28, 2022. As each club has on average around 35 members, including players, coaches, management, and others, the total population is approximately 700. We obtained 111 responses from 15 clubs. Unfortunately, there were too few respondents from some clubs to make generalisations at the organisational level. For that reason, we included only clubs with 7 or more participants in our analysis. Consequently, the final sample size is 96 individuals from 9 clubs. The clubs had on average 10 participants (ranging from 7–17 individuals). All in all, we reached about 14 per cent of the population.

To better understand the context of our research, it is also important to describe the main features and characteristics of the 15 clubs that made it to the sample. Even though our sample includes clubs with a different status (it has both the best clubs in Estonia competing for medals, and clubs from Esiliiga – the second tier of the Estonian football league) and the characteristics of the clubs vary within the sample, we can extract some common features that are shared by all the organisations included in the sample.

First, it is common for football organisations in Estonian football to be characterised by a relatively low number of employees, meaning that some respondents to our questionnaire perform more than one role in their organisation. For example, according to the authors' personal knowledge of the structure of football clubs in Estonia, it is common for people in Estonian football to hold coaching and administrative positions simultaneously. Since Estonian football organisations do not have access to massive financing, some employees need to spend more time performing their indirect duties, which, as the authors assume, may have an impact on their POE.

Second, in Estonian football clubs the share of foreign players across teams is very low, which is caused by the restrictions that the Estonian Football Union has imposed on the number of players without an Estonian passport that are allowed to be registered by a team. In the context of our research, this would mean that players, coaches and administrative staff members in Estonian football organisations mostly come from Estonia and thus have a similar background.

Third, the clubs in Estonia play quite often. Sometimes even 1–2 times per week. The games are held in different parts of the country meaning that besides competing and training, a lot of time is also spent travelling.

Breaking the sample down, 76% of the participants were players, 14% members of the coaching team and 10% had administrative positions. Four clubs were from Tallinn, the capital of Estonia, which has the largest number of clubs. Five clubs were from other larger and smaller cities of Estonia. In terms of language, 87% of the questionnaires were filled out in Estonian and 13% in Russian. None of the participants chose English. We did not include questions about gender, age, and so on, in our questionnaire in order to maintain the anonymity of the participants. Due to the small community in Estonian football, overly detailed information would make it possible to recognise the respondents.

Measures

To measure the dimensions of POE, we used the measurement tool devised by Cole et al. (2012), which is most used in POE research in general and is also most used in studies about POE and performance. This tool was compiled in several stages, including qualitative and quantitative approaches and involving several experts and samples and the results of previous studies. This process is more thoroughly explained in Cole et al. (2012), but the initial goal was to find statements that reflect situations where individuals worked energetically and how they felt and interacted with others.

The final tool from Cole et al. (2012) has 14 statements – 5 about affective POE, 5 about cognitive POE and 4 about behavioural POE. Cole et al. (2012) used

5-point scales and we chose the same (for affective POE 1- never, 5-frequently; for cognitive and behavioural scales 1- strongly disagree, 5-strongly agree). The affective dimension reflects emotions that could contribute to POE. Namely, feeling excited, enthusiastic, energetic, inspired and ecstatic. The downside for the respondents while evaluating aspects from the affective dimension could be that it is rather hard to differentiate between these feelings, especially when evaluating others. In addition, some of the feelings may seem to go a little overboard in the professional context. In the opinion of the authors of the current article, being ecstatic, for example, is not essential in professional sport. The cognitive dimension evaluates the mental alertness of the organisational members to act, develop and contribute to the organisation's fortunes. Here the difficulty for the respondents could be that it is very hard to estimate whether others are, for example, mentally alert or care and are willing to act, although one can probably derive some information from mutual conversations and observing the behaviour of others. The behavioural dimension highlights the extent to which organisational members are acting in an energetic manner. One criticism here may be that some of the statements may be perceived as contributing to burnout among organisational members. For example, working extremely long hours may not be positive in the long run. Also, working at a very fast pace may lead to lower quality. Despite these critical observations, the measurement tool created by Cole et al. (2012) is widely used and thus makes comparing different studies possible. For this reason, we decided to adapt this measurement tool for our study.

As most of the members of Estonian football organisations are Estonian and Russian speakers, we adapted the measurement tool (Cole et al. 2012) for use in Estonian and Russian using the back translation method and a professional translation agency. First, the English version was translated into Estonian. Second, the Estonian version was translated back into English by another person. Third, the English original and backtranslation were compared by a third person who is a native English speaker with considerable experience in academic editing. Fourth, where necessary, adjustments to the Estonian version were made in order to ensure there was no ambiguity. The same process was followed with the Russian version.

A pilot test of the questionnaire was conducted in all three languages. A native English speaker, native Russian speaker and native Estonian speaker filled in the questionnaire and ensured that everything was understandable and correct in their respective language. An indicator that the translations were successful is a reliability over 0.7 for the three POE dimensions and for the aggregated POE score (see Table 1).

There is a plethora of literature discussing what aspects should be used to evaluate the performance of sports

organisations. Muñoz and Solanellas (2023) have conducted a meta-analysis based on previous studies and concluded that “there is no consensus in the literature on the dimensions to be measured, there is even less consensus on the indicators that should make up each of these dimensions” (p. 17). Also, they stress that some dimensions are difficult to measure, and it is hard to ensure objectivity. To overcome these issues, we chose the simplest and most objective measure in order to identify the performance of Estonian football clubs, namely, we chose on-field performance, which according to Wilson and Anagnostopoulos (2017) is used fairly often.

We looked at the standing of the clubs in the respective league table for three years: 2020, 2021 and 2022 (as of 04.08.22) and calculated average performance based on that. The average was used because in 2020 the season was interrupted by Covid-19 for about two months and the 2022 season is not finished yet. Nevertheless, the performance results from the three years are strongly correlated (0.91–0.99), which means that the level of football clubs does not change dramatically within such short time periods. Earlier data than 2020 was not used because there have been changes in the management and players in teams and the results would not be applicable.

The following tests were used in the data analysis: 1) Spearman correlation coefficient for finding the correlation between POE dimensions and performance in each year, and 2) Mann-Whitney U test for comparing higher and lower performing clubs and opinions of respondents with different roles. The significance level chosen for the analysis was 0.05.

Results

On average, the results for the dimensions of POE were quite high in the Estonian football clubs researched (see Table 1). The respondents were also rather in agreement about this topic, as the standard deviations were low. Minimum estimations were between 2.0–3.0, showing that nobody perceives the lowest amount of POE, which is 1.

Additionally, there were no differences in estimations depending on the position of the respondent. Meaning that players, members of the coaching team and the administration have similar perceptions of the dimensions of POE ($p=0.34-0.47$). However, there were differences in the estimations in different clubs. Namely, the comparison of higher performing and lower performing groups showed that aggregated estimations of POE are statistically significantly higher in clubs in the first half of the league table (see Table 2), meaning that they reported higher energy levels among their club members but the differences are rather small. Therefore, although the hypothesis that we set out was supported, the role of POE is not overwhelming.

Relatively, the same result also emerged when the dimensions of POE were viewed separately. Namely, estimations of all three dimensions are mostly slightly higher in clubs that are in the first half of the league table (see Table 2). When we look at the clubs one by one, we can conclude that higher performing clubs reported mostly higher than average or close to average results in all three POE dimensions (see Table 3). The only exception is the club with code 1, which had a lower result for affective

Table 1. Descriptive statistics and reliability of POE

Dimension of POE	Cronbach's α	Average	Median	Minimum	Maximum	Standard deviation
Affective	0.84	3.97	4.00	3.00	5.00	0.57
Cognitive	0.73	4.09	4.00	2.60	5.00	0.50
Behavioural	0.74	3.94	4.00	2.00	5.00	0.62
Aggregated POE	0.89	4.00	4.02	2.78	5.00	0.48

SD - standard deviation, 5-point scale

Table 2. Mean comparison of higher and lower performing clubs

Dimension of POE	Placed in the first half		Placed in the second half		Mann-Whitney U test
	Average	SD	Average	SD	
Affective	4.08	0.56	3.83	0.55	0.02*
Cognitive	4.19	0.42	3.96	0.56	0.03*
Behavioural	4.07	0.51	3.78	0.71	0.04*
Aggregated POE	4.11	0.40	3.86	0.53	0.01*

*- difference is statistically significant at 0.05; SD- standard deviation, 5-point scale

Table 3. Average estimations and standard deviations of clubs based on their performance

Position in the league table	Club code	Affective		Cognitive		Behavioural	
		Average	SD	Average	SD	Average	SD
First half	1	3.57	0.62	4.17	0.31	3.93	0.51
	2	4.13	0.42	4.23	0.31	4.07	0.33
	3	4.22	0.40	4.27	0.56	4.21	0.62
	4	4.38	0.51	4.20	0.50	4.22	0.46
	5	3.90	0.78	4.00	0.40	3.78	0.63
Second half	6	4.15	0.74	4.42	0.55	4.25	0.87
	7	3.76	0.49	3.95	0.47	3.79	0.53
	8	3.72	0.67	3.70	0.68	3.53	0.81
	9	3.78	0.35	3.82	0.43	3.60	0.68

SD- standard deviation, 5-point scale

POE. Although placed in the first half of the league table, this club is not a frontrunner. Therefore, mostly better performing clubs have slightly higher results in all three POE dimensions, which answers research question 1.

Clubs in the lower performing group show mostly lower than average results in all POE dimensions. There is again one exception, where the club with code 6 has high POE results but is not in the first half of the league table. However, this club has made great progress over the years. Over the three years, this club has not been a frontrunner but it has improved year by year, and in 2022 this club is already in the first half of the table.

It is also important to note, however, that the differences are rather small and some clubs in the second half have even better results in some dimensions than clubs in the first half.

Moving on to answering the second research question. Here we can conclude that the POE dimensions are well-balanced in Estonian football clubs. The lower performing clubs do not show imbalanced POE dimensions but have generally lower POE in all dimensions. Consequently, the answer to the second research question is that in the football clubs researched the overall pattern is that when POE is high, it is high in all dimensions and when it is low, it is low in all dimensions. The results of the correlation analysis also support this finding (see Table 4). Namely, all three dimensions of POE are quite strongly correlated.

Table 4. Correlation analysis of POE dimensions

Dimension of POE	Affective	Cognitive
Affective		
Cognitive	0.53	
Behavioural	0.47	0.75

Discussion

This study intended to verify whether and how POE has a role in the performance of Estonian football organisations. First, we discovered that the estimations of POE in Estonian football organisations were on average rather high (4.11 on a five-point scale) and the respondents were quite unanimous about that. That means that the members of football organisations feel excited, energetic and inspired; they are motivated to make things happen and care about the fortunes of the organisation, and the people are active and work hard. As one of the players of the Estonian national team reflects: “It is good for the team climate when everybody is enthusiastic. For me the most important thing is that the players have good and positive relations” (Jürjens, 2021).

In previous studies based on private and public organisations in various countries, POE estimations have been mostly slightly lower compared to our results. For example, between 3.47–3.70 in Germany (Cole et al., 2012; Kipfelsberger et al., 2019; Walter & Bruch, 2010), 3.44 in Turkey (Müceldili & Erdil, 2015) and between 3.24–3.43 in South Africa (Cuff & Barkhuizen, 2014; Grobler & Grobler, 2021). The only exception was the study by Alexiou et al. (2019) in the Netherlands, where the average estimation of POE was 4.10.

The fact that estimations of POE are mostly higher in the field of sports is somewhat expected based on studies about related concepts like group cohesion and engagement. Namely, POE is positively correlated to cohesion (Cole et al., 2012) and work engagement (Owens et al., 2016). Previous research shows that group cohesion in business organisations is usually lower (Alleyne et al., 2019; Urien et al., 2017; Liden et al., 2004) than in sports teams (Worley et al., 2020; De Backer et al., 2015; Høigaard et al., 2006). Naturally, the feeling of togeth-

erness in sports teams (social cohesion) and common purpose (task cohesion) and attraction of the group are essential, as the members of the team spend a lot of time together training, travelling and competing, and team performance is affected by each member's contribution. In business organisations, depending on the job specifics, at least some parts of the work could be individually performed. Thus, in team sports there are many more possibilities for the principles covered in interaction ritual and social contagion theories to emerge, although, in the authors' opinion, a good balance needs to be found. Forcing energy levels to be too high may backfire. As one of the coaches of the higher performing teams reflected in an interview: "Keeping a stable mindset is very important in my opinion. There should be enough excitement and enough calmness at the same time. Sport performance is best in that moment when the team is not too excited or too relaxed" (Henn, 2021).

With respect to group cohesion, work engagement among employees of business and public organisations has been lower (van Zyl et al., 2021; vanDorssen-Boog et al., 2021; Chong et al., 2021) compared to sports teams (Guillén and Martínez-Alvarado, 2014; Scotto di Luzio et al., 2020; Jowett et al., 2016). Participating in competitive sports self-evidently requires that the team has high levels of vigour, dedication and absorption, which, based on Schaufeli et al. (2002), are the components of engagement. High work engagement would certainly be very favourable in business, but one cannot forget the potential dark side of high engagement. Working day in day out with very high intensity and dedication may result in burn out or health problems, among other things. A working career usually lasts longer than the typical sports career, which also means working into the later years of life accompanied with cumulating health problems, family problems, and so on, which may affect work engagement. What is more, in competitive sports people are, as a rule, younger and of a similar age. Being of a similar age has been proven to encourage POE (Kunze and Bruch, 2010).

Second, our study supported the hypothesis that football organisations with higher POE have higher performance. This result is in line with previous studies in business and public organisations (Schudy & Bruch, 2010; Cole et al., 2012; Kipfelsberger et al., 2019; Owens et al., 2016) and highlights that it is worth paying attention to POE in football organisations and probably in sports in general. Even though the differences between higher performing and lower performing clubs were small, success may lie in small matters and details.

What is more, high results and successful competing may in turn increase POE or vice versa (Mach et al., 2022; Fransen et al., 2015; Vogel et al., 2022). Unfortunately, in light of social contagion theory, negative emotions, thoughts and actions can also spread among organisational

members and, according to interaction ritual theory, they are amplified. Consequently, it is an upward spiral or downward spiral, and psychological momentum (Mach et al., 2022) and team confidence (Fransen et al., 2015) play an important role in sports. As one of the Estonian football coaches reflected after a long losing streak: "The change will come. We need time and patience. And one big win that would give us an energy boost. We really need it, and we are waiting for it." (Vaher, 2023).

Success breeds success, as we can conclude from the conceptual framework of teamwork proposed by McEwan and Beauchamp (2014), which implies that performance feeds the affective, cognitive and behavioural states of sports players, and that this, in turn, influences individuals and team level inputs, contributing to performance. The same principle has been introduced by Schiuma et al. (2007), namely, that energy contributes to performance but also performance influences both the quality (positive vs negative) and intensity (high vs low) of energy. Nevertheless, following the idea of Vogel et al. (2022), one cannot become overconfident and complacent, as POE needs constant care. According to previous research, POE can be enhanced, for example, through setting clear goals, decentralisation and implementing a transformational leadership climate, which entails novel thinking and problem solving, encouraging a team spirit and collaboration, leading by example, being considerate about followers' needs and feelings, etc. (Walter & Bruch, 2010; Kipfelsberger et al., 2019; Schippers & Hogenes, 2011; Alexiou et al., 2019). One can start POE management even while recruitment and selecting suitable people for the team and socialising them well (Schiuma et al., 2007). It can also begin with one key person who energises others and leads the way. For example, after a few months on the job, the new head coach of one higher performing Estonian football club emphasised the valuable role of the CEO as follows: "Mart Poom gives a very positive and strong energy to this project and it is an honour to work with such a person and help the club take the next step in their history" (Vassiljev, 2023). Muñoz et al. (2023) stress that senior management is also responsible for achieving high standards of sports governance, and dealing with POE may contribute to that.

It is highly commendable that in the field of sports these kinds of 'soft' topics are also attracting increasing attention and are valued in the context of achieving higher performance. For example, shared leadership (van Dalen et al., 2021) is gaining momentum, both in research and practice. As one respondent in a study by Coker et al. (2021) on youth football players vividly puts it: "I'd say if that one person wasn't having the best day, he would have no one to lift him up but say there was more than one leader, say that the whole team were leaders we could all help each other instead of one person helping the whole team" (p. 5). Furthermore, self-leadership, which is the

newest addition to contemporary leadership, is something that needs to be developed in sports, according to Megheirkouni (2018). Additionally, achieving a state of flow seems to be valuable in team sports (Boyd et al. 2018). Traditional leadership strategies, like empowering and helping follower growth, creating a team culture and others (Dahlin & Schroeder, 2022), are of course everlasting and important for performance and contribute to POE in sports. Overall, although all organisational members contribute to POE, key figures should ideally be the initiators and act as energisers (Schippers & Hogenes, 2011) and also regulate energy levels (Stancampiano, 2019).

Third, in our study we answered two research questions about whether all three POE dimensions are equally relevant for the performance of football organisations and whether higher performing teams have balanced POE dimensions and lower performing teams imbalanced POE dimensions. So far, there has been no empirical evidence on these topics. We know from social contagion theory and interaction ritual theory that emotions, statements and actions are interchanged and amplified during interactions between individuals, but we had no clear understanding of whether some aspects would be more important to spread than others. It turned out that all three POE dimensions tended to be slightly higher in higher performing clubs, which indicates that all three dimensions are relevant for performance, and also that all three dimensions were balanced, which means that we were able to prove empirically the proposition of Liebhart (2013) on the organisational level in the case of high performing teams. However, in lower performing clubs, POE dimensions were not imbalanced, as Liebhart (2013) had assumed. POE dimensions were mostly equal at a lower level compared to the better clubs. Here we cannot make far-reaching generalisations based on one study and one sample. Much more research is needed in order to better understand whether POE dimensions need to be balanced and what contributions that would make with regard to performance and other important aspects contributing to performance (e.g. group cohesiveness, organisational culture, etc).

Furthermore, it is important to note that these results were gained based on Estonian football clubs. It is probable that in some other sector imbalanced POE dimensions would appear and hinder performance as proposed by Liebhart (2013). Clearly, this aspect of POE needs further research in various sectors and professions.

Conclusions

Theoretical implications and future research directions

Our main theoretical contribution was to propose the model in Figure 1, which illustrates the nature of POE and connects it to performance via the mediating fac-

tor of effort. We knew from previous research that POE manifests on three levels (individual, group and organisational) and that it has the capacity to unify these three levels and amplify the efforts of organisational members. We brought all of this information together under one umbrella. In addition, we highlight the need to research POE dimensions together, but also separately. Taşdemir et al. (2023) has looked at the three dimensions separately but not in the context of performance. What is more, we have built on Liebhart's (2013) idea about balanced POE dimensions and brought this to the organisational level.

We have also contributed to widening the research on POE and performance by applying it to the field of sports, establishing that this connection is also applicable in the sports context, more precisely in football organisations. A new research direction could be exploring in-depth the ideas of Liebhart (2013) concerning balanced POE dimensions. Our first attempt to prove this idea empirically at the organisational level has resulted in partial support. Furthermore, looking at the dimensions of POE separately in studies would be useful. Indeed, all POE dimensions played the same role in performance in our study, but in some other areas this may be not so. Additionally, following the ideas of Stancampiano (2019) about managing the energy levels of organisational members could be researched in terms of whether there is an energy saturation point – could too much energy to be counterproductive sometimes and should leaders find the right dose of energy in various situations? In addition, the ideas of Vogel et al. (2022) about short-term and long-term changes in POE deserve more research.

Practical implications

To conclude, we can say that it is worthwhile monitoring POE levels in organisations and especially in sports organisations due to its collective and psychological nature. Therefore, one should be on the lookout not only for energy intensity levels but also the quality of energy (Bruch & Ghoshal 2003). The measurement tool devised by Cole et al. (2012) is now also available in Estonian and Russian, but for a more in-depth view, qualitative methods could also be considered. POE can, if necessary, be improved by management through thoughtful goal-setting, leadership, team and culture building, etc.

Limitations

The limitation of our study is that it is based on a small sample of Estonian football clubs. Naturally, the results may not apply to other sports or other countries with different cultural backgrounds or sports systems. In addition, with self-reported data we solely rely on the respondents' opinions about the topic, which may not fully reflect the reality. There are also potential issues with the measurement tool as discussed in the Measures section of the paper. Namely, it may be hard to evaluate some aspects because

one does not know what others exactly feel or think. In particular, those in administrative positions spend less time with the players. Estonian football clubs are small, and some members perform several roles within the club and spend a lot of time together. Consequently, we assume that the respondents had a sufficient overview of the matter.

Another issue with our article is with causality. More research is needed in order to discover whether high POE brings high performance or high performance results in high POE, or both. Finally, our article does not take into account other aspects influencing the performance of football clubs, such as financial means, level of coaching, etc. Concentrating on only one aspect does not give a well-rounded overview of the situation. As Muñoz and Solanellas (2023) highlighted, there are many possible dimensions to performance and also indicators that reflect these dimensions. In our research the differences in POE between higher and lower performing clubs were rather small, which implies that there are other important aspects not covered in our analysis. Naturally, POE is not the only aspect that may affect effort, and consequently performance, as illustrated in Figure 1. Furthermore, more elaborate analysis is needed here to cover a greater range of individual, group and organisational level factors that influence the effort of organisational members.

Ethics approval and informed consent

The study is non-interventional, completely anonymous and, according to Estonian laws, ethical approval is not required.

Competing interests

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Those Fighting with Burden on Their Back: Elite Taekwondo Players' Perfectionism and Fear of Failure

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
- D) manuscript preparation
- E) obtaining funding

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Abstract

This study aimed to examine levels of perfectionism and fear of failure of elite athletes in the Turkish national taekwondo team through qualitative research methods. A total of 11 national team athletes (6 females and 5 males) participated in the research. The data were collected using a semi-structured interview technique. In the study, opinions, emotions and thoughts of elite national team athletes about the concept of perfectionism and fear of failure were determined. In the theme of perfectionism, there were 7 categories and 35 codes; in the theme of fear of failure, 6 categories and 36 codes were revealed. It might be concluded that perfectionism and fear of failure have a more complex structure than it seems for elite and high-ranking athletes, and this might affect their motivation in many positive and negative ways. In addition, it was found that when the coach is a family member, two concerns of athletes (the coach is upset due to failure, and the family is upset due to failure) come together. Therefore, those who are both a coach and parent should be more careful with their children/athletes. It should also be kept in mind that while perfectionism is a great source of motivation and self-confidence, it has the potential to make athletes drop out of sports.

Keywords: Perfectionism, fear of failure, elite athlete, qualitative method

Introduction

Perfectionism is generally defined as “setting unreasonable high standards and striving to meet those standards” (Slade & Owens, 1998). Frost et al. (1990) state that perfectionism not only involves setting high standards for achievement but also includes a tendency for individuals to excessively criticize their own performance. Perfectionism is a commonly observed phenomenon in many fields (Stoeber & Stoeber, 2009), especially in those that require competition and achievement, such as sports (Dunn et al., 2005). Moreover, elite athletes often mention perfectionism in interviews (Hill et al., 2015).

The effects of perfectionism on performance have always been an issue of discussion. While some researchers define the concept as a psychological trait that makes an “Olympic Medalist” (Gould et al., 2002), others opine that it is a maladaptive trait that hampers athletic performance rather than empowering it (Anshel & Mansouri, 2005; Flett & Hewitt, 2005).

In a study focusing on perfectionism in sports and training, Flett and Hewitt (2005) report that perfectionism in sports is a paradoxical issue, claiming that competitive athletes are often under pressure due to their aspirations to be successful. They feel that they need to be almost perfect at all times, and these attempts to reach unattainable levels

of achievement might result in pessimism, frustration and self-defeat. Dunn et al. (2002) believe that perfectionism consists of four dimensions: personal standards, perceived parental pressure perceived coach pressure, and concern over mistakes. Frost and Henderson (1991) found that athletes who are overly concerned about mistakes have higher levels of competitive trait anxiety. The findings also revealed that perfectionism, which is often characterized by having doubts about behaviors, has a negative correlation with confidence. Zinsser et al. (2001) investigated how perfectionism affects the way an athlete responds to failure and how the athlete enjoys involvement in sports in general. The researchers concluded that self-reproach, self-criticism attitudes, and dissatisfaction with performance quality might result in a decrease in enthusiasm in sports and even increase drop-out rates. Finally, they claimed that experiencing a permanent fear of failure due to concerns about past mistakes might hinder concentration and affect athletes' performance by distracting them.

In some studies, parents and trainers have been reported as important sources of the drive for perfectionism in athletes (Gotwals et al., 2003; McArdle & Duda, 2004; Ommundsen et al., 2005). Dunn et al. (2006) claimed that coach pressure might be more important than parental pressure, since coaches might have a more direct effect on athletic performance than parents. The role of parents and coaches as providers of performance-related feedback and expectations for athletes is particularly intriguing for researchers studying perfectionism in sports. This is because the idea that individuals' perfectionistic tendencies can be influenced both in sports (Appleton & Curran, 2016; Madigan et al., 2019) and non-sports settings (Flett et al., 2002; Perera & Chang, 2015) by socially-driven pressures from significant others is believed to play a crucial role. Furthermore, in a study investigating the perceptions of adolescent and adult athletes regarding the pressures to perform perfectly emanating from parents and coaches, researchers observed that the perceived performance pressures from parents tended to diminish as the athletes' age increased. Conversely, the perceived performance pressures from coaches tended to escalate as the athletes grew older (Dunn et al., 2022).

When perfectionists – especially those with high levels of perfectionistic concerns – mainly focus on evaluation, they might be vulnerable to negative consequences, especially shame and embarrassment. The meanings placed on mistakes and failures as well as athletes' perceptions and comments might result in shame and embarrassment in the case of failure (Sagar & Stoeber, 2009). Therefore, many researchers conducting studies on sports where assessments are quite important reported a correlation between perfectionism and fear of failure (Frost & Henderson, 1991; Stoeber & Becker, 2008; Kaye et al., 2008; Sagar & Stoeber, 2009).

Fear of failure is defined as an instinct to avoid failure when one is assessed and as an instinct based on possi-

ble embarrassment in the case of failure (Atkinson, 1957; McClelland et al., 1953). It might also be defined as the “tendency to prevent inadequacy due to expected embarrassment and despise in case of failure” (Kaye et al., 2008). Fear of failure has a multi-dimensional structure that involves various consequences related to failure (Conroy & Coatsworth, 2007). More specifically, what causes fear is the consequences of failure rather than failure itself (Conroy, 2003). Fear of failure forms a structure related to achievements due to some negative consequences within or outside of a physical activity area. Development of this fear occurs through the following interpersonal patterns: (a) family structure, (b) parents' expectations for independence and competency, and (c) parent-child communication (Conroy, 2001). Fear of failure was analyzed in five dimensions by Conroy et al. (2002): fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of uncertain future, fear of important others' losing interest, and fear of upsetting important others.

Fear of failure constitutes a substantial emotional burden for children and adults, and many aspects of their lives are vulnerable to fear of failure. Children learn (through verbal and non-verbal communication) that a successful performance brings additional love and approval, and failure may result in withdrawal, so avoiding a possible failure is a significant priority for children (Conroy, 2001). Fear of failure was also reported to be an excuse for dropping out of sports activities (Conroy & Coatsworth, 2007). In addition, fear of failure was associated with performance anxiety in sports (Conroy & Elliot, 2004).

Perfectionism anxiety was found to have close correlations with fear of failure in athletes (Frost & Henderson, 1991; Stoeber & Becker, 2008). The findings showed a positive correlation between fear of failure and two dimensions of perfectionism (perfectionist strivings and perfectionist concerns), which is a signal for the correlation between perfectionism and fear of failure in sports (Kaye et al., 2008).

Considering all of the research mentioned above, the aim of the current study is to determine perfectionism and fear of failure levels in elite athletes and investigate their experiences with perfectionism and fear of failure through qualitative research methods. The study uses an interview design and tries to find answers to a few important research questions. However, the key question is: What are the experiences of elite taekwondo players in terms of perfectionism and fear of failure?

Methods

Study Design

This study uses a qualitative phenomenological approach in the form of semi-structured interviews. The reason for preferring a qualitative methodology in this study is to

deal with the problems comprehensively and in a multi-dimensional way as the events and phenomena individuals experience may not be as simple and one-dimensional as they seem (Yıldırım & Şimşek, 2016). The objective of employing the phenomenological method in this study was to investigate perfectionism and fear of failure within the context of Turkish taekwondo sport and to explore how elite athletes comprehend and experience these phenomena.

Participants

In total 11 national athletes (6 females and 5 males) in the Turkish Taekwondo National Team voluntarily par-

ticipated in the study. The ages of the participants range between 20 and 28 ($\bar{x}=22.9$ $SS=2.58$). Four of the athletes have family members as their coaches. The number years of the participants' involvement in sports range between 9 and 20 years ($\bar{x}=13$ $SS=3.34$). Demographic information about the participants interviewed is presented in Table 1 below. To ensure the anonymity of the participants and their personal information, the researcher used a different 'pseudonym' for each participant. The study followed ethical procedures and was approved by the Scientific Research and Publication Ethics Board of Anadolu University (Protocol No: 70981).

Table 1. Participants' demographic information

	Age	Years of Sports Experience	Educational Status	Europe- World- Grand Prix Medals	Open Tournament
Leyla	21	10	University	1 Championship 1 Second place 6 Third place	3 Championship 4 Second place 5 Third place
Mina	24	15	University	6 Championship 4 Second place 10 Third place	11 Championship 8 Second place 5 Third place
Didem	23	15	University	12 Championship 1 Second place 2 Third place	13 Championship 2 Second place 1 Third place
Şule	22	9	University	0 Championship 0 Second place 3 Third place	4 Championship 1 Second place 7 Third place
Tezer	22	10	High School	0 Championship 0 Second place 0 Third place	2 Championship 1 Second place 4 Third place
Gülten	27	15	University	4 Championship 2 Second place 10 Third place	24 Championship 10 Second place 6 Third place
Oğuz	28	20	Post graduate	1 Championship 5 Second place 3 Third place	12 Championship 6 Second place 10 Third place
Arif	20	11	High School	1 Championship 1 Second place 3 Third place	4 Championship 3 Second place 2 Third place
Can	23	15	University	0 Championship 0 Second place 0 Third place	0 Championship 0 Second place 1 Third place
Ahmet	20	13	High School	2 Championship 0 Second place 1 Third place	6 Championship 5 Second place 3 Third place
Nazım	22	10	University	0 Championship 1 Second place 3 Third place	4 Championship 4 Second place 3 Third place

Data Collection

The semi-structured interview form, prepared by the researcher herself, benefited from the literature, expert opinions, and other studies in the field (Gotwals & Spencer-Cavaliere, 2014; Mallinson-Howard et.al, 2018). It consists of 21 questions. An in-depth interview technique was used in the interviews. The data were enriched by asking probing questions.

The participants were not informed about the concepts of the research prior to the interviews so as not to influence them. However, they were briefly informed about the study in a text read by the researcher directly from paper in order to eliminate any potential prejudice that might have occurred had the researcher given the information in spoken format. This preference might be considered an attempt to increase reliability.

Data Analysis

After receiving the necessary permissions, the interviews conducted with participant athletes were audio recorded. In order to help the participants to feel comfortable and relaxed, the interviews were conducted in the camp centers and later transcribed into the Microsoft Word program. The transcribed interviews were read many times before the analysis and the codes were written down on the printed versions. Later, the categories were determined by finding similarities and differences among the codes, and themes were prepared accordingly. After the categories and themes were determined, the codes were compared again and revised. The interview data were studied using thematic analysis and constant comparison techniques. Analyzes were performed by the two researchers individually, after which they came together and examined the different analysis results they had obtained.

The common points of themes obtained through the constant comparison technique were reinterpreted so as to achieve a unity of meaning. By doing so, the researcher wanted to come up with abstract concepts through systematic and constant comparisons (Punch, 2011). These techniques were used to allow analyses and code-category forming procedures.

Methodological Rigor

For internal validity, qualitative studies use long-term interaction, in-depth interviews, data triangulation, expert opinion, and respondent views (Yıldırım & Şimşek, 2016). The data collected through in-depth interviews were analyzed to determine the opinions of participants about the research questions, relationships, and patterns, and also expert and respondent opinions were received to strengthen the persuasiveness of the study. Also, participants were asked to member check and all participants accepted that their transcripts were accurate representations.

External validity is about creating a framework suitable for similar environments and processes, as well as the findings. Two methods are suggested for increasing external validity in qualitative studies: detailed description and purposeful sampling (Yıldırım & Şimşek, 2016). This study used direct quotations, coding and demographic information so as to increase external validity.

Internal reliability means that other researchers should reach similar results by using the same set of data (Yıldırım & Şimşek, 2016). In order to ensure this type of reliability, the researcher used the following techniques: rereading; determining a separate theme for each participant and a main theme; finding a structure based on the themes and main themes obtained from the data; and conceptualizing. In addition, the structure obtained was presented to experts to increase reliability.

External reliability in qualitative studies requires researchers to constantly verify their findings and present a logical explanation accordingly (Yıldırım & Şimşek, 2016). In the current study, the raw data and coding data were always open to inspection and experts were consulted throughout the analyses.

While the first author's background as a former national athlete could be perceived as an advantage, as it might make the participants feel more at ease during the interviews, it could also introduce potential subjective biases or thoughts that could be considered a disadvantage in the research. To address this concern, measures were taken to ensure rigor and credibility. Both participant validation and expert opinions were sought to validate the findings. Furthermore, after the creation of codes and themes, consultations were conducted with another researcher (advisor) until a consensus was reached, and adjustments were made when necessary to enhance the research's validity and reliability.

Results

The Opinions of National Athletes About Perfectionism

The opinions of Turkish taekwondo national team athletes about perfectionism are presented in Table 2.

According to Table 2, perfectionism consists of the following categories: setting challenging goals, parental expectation, others-oriented sadness and guilt, advantages and disadvantages of perfectionism, criteria for perfectionist athletes and the effect of perfectionism on other fields. Some of the sentences uttered by the participants in these categories are listed below:

Setting Challenging Goals: All the athletes who participated in the study reported that they set challenging goals for themselves. Some of the quotations related to this category are as follows:

Table 2. Thematic analysis of opinion on the perfectionism of national taekwondo team athletes

Being world champion	Setting Challenging Goals	Perfectionism
Going to the Olympics		
Being a champion in every tournament		
Targeting the summit		
Standing on your own feet	Parental Expectation	
To be happy / Being happy		
Olympic-World Championship		
Being a great athlete	Others-oriented Sadness and Guilt	
Fighting at the Olympics		
Sadness for expectant people		
Feeling guilty towards the coach and family	Advantages of Perfectionism	
Have self-confidence		
Trying to perform at your best		
Psychological comfort		
Orderly life / Discipline	Disadvantages of Perfectionism	
Success		
Questioning yourself		
Putting pressure on yourself		
To be obsessed		
Inability to digest defeat		
Aggression	The Criteria to be Perfectionist Athlete	
Excessive ambition		
Focusing too much on areas of weakness		
More disappointment		
Being psychologically strong	The Effect of Perfectionism on Other Fields	
Feeling performance falling even if not falling		
Stability-Diligence		
Being self-confident		
Being ambitious		
The desire to be good in all aspects		
Punctuality		
The effort to deliver perfect performance in all areas		
Fulfilling responsibilities		
The desire to be the best in every field		
Ego		

“Right now, we are professional athletes. Of course, I have high expectations of myself; to be a champion in every tournament.” (Mina)

also for my daily life. I never like being satisfied with what I have. I always want more and more.” (Tezer)

“To be the world champion. To participate in the Olympic Games. (...) My goal always gets more challenging. This is true in my sports life and

Parental Expectation: Perceived parental expectations are in parallel with the athletes’ goals. Some of these expectations are as follows:

“My family expects me to stand on my own feet. My happiness (...) to start a life, to build up my material and spiritual life.” (Leyla)

“They expect me to be successful. That is why they stand by me. (...) They expect success, they do not want too much, indeed.” (Arif)

Others-oriented Sadness and Guilt: The majority of national team athletes voiced that they feel guilty and worried about their families and coaches when they are defeated. Some of the quotations related to this category are as follows:

“I somewhat feel guilty towards my coach – him, I think- since he trains me. I also feel that I upset my family because they are far away from me and they have expectations from me. I do not do many things for myself. I rather think of the people around me.” (Gülten)

“Those who contribute to my development. I get worried more when they feel disappointed. They spend a lot of time for you. Other athletes could have been here instead of me. I start the match with these thoughts in my mind, especially the coaches, those who train me. So, I should think of them more, more than myself.” (Arif)

Advantages of Perfectionism: The athletes pointed out some situations that might be an advantage of perfectionism. Some of their statements are as follows:

“The advantages of being a perfectionist is, first of all, that you affect your own psychology positively. Because you can say I have done everything, I have done my best. To me, this relaxes people psychologically.” (Şule)

“It is important to feel perfect when you are in the ring. It is important how self-confident you are and how confidently you will adopt the technique. You cannot achieve any of these unless you feel that you are doing it perfectly. For me, this is the best part of perfectionism. It helps you develop self-confidence.” (Ahmet)

Disadvantages of Perfectionism: The athletes pointed out some situations that might be a disadvantage of perfectionism. Some of their utterances are as follows:

“It is human, not a robot. You really see yourself as a robot. It is certain that you might be defeated in a match one day. You want to win every match. Or you might get badly injured or fight very poorly. You

might not “be in practice”. When a person is a perfectionist, he puts pressure on himself psychologically. You question yourself. Why can’t you do it? Am I bad? Am I like this or that? You start to ask this. But you overcome it somehow.” (Leyla)

“That it makes you over-ambitious. Looking at life with ambition. Placing sports in every part of your life. Competing to be the best in everything. Starting to sacrifice yourself. These are (the disadvantages), I think.” (Gülten)

“You always have to be at the top, which is very difficult to sustain. For example, if people have expectations from you; I mean they expect something from you. And when you lose (...) For instance, you are the favorite, you get defeated. So what happens? The expectations get lower. That is it, I mean. You fight with a load on your back.” (Can)

The Criteria to be Perfectionist Athlete: The participant athletes suggested that it is necessary to fulfil certain criteria and have certain characteristics to be a perfectionist athlete. Some of the quotations related to this category are as follows:

“An athlete who does his best. An athlete who aspires to be the best at everything.” (Oğuz)

“I mean, indeed, perfectionism is a good thing for some but a bad thing for others. For instance, I want to be perfect but I might be defeated as well. There might be such ups and downs. I can keep myself at the top. However, a perfectionist athlete might feel a downfall although he does not experience a downfall. He might blame himself.” (Ahmet)

The Effect of Perfectionism on Other Fields: The participant athletes reported their opinions about whether being a perfectionist athlete has any effects on other non-sports fields and pointed out that it affects other fields of life. Among some of these ideas are as follows:

“It affects you. Because sport affects our whole life. Even training affects our life. Training makes a person vigorous in his daily life. So, being a perfectionist helps you do your best in other works too. I mean, it makes you the best teacher, not an ordinary teacher.” (Nazım)

“In fact, it affects you both positively and negatively. As for the negative effect, I know it all, I do it all, I need to be the best- You need to say this all the time. So you might have some problems with other people. The good side is that you learn to stand on your feet.

You feel that you are not alone and you are strong. These are the good sides.” (Gülten)

The Opinions of National Athletes About Fear of Failure

The findings related to the opinions of Turkish Taekwondo National Team athletes about fear of failure are displayed in Table 3 below.

According to Table 3, “fear of failure” theme consists of the following categories: negative feelings following a failure; family reaction; effect of environment; consequences of failure, self-inadequacy and guilt; and fear and concerns. Some of the extracts related to “fear of failure” theme are presented below.

Negative Feelings Following a Failure: The participant athletes talked about the feelings they experience in the

Table 3. Thematic analysis of results of opinion on the fear of failure of national taekwondo team athletes

Unhappiness		
Feeling the efforts wasted		
Feeling sorry for the family and the coach		
Searching for mistakes-weaknesses		
Blaming yourself		
Questioning yourself		
Extreme reactions		
Feeling sad and angry		
Criticism		
Always same performance expectation		
Interfering with training		
Asking „Why were you defeated?”		
Crowd and cheering		
People’s expectations		
Get excited		
Tackling the weaknesses		
Better self-review		
Gain experience		
Sacrificing your goal		
Not meeting people’s expectations		
Efforts go to waste		
Feeling dispirited		
The road to success		
Give up		
Searching for mistakes		
Blaming yourself		
Uneasiness		
Thinking about weaknesses		
Disappointment		
Feeling inadequate		
Fear of injury		
Fear of failing		
Fear of disappointing expectant people		
Fear of being defeated		
Fear of losing at the critical moment		
Fear of dropping out of the sport		

Fear of Failure

Negative Feelings following a failure

Family Reaction

The Effect of Environment

Consequences of Failure

Self-inadequacy and Guilt

Fears and Concerns

case of failure. Some of the extracts focusing on these feelings are as follows:

“When I lose, I feel devastated. It is true. I mean, I constantly blame myself. I try to identify my mistakes. It is generally like that. It is true for everybody.” (Şule)

“I generally feel bad. Sometimes, I have extreme reactions. And sometimes I have normal reactions. But, in general, I try to take some lessons from it. For instance, I cried a lot. For days, even for months. Because there might be matches when you waste your time and energies. For example, you know, at the beginning of the season, we have the Turkish Championship, once a year. You should win. Either you have other matches or you cannot play in any matches. The Turkish Open, The President’s Cup etc. If you fail in one month, all your works are wasted.” (Ahmet)

Family Reaction: The participant athletes reported the reactions of their families in the case of failure. Some of their opinions are shown below:

“In general, for instance, what is one of the biggest problems? It is about my father, for instance, you win in one match and he expects me to give the same performance in the other match. All the same. Giving the same performance all the time and everywhere is sometimes difficult. My only concern is that people expect me to give the same performance all the time. or they say you are this, you are that. Although this is bad, sometimes it is good too because it keeps you motivated.” (Ahmet)

“My mother, for example, likes controlling everything very much. So it interrupts my training procedures. Have you done your training in the morning? Do practice, work on this or that – she always gives such warnings. But she does not have any sports background. I really do not like this.” (Şule)

The Effect of Environment: The participant athletes reported the effects of people around them on their failure. Some of the related opinions are as follows:

“I fight more comfortably when I am abroad. I act telling myself that I can overcome the pressure from the stands and shut them up by winning. It is a positive effect. When I fight abroad – where my opponents are the hosts- I feel better and more comfortable. As they cheer for my opponent, I become more careful, get motivated and more ambitious.” (Mina)

“I care about the crowds. They affect me negatively. When it is crowded or the crowd cheers too much and

loudly, it affects me negatively and puts pressure on me. As if I needed to win a victory this time. So I get tense and nervous during the match.” (Gülten)

Consequences of Failure: The athletes who participated in the study mentioned the consequences of their failures. Some of these statements related to this issue are as follows:

“Giving up. Failure means giving up for me. It is not about being defeated in a match, for me, it is about throwing in the towel. It is the result of the failure.” (Nazım)

“Failing to meet people’s expectations. Training for success throughout the year and failing to meet my own expectations.” (Oğuz)

Self-inadequacy and Guilt: Some of the extracts related to athletes’ feeling of inadequacy and guilt following a failure are as follows:

“First, I blame myself for my failure. Why did I lose the match? I was nervous, this reason or that reason, but I say I was defeated at the end. I take this as a starting point. What happened, what did I do wrong? I constantly look for my mistakes and find them and try to correct them.” (Ahmet)

“(When I fail) I think I am on the wrong track. I think there is something wrong. I think I did not work well enough, I failed to concentrate, I did not practice enough physically. And I think that I did not believe and concentrate mentally. I mean – not enough.” (Can)

Fears and Concerns: The participant athletes listed their fears and concerns such as “fear of losing at a critical moment, fear of failing to reach targeted success, fear of getting injured, fear of being defeated and fear of giving up sports”. The followings are some of the opinions stated by the participants:

“I got upset when I failed too. And I started to feel that I would always be unsuccessful like that and I started to feel afraid. I started to think that “What if I am defeated in the other matches? What if I cannot participate in the Olympic games?” (...) No matter which match it is, fear of being defeated. My biggest fear is fear of being defeated. And failing to reach the goal I set. My concern is what if I lose, what if I am defeated, what if someone else takes part in the match?” (Gülten).

“My concerns are failing to realize my dreams or giving up sports before reaching my goals. (...) I also

have the fear of getting seriously injured. I do not want to get injured when everything is going well.” (Nazım)

“My fear and concern is getting injured and being defeated.” (Didem)

“Fear and concern might be, I mean, losing the match at a critical moment in the tournament. Being defeated in the most important matches. My concern is to be defeated.” (Oğuz)

Discussion and Conclusions

Setting Challenging Goals: When this category is examined in detail, it is seen that all the athletes set challenging goals, which is not surprising since they are elite, national athletes. However, their opinions about perfectionism and fear of failure have been an issue of curiosity. There are studies reporting that highly competitive levels of sport are related to high-level striving for perfectionism and perfectionist concerns in sports (Rasquinha et al., 2014). In this respect, setting challenging goals and participating in high-level tournaments might be considered the first step towards perfectionism.

Parental Expectation: The athletes reported that parental expectations are related to happiness and success. Most families expect a “championship” performance. Then, when athletes become champions, this expectation may be a source of motivation, since it also brings happiness to families. However, in the case of failure, it may be a demotivating factor, as the possibility of family unhappiness could fuel athletes’ fear of failure. Indeed, one of the categories in the main theme “fear of failure” is “family reaction”. Thus, these two categories might be interrelated.

Others-oriented Sadness and Guilt: The athletes stated that in the case of failure they feel guilty towards people who have expectations from them and those who try hard to train them, such as coaches and family members. One study found that athletes with healthy perfectionism see others (coaches, teammates) as a positive source of support and motivation. On the other hand, athletes with unhealthy perfectionism see others as both a positive and negative source of pressure (Dunn et al., 2006).

Advantages of Perfectionism: National team athletes listed some advantages of being a perfectionist athlete. They stated that perfectionist athletes are self-confident, psychologically relaxed and try hard to give their best performances. Also, there were athletes who associate the advantages of perfectionism with success and discipline. Broadly speaking, self-confidence triggered by the passion to be the most successful and the best athlete and feeling that one is the best was largely emphasized.

Disadvantages of Perfectionism: The athletes said that perfectionism forced them to question themselves through the question “Am I bad?” when they are not “in practice”, fight poorly – i.e. in case of defeat – and they feel sad and disappointed. Failing to tolerate a defeat, overambition, being obsessed and aggressiveness were also listed as the disadvantages of being a perfectionist.

Generally speaking, it might be concluded that the advantageous nature of perfectionism might be reversed as we move from “winner” to “loser”. Indeed, while perfectionism promotes self-confidence when athletes win and are the best, it makes them question their talents when they fail. Can (a male participant) strikingly explains this situation as follows: “(Imagine) You are the favorite in a match, but you are defeated. So what happens? Expectations are lowered. I mean, you fight with a load on your back.

Criteria to be a Perfectionist Athlete: The participant athletes defined perfectionists as “ambitious” athletes who want to be the best “in everything” and all the time”. According to the participants, ambition is a requirement for perfectionism, while overambition is considered a disadvantage. Thus, it is an important code. In addition, one of the participant athletes stated that being a perfectionist athlete is a negative criterion, since perfectionist athletes will feel “a downfall” despite the lack of a real downfall.

While perfectionist concerns are associated with obsessive ambition, perfectionist strivings are associated with sporting passion, which is perceived partly as obsessive and partly compatible with an athlete’s daily life. This conclusion implies that even athletes who show attempts at perfectionism and do not care too much about others’ evaluation of their performances have mixed feelings about their passion for sports. This finding is consistent with previous findings related to perfectionism and motivation – perfectionist strivings of athletes – although they are mostly positive but are sometimes associated with “extreme consequences” and mixed positive-negative patterns (e.g task and ego orientation) (Hall et al., 2007).

The Effect of Perfectionism on Other Fields: All the participant athletes except two claimed that perfectionism has effects on other aspects of their lives. While some athletes listed positive effects such as attempts to be “the best” in every field and “responsibility”, others talked about its disadvantages, such as negative effects of “ego” on social life and friendship.

This category shows that perfectionism has an effect on the social dimension of sports experience. The studies also supported the claim that maladaptive perfectionism correlates with negative and interpersonal social behaviors that might cause problems in interactions and relationships (Habke & Flynn, 2002). In a study conducted with undergraduate students, Flett et al. (1997) found that perfectionists display negative social behaviors in their social environments. In addition, the findings showed

that maladaptive perfectionism correlates with negative social behaviors, such as self-criticism, betrayal and lack of recognition. These findings imply that a maladaptive nature of perfectionism might stimulate negative reactions coming from the social environment and trigger negative a relationship cycle with peers.

It might be claimed that a passion to be perfect has many benefits. However, some recent studies have investigated its negative sides. For instance, in addition to disadvantages obtained from the categories, one study found that perfectionism might be related to doping. The results showed that perfectionist strivings negatively correlate with attitudes towards doping, and perfectionist concerns positively predict attitudes towards doping (Wang, 2020).

Recent studies in the literature show that it is relatively more difficult to define perfectionism with a single dimension – good or bad. Stoeber (2014) suggested one of the best similes for perfectionism by defining it as “a double-edged sword”. In addition, he emphasized that distinguishing between perfectionist strivings and perfectionist concerns is crucial (Stoeber & Otto, 2006).

The study by Dunn et al. (2014) is the first study examining perfectionism in athletes and how they overcome performance downfalls. It adopted an individual-centered approach and used a tripartite conceptualization of the perfectionism model as an analytical framework. The study used quantitative methods, and athletes that are not perfectionist were included in the study. Based on the expectations, it was found that athletes with healthy perfectionism have more active coping strategies than athletes with unhealthy perfectionism. The athletes with unhealthy perfectionism reported “not caring about” strategy as an inappropriate reaction to performance downfalls more than athletes with healthy perfectionism.

In a study conducted with 222 young athletes (11–18 age range), Mallison and Hill (2019) examined negative effects of perfectionism on young athletes. The study revealed that individual approval of perfectionist standards leads to the highest level of commitment in sports, whilst experiencing externally forced perfectionist standards leads to the lowest levels of commitment.

Stoeber and Becker (2008) carried out a study with 74 female footballers and showed that athletes with high levels of perfectionism generally hope to be successful, but that they link this tendency to external factors when they achieve their goals. The study examined perfectionism, achievement motivation and how success and failure is attributed and found a positive correlation between the search for perfection and hope for success, and a negative correlation between the search for perfection and fear of failure. On the contrary, negative reactions to what is lacking show a positive correlation with fear of failure.

In conclusion, perfectionism in sport can be adopted by athletes who try hard for perfection but can control

negative reactions when their performance is lower than perfect so that perfectionism might be useful.

According to Flett and Hewitt (2020), perfectionism is a paradox. They suggest that a “perfectionism paradox” exists in many contexts that require perfect performance; especially for elite and ambitious athletes. They also claim that if individuals intentionally focus on being perfect or are directed towards perfection, it might result in sensitivity that might hinder future success and result in lower performance. In this respect, the data obtained from the interviews conducted with the athletes support the idea that perfectionism is a paradox.

Negative Feelings Following a Failure: The participant athletes stated that they have negative feelings such as “unhappiness”, “sadness and aggressiveness” and some even had “serious” reactions, such as crying for days. Similarly, the athletes pointed out that they look for “mistakes and weaknesses” and “question and blame themselves”.

In addition, the emergence of a code (feeling sorry for family and coach) that is similar to “feeling guilty towards coach and family”, which is found under perfectionism categories, implies that these two concepts – perfectionism and fear of failure – are interrelated when parents and coach are concerned.

Parental Reaction: Most of the athletes reported that their families support them and that they are happy with this support; however, in the case of failure they feel uncomfortable when people around them ask them “Why were you defeated?”, and when their family think they have inadequate practice and interfere with training procedures. They labeled their families’ criticisms and their reactions such as “expecting the same performance at all times” as negative. However, these reactions might have a paradoxical effect, just like with perfectionism.

The Effects of Environment: Most of the participant athletes said that they pay attention to the crowd around the ring. Similarly, they stated that they are affected by the people who have expectations from them. Interestingly, some athletes find it difficult when the two codes combine.

Thus, it might be concluded that environment affects fear of failure. Indeed, athletes confess that they put pressure on themselves when they want to meet people’s expectations, when they become champion or are the favorite for the championship. Some athletes even claimed that they fail because they focus on meeting such expectations and stop being themselves.

Consequences of Failure: In this category, some of the athletes listed consequences of failure by stating positive phrases, such as “path leading to success”, “gaining experience”, improving oneself” or “having a better self-evaluation”; others talked about negative sides using the following phrases: “wasted attempts”, “dropping out”, “failing to meet people’s expectations” and “demoralization”. “Expectations of people”, which was a code in the

previous category, was an effective code. It might be said that “people who have expectations” in their evaluations of athletes play quite an important role.

Feeling of Self-inadequacy and Guilt: The athletes stated that in the case of failure they “blame themselves for their mistakes”, “feel inadequate and frustrated” and “question themselves”.

The codes in this category largely match with those in “disadvantages of perfectionism”, which is under the main theme of “perfectionism”. This finding clearly shows that the relation between these two concepts should be analyzed in detail. Indeed, the athletes reported that being a perfectionist has certain disadvantages, such as “self-questioning” and “diagnosing the mistakes”.

Fears and Concerns: Athletes have certain fears and concerns depending on the characteristics of the sport they do. National athletes reported several fears, such as “injury and failure”, “dropping out”, “losing the match at a critical moment”, and “fear of being defeated”. “Those who have expectations” have been foregrounded in this category in a patterned way. Indeed, one of the fears mentioned by athletes is “fear of disappointing others who have certain expectations from you”.

Fear of failure triggers the assessment of negative consequences on potential emotions of athletes when they fail to fulfill a task in front of their peers, coaches and teachers (such as mocking, embarrassment or stage fright) (Sagar et al., 2007; Conroy et al., 2002; Conroy, 2001). Thus, the reasons behind others-related concerns of national athletes are easy to understand.

The athletes who participated in the study are among the best athletes in their fields in the country and they are in almost all the top places in the Olympic ranking. However, despite their widely recognized achievements, they experience fear of failure.

A recent study by Gustafsson et al. (2017) showed that fear of embarrassment, which might have a strong effect on fear of failure, is strongly related to psychological stress. Young people with high levels of competitive anxiety display more concerns than their peers who have lower levels of anxiety related to making mistakes, not playing well or being defeated. Some elite athletes might be reluctant to express their fear of failure, which they associate with having a weak personality, and lack of achievement and confidence (Sagar, Lavalley and Spray, 2007). Therefore, it might be concluded that the interviews with the participant athletes revealed findings that support the literature.

In a qualitative study examining perfectionism and fear of failure, Gotwals and Spencer-Cavaliere (2010, 2011) used the tripartite perfectionism model, which examines how athletes with healthy perfectionism (high level of perfectionist strivings, low level of perfectionist concerns) and athletes with unhealthy perfectionism (high level of perfectionist strivings, high level of perfectionist

concerns) respond to success and failure. Potential participants from a pool of 117 university student-athletes competing in competitions organized among universities were determined through the Multi-dimensional Perfectionism Scale in Sports – 2 (Gotwals & Dunn, 2009) according to unhealthy perfectionism scores. 11 athletes (6 female and 5 male) from various sport branches participated in semi-structured interviews. Thematic content analysis of the interviews revealed three themes: personal expectations, coping with difficulties, and others’ roles. As for personal expectation, the athletes set “winning” as the primary goal and emphasized the importance of “attempt” as well as their concerns and fears that accompany with their mistakes. Later, the researchers also selected student-athletes from the same pool by looking at their healthy perfectionism scores. 7 athletes (3 female and 4 male) participated in the interviews. The analysis revealed 3 themes: namely, personal expectations, coping with difficulties and others’ roles. As for personal expectation, the athletes emphasized the importance of having targets, showing attempts, and mental concentration. They also reported that adopting a positive attitude and problem-solving skills help coping with sport performance challenges. Finally, the critical role of others (e.g. parents, teammates and coaches) in sports experiences was discussed in the study.

Athletes with healthy perfectionism highlighted sustaining a positive point of view in the case of failure and stated that they overcome their failure relatively faster (by considering the negative and positive sides of the experience). By contrast, athletes with unhealthy perfectionism reacted through self-criticism, focused on negative consequences, and felt depressed and frustrated (Stoeber et al. 2007).

In conclusion, perfectionism and fear of failure are believed to be interrelated in terms of people who, they feel, have expectations, especially parental expectations and reactions.

Being a personality trait with both positive and negative sides, perfectionism makes it difficult to make conclusive judgements of its effects in sports contexts. In addition, it is quite easy to understand the attempts of national taekwondo competitors to be perfect in achieving their goal of participating in the Olympic Games, the most important sports event in the world. However, this situation should be taken into consideration since it seems to affect their fear of failure. Indeed, extreme levels of perfectionism anxiety may result in dropping out of the sport altogether.

It might be concluded that perfectionism and fear of failure have a more complex structure than it appears for elite and high-ranking athletes and this might affect their motivation in many positive and negative ways. In addition, it is possible to say that the two concepts

intersect and affect each other (especially in family and environment codes).

Finally, the coach of four of the elite athletes included in the study is also a family member. A remarkable finding from the research is that when the coach is a family member, the two concerns of the athletes (the coach being upset due to failure and family being upset due to failure) come together. In Turkey, it is common for parents to be coaches. The sports system in Turkey has recently made it mandatory to operate sports facilities with coaching certificates. In the past, it was possible to work as a taekwondo coach at a club without having a coaching certificate. As a result, individuals who were once involved in taekwondo was able to also work as coaches in their own sports hall alongside top professionals. Consequently, some of them began to train their own children in the sports hall alongside other athletes. However, being the coach of one's own child at an elite level can be considered a special case. This is because the athletes included in the study are high-level athletes and not every parent-coach child can achieve success.

Therefore, although they seem to be in the minority, people who are both coaches and parents need to be more careful with their children/athletes, since, in a possible negative situation, problems can arise in both their sports career and family.

Suggestions

Although perfectionism is a great source of motivation and self-confidence, its potential to bring the athlete to the brink of dropping out of the sport should not be underestimated. For this reason, more and varied studies should be conducted, especially for elite athletes who compete at a high level and participate in competitions. At this point, examining both the adaptive, healthy and maladaptive and unhealthy dimensions of perfectionism can provide clues for athletes to psychologically direct their perfectionism in a positive direction and maintain it in that direction.

Parents and coaches should be more aware of the importance of any words or interventions at critical moments. In future studies, in-depth interviews with parents and coaches can be conducted to provide a more comprehensive framework by revealing how raising elite level athletes is seen from their perspective.

The elite athletes who participated in the study consider it very important to fulfill their personal standards. This can be an important input for psychologists and coaches, helping them to minimize the dangers of athletes' reduced efficiency.

Training programs can be prepared for families and coaches so that fear of failure will not affect athletes' performance negatively.

In the field of sports, which is closely related to competition and the concept of success by definition, it is important to determine the levels of perfectionism and fear of failure of those who perform sports at the highest level. Since this research provides an opportunity to understand the feelings and thoughts of the athletes, it can contribute to regulating the behaviors of the elite athletes to the people who can influence them (such as the athlete's family, coach or club-federation manager) when they insist on perfectionism or when they experience failure. The research can be deepened by applying it to athletes who are in the national team or compete at the elite level both in other national team branches in Turkey and in different countries.

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Participation and Reasons for Non-participation in Sport and Recreational Activities Before and After the Outbreak of COVID-19: Analysis of Data From the 2016 and 2021 Poland National Sports Participation Survey

Authors' contribution:

- A) conception and design of the study
- B) acquisition of data
- C) analysis and interpretation of data
- D) manuscript preparation
- E) obtaining funding

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Abstract

The ongoing study of factors that hinder physical activity (PA) supports the adaptation of intervention strategies to changing conditions and the creation of a more conducive environment for active lifestyles. The aim of the study was to analyze the barriers to Polish participation in sports and recreational activities (SRA) before and after the pandemic. Face-to-face interviews were conducted twice with a representative sample of Poles (in 2016 N=12183 household members, in 2021 N=8351). Descriptive statistical analysis was conducted using frequency and relative frequency (%). A Chi-square test of independence was used to analyze relationships between perceived barriers of non-participation in sports or physical recreation in 2016 and 2021 and the gender and age of respondents. In 2021, 38.8% (36.7% of women and 41.0% of men) declared participation in SRA (regularly or occasionally), with a 7.6 % point decrease in the number of those active compared to 2016. 20.6% of respondents participated in sports and recreation regularly in 2021. Compared to 2016, (21.7%) the difference was not statistically significant. Men declared regular participation more often than women (23.1% vs. 18.1% – 2021). Four main barriers were identified: (1) lack of free time – especially among 30 to 39-year-olds, 40 to 49-year-olds and men; (2) lack of interest, willingness or preference for passive leisure activities – especially among 15 to 19-year-olds; (3) having a medical condition and doctor's contraindications – among 50 to 59-year-olds and 60 and older; and (4) age – especially among 60-year-olds.

These barriers have not been overcome over time, and persisted or even gained in importance during the COVID-19 pandemic in addition to medical condition and doctor's contraindications. We therefore turn our attention to eliminating these barriers, taking into account their importance in specific populations. It is essential to motivate people to overcome internal barriers through social support, health care, and government actions.

Keywords: sport and recreational activities, barriers, COVID-19, Poland

Introduction

The COVID-19 pandemic affected the physical activity (PA) of people around the world, which has had detrimental consequences for the individual and the economy. Various barriers hindered people from taking up sport

or recreational activities (SRA) both before and after the pandemic. Before the pandemic, one of the biggest constraints was lack of time (due to busy lifestyles, work or school) (Koh et al., 2022). Other barriers included lack of motivation, high costs of sports club memberships, lack of accessibility to gyms or other sports facilities

(CDCP, 2022), and concerns about injury and illness (Huebschmann et al., 2011).

The pandemic has disrupted daily routines and further increased barriers to PA. The closure of gyms and sports clubs, limited access to parks and outdoor recreation areas, the need for social distance (Chen et al., 2020; Sallis et al., 2021), and increased demands on time and resources (Chirico et al., 2020) caused many people to stop exercising. One of the biggest problems was lack of motivation, reluctance to exercise at home, and limited space and equipment (Farah et al., 2021; López-Bueno et al., 2020; Marashi et al., 2021). Not insignificant was the fear of contracting a virus (Roche et al., 2022), the lack of an exercise partner (Farah et al., 2021), and, of course, the lack of accessibility to outdoor sports venues (Honey-Roses et al., 2020). These barriers were particularly acute for those with limited opportunities to leave the house or difficult access to sports and recreation facilities, or for those less likely to benefit from healthy lifestyle information. Most affected were the elderly (Schmidt & Pawlowski, 2020; Strain et al., 2022; Wang et al., 2020), those with disabilities (Assaloni et al., 2020; Carvalho et al., 2021; Roberts-Lewis et al., 2021), those with low levels of education and low economic status (Boer et al., 2021), and those from marginalized communities (James, 2020). The COVID-19 pandemic also influenced an increase in the number of people experiencing stress, anxiety and depression, resulting in less inclination (Ammar et al., 2020; Meyer et al., 2020) or lack of motivation to take up PA (Farah et al., 2021). Increased caregiving burdens (Roche et al., 2022) and household responsibilities during the pandemic resulted in a lack of time and motivation to participate in PA, particularly among women (Nienhuis & Lesser, 2020).

The COVID-19 pandemic highlighted existing differences in PA levels in different populations (Boer et al., 2021; Do et al., 2022; Roche et al., 2022) and contributed to the reduction of PA in people worldwide (Ammar et al., 2020; Duncan et al., 2020; Meyer et al., 2020; Rhodes et al., 2020; Stockwell et al., 2021), including Poland (Górnicka et al., 2020). According to a report by the National Institute of Public Health – National Institute of Hygiene (NIZP-PZH) (Wojtyniak & Goryński, 2020) in 2020, 70% of Poles and 64% of Polish women were not physically active at all, and 39% of men and 30% of women had decreased their PA. The largest decrease in activity during the COVID-19 pandemic occurred in the 20–44 year old group (63% of Poles and 60% of Polish women).

Barriers to undertaking PA before and after the COVID-19 pandemic vary according to each person's socioeconomic situation and individual circumstances. This study aims to analyze the most common reasons for Poles' non-participation in sports and physical recreation before (2016) and after the pandemic (2021), through

the lens of their gender and age. Permanent study of the factors that hinder their participation in PA supports the adaptation of corrective strategies to changing conditions and the creation of a more favorable environment for an active lifestyle. It also makes it possible to identify which activities are effective and which need to be changed.

Material and Methods

Data Collection

The paper is based on data retrieved from two large-scale surveys used to collect information on participation in sport and recreational activities (GUS, 2017, 2022). All surveys were conducted by order of Statistics Poland – a government executive agency – and are available in an open database (<https://stat.gov.pl/obszary-tematyczne/kultura-turystyka-sport/sport>).

A two-stage stratified random sampling scheme was used. The basis of the first-stage unit draw operator was the list of districts developed for the National Census. The 2nd-stage sampling frame consisted of lists of housing units in the drawn 783 districts, developed based on the National Official Register of the Territorial Division of the Country (TERYT). The results of the survey were outweighed by data on the structure of households by number of persons in the household (six size groups) and place of residence (urban or rural) from the 2011 National Population and Housing Census. In order to obtain as many responses as possible, it was made possible to interview a surrogate person, i.e., a member of the household with full information about the person who is absent or otherwise unable to give an interview. In the case of children 10 years old and younger, the interview was conducted with the child's parents or guardians.

Participants

Face-to-face interviews were conducted with a representative sample of Polish households and their members in October 2016. (N=4653 households, N=12183 members of surveyed households) and October 2021. (N=3991 households, N=8351 members of surveyed households). The survey applies to individuals who were at least 5 years old at the time of the interview. The specifications of the survey are shown in Table 1.

Materials

The research tools were the questionnaires “Participation in sports and physical recreation – household questionnaire DS-52G” and “Participation in sports and physical recreation – individual questionnaire DS-52I” developed by the Statistics Poland. They included questions on the frequency of household members' participation in SRA, motives for engaging in this activity and

Table 1. Specification of research on participation in sports and physical recreation in 2016 and 2021.

Specification	2016	2021
Period of participation in sports and recreation covered by the survey	01.10.2015-30.09.2016	01.10.2020-30.09.2021
Number of households surveyed	4478	4339
Including the number of refusals	175	348
Percentage of responses (%)	96.2	92.0
Number of surveyed household members	12405	9790
Including number of refusals	175	1439
Percentage of responses (%)	98.2%	85.3
Including number of alternate respondents	3972	3800

sports skills possessed. They also collected information on households' provision of sports and recreational equipment, expenses incurred for this equipment and expenses related to participation in the activity itself. Participation in sports was understood as systematic training at sports clubs or other organizers (also in the form of sports camps, in organized groups or individually) based on prescribed training plans (GUS, 2017, 2022). Participation in physical recreation meant undertaking PA at different frequencies and in different forms (both individually, with colleagues, and in organized groups), depending on the specific form of exercise, the time available, or the ability to use sports equipment.

In view of the purpose of the study, this article analyzed only the responses regarding the frequency of taking up SRA (among those who are referred to as active in the rest of the paper) and the barriers to this activity (which make it difficult or impossible for inactive people to participate). Participation was analyzed on a regular basis (1–2 times a week) and overall, i.e. regularly or occasionally (regularly but with low frequency, such as once a month on average) in the last year.

The survey was conducted using the same questionnaires in two waves: wave I (2016) and wave II (2021). Due to the implementation of wave II of the survey during the COVID-19 pandemic, the frequency of participation in sports or physical recreation was analyzed in general, i.e. throughout 2021, as well as excluding the periods of COVID-19 pandemic restrictions (first lockdown in Poland 25.03–19.04.2020; second – 23.10–17.01.2021; third – 27.03–09.04.2021 (Politykazdrowotna.com, 2021; Wojtyniak & Goryński, 2022; ZPP, 2021). In addition, further reasons were added to the response cafeteria regarding barriers to SRA: restrictions related to the COVID-19 pandemic and fear of COVID-19 infection.

Statistical Analysis

The data were analysed in an Excel worksheet. Descriptive statistical analysis was conducted using frequen-

cy and relative frequency (%). A Chi-square (χ^2) test of independence was used to analyse relationships between perceived barriers of non-participation in SRA in 2016 and 2021 and the gender and age of the respondents. The level of significance was set at 0.05

Results

In 2021, participation in SRA (overall, i.e., regularly or occasionally) was declared by 38.8% of people (36.7% of women and 41.0% of men – $\chi^2=53.83$; $p<0.001$), which represents a decrease in the number of physically active people by 7.6 percentage points compared to 2016 ($\chi^2=116.65$; $p<0.001$). On a regular basis, 20.6% of those surveyed in 2021 were engaging in such activity (regardless of the periods of COVID-19 pandemic restrictions). Compared to 2016 (21.7%), this difference was not statistically significant ($\chi^2=1.54$; $p=0.21$). Men declared regular participation more often than women (23.1% vs. 18.1% – 2021; $\chi^2=9.99$; $p<0.01$). Outside periods of COVID-19 pandemic restrictions, 8.5% of men and 7.0% of women exercised regularly ($\chi^2=2.27$; $p=0.13$).

As in the first wave of the survey, children and adolescents were the most physically active in the second wave, although a decline in their participation in SRA was generally evident. The percentage of those active in the 5–9 age group (regardless of frequency of participation) was 70.9% (2016) and 68.0% (2021; $\chi^2=1.08$; $p=0.29$); in the 10–14 age group – 82.2% and 69.3%, respectively ($\chi^2=24.94$; $p<0.001$); and in the 15–19 age group – 71.2% and 65.4%, respectively ($\chi^2=4.01$; $p<0.05$). Looking at the declarations of all respondents, participation in SRA decreased with age. Among 20 to 29-year-olds, the percentage active in this regard was in 59.3% in 2016 and 47.2% in 2021 ($\chi^2=96.26$; $p<0.001$); among 30 to 49-year-olds – 53.4% and 44.8%, respectively ($\chi^2=47.25$; $p<0.001$); and among 50 to 69-year-olds only about 30% (35.2% and 28.1%, respectively; $\chi^2=16.94$; $p<0.001$).

People aged 60 and older were the least likely to participate in sports or physical recreation (25.1% in 2016, 18.3% in 2021 ($\text{Chi}^2=38.2$; $p<0.001$)).

Analysis of the most important factors hindering or preventing SRA showed that in 2021, as in 2016, the most serious barrier (for about 30% of respondents) was lack of free time (in 2021 – 29.9%, in 2016 – 30.3%; $\text{Chi}^2=0.23$; $p=0.63$) (Figure 1). This applied more often to men (2021 – 33.3%; 2016 – 34.7%; $\text{Chi}^2=1.07$; $p=0.3$) than to women (2021 – 26.9%; 2016 – 26.4%; $\text{Chi}^2=0.21$; $p=0.64$). The age of the respondents differentiated the occurrence of this barrier (Table 2). It was most frequently indicated by 30 to 39-year-olds (2016 – 58.0%; 2021 – 58.1%) and 40 to 49-year-olds (2016 and 2021 – 48.7%). In 2021, the percentage reporting such a reason for inactivity (in addition to those aged 50–65) significantly decreased relative to 2016. Thus, in the group of 15 to 19-year-olds, it was 12.8% in 2021, and 24.5% in 2016 ($\text{Chi}^2=6.8$; $p<0.01$); in the group of 20 to 29-year-olds – 36.4% and 45.0%, respectively ($\text{Chi}^2=9.24$; $p<0.01$); while in the group of 50 to 59-year-olds it significantly increased (2016 – 33.7%; 2021 – 42.1% ($\text{Chi}^2=13.71$; $p<0.001$)).

The second major barrier was a lack of interest or willingness, or a preference for passive leisure activities. In 2021, this barrier was significantly more frequently declared (22.9%; $\text{Chi}^2=25.1$; $p<0.001$) than in 2016 (19.1%; Figure 1). At the same time, it was indicated by both men – 23.2% and women – 22.7% ($\text{Chi}^2=0.15$; $p=0.69$). In 2016, these percentages were 19.9% and 18.4%, respectively ($\text{Chi}^2=2.44$; $p=0.12$; Table 2). In 2021, it was the main obstacle to taking up SRA among 15 to 19-year-olds (39.3%). It should be mentioned that those inactive for this reason in 2016 (in this age group) were far fewer – 28.4% ($\text{Chi}^2=4.43$; $p<0.05$).

In 2016, 18.2% of respondents did not engage in SRA due to a medical condition and doctor's advice. Meanwhile, in 2021, there were fewer such individuals – 10.8% ($\text{Chi}^2=123.25$; $p<0.001$; Figure 1). Moreover, while in 2016 men (17.4%) were less likely to report this reason than women (19.0%; $\text{Chi}^2=2.85$; $p=0.09$), in 2021 these percentages hardly differed (10.6% and 10.9%, respectively; $\text{Chi}^2=0.12$; $p=0.73$) (Table 2). Those aged 50–59 and over

60 were significantly more likely to report this barrier compared to other age groups – both in 2016 (20.4% and 32.4%, respectively) and 2021 (11.3% and 17.9%, respectively), although in 2021, in both groups compared to 2016, the percentage declaring this barrier significantly decreased ($\text{Chi}^2=26.98$; $p<0.001$ and ($\text{Chi}^2=110.92$; $p<0.001$)).

The age of respondents was an equally significant obstacle. It was indicated by 17.1% in 2021 and 13.7% in 2016 ($\text{Chi}^2=25.63$; $p<0.001$) (Figure 1). At the same time, in 2021, women (19.6%) were more likely ($\text{Chi}^2=25.15$; $p<0.001$) than men (14.2%) to declare it as a reason for inactivity (Table 2). The same was true for people over 60, who indicated it significantly more often (than other age groups). It should be mentioned that in 2016 the percentage of those aged 60 and over who were inactive due to age was 36.4%, while in 2021 it significantly increased to 44.4% ($\text{Chi}^2=26.97$; $p<0.001$).

As a result of COVID-19, pandemic-related restrictions (4.2%) and fear of COVID-19 infection (1.2%; Figure 1) were added to the factors hindering or preventing participation in SRA. However, respondents cited these barriers significantly less frequently than those discussed earlier did. In the latter two cases, gender was not a differentiating factor (Table 2). That is, among men, restrictions related to the pandemic hindered or prevented participation in SRA for 4.0% of them, and fear of COVID-19 infection for 1.2% of them. Among women, the percentages were slightly higher – 4.5% and 1.3%, respectively.

Fear of being infected as a result of the pandemic was indicated significantly more often (compared to other age groups) by the youngest people, i.e. those aged 5–9 (20.6%) and 10–14 (22.2%). Overall, the fraction of those inactive for this reason ranged from 1.8% among those over 60 to 7.8% among 20–29 year olds. In contrast, fear of COVID-19 infection was a significantly more common barrier (compared to other age groups); among children, aged 5–9 (2.5%) and adolescents aged 10–14 (3.4%) and 15–19 (2.8%).

Other barriers, such as fatigue, lack of activity provider or suitable facilities close to place of residence, financial reasons, and lack of company concerned respondents much less frequently (Figure 1).

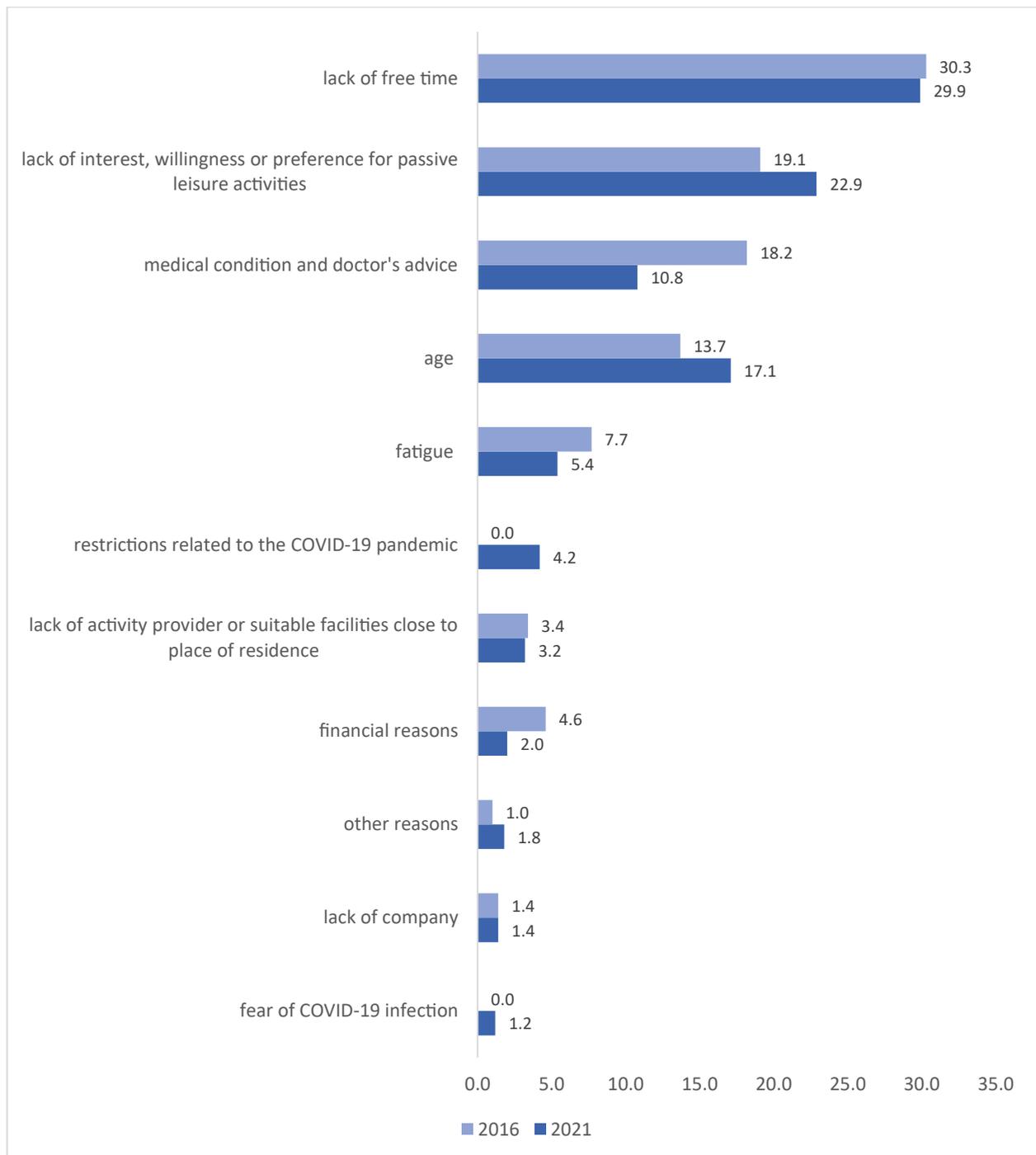


Figure 1. Reasons for non-participation in SRA in 2016 and 2021

Table 2. Reasons for non-participation in SRA according to the respondents' age in 2016 and 2021

		Lack of free time	Financial reasons	Medical condition and doctor's advice	Age	Fatigue	Lack of company	Lack of activity provider or suitable facilities close to place of residence	Lack of interest, willingness or preference for passive leisure activities	Restrictions related to the COVID-19 pandemic	COVID-19 fear of COVID-19 infection	Other reasons	Chi2; p
Wave													
	2016	30.3	4.6	18.2	13.7	7.7	1.4	3.4	19.1	-	-	1.0	234.02;
	2021	29.9	2.0	10.8	17.1	5.4	1.4	3.2	22.9	4.2	1.2	1.8	<0.001
Gender													
Male	2016	34.7	4.6	17.4	9.9	8.3	0.8	3.2	19.9	.	.	1.3	96.69;
	2021	33.3	2.2	10.6	14.2	5.9	0.9	3.2	23.2	4.0	1.2	1.4	<0.001
Female	2016	26.4	4.7	19.0	17.1	7.2	2.0	3.5	18.4	.	.	1.8	131.08;
	2021	26.9	1.9	10.9	19.6	5.0	2.0	3.3	22.7	4.5	1.3	2.1	<0.001
Age													
5–9	2016	9.0	12.3	3.9	14.2	0.5	1.9	21.8	25.1	-	-	11.3	20.81;
	2021	5.9	1.0	0.3	10.3	-	1.7	25.8	23.3	20.6	2.5	8.6	<0.01
10–14	2016	15.2	12.8	9.0	1.0	0.0	2.6	29.2	26.6	-	-	3.6	14.66;
	2021	8.3	4.7	4.0	0.6	-	7.6	14.4	30.0	22.2	3.4	4.9	0.07
15–19	2016	24.5	12.0	6.3	0.0	2.4	2.3	19.1	28.4	-	-	5.1	18.88;
	2021	12.8	4.4	8.7	0.3	-	4.0	17.2	39.3	6.9	2.8	3.6	<0.05
20–29	2016	45.0	5.8	5.2	0.0	4.6	3.6	6.0	27.9	-	-	1.9	14.77;
	2021	36.4	4.2	5.9	0.1	2.3	1.7	5.0	31.9	7.8	0.7	4.1	0.06
30–39	2016	58.0	5.3	9.0	0.2	6.6	1.1	2.3	15.9	-	-	1.5	50.91;
	2021	58.1	2.4	4.2	0.1	4.1	0.8	3.3	21.5	2.9	1.0	1.7	<0.001
40–49	2016	48.7	5.1	8.1	0.2	12.5	1.1	1.6	22.1	-	-	0.7	35.38;
	2021	48.7	3.3	6.7	0.7	10.9	1.6	1.2	21.4	3.5	1.3	0.6	<0.001
50–59	2016	33.7	4.9	20.4	4.2	13.2	1.2	0.9	20.8	-	-	0.7	82.4;
	2021	42.1	1.5	11.3	3.7	9.5	1.5	1.1	25.2	2.9	0.5	0.7	<0.05
60 lat i więcej	2016	6.6	1.9	32.4	36.4	5.7	1.0	0.9	14.0	-	-	1.0	178.48;
	2021	8.1	0.6	17.9	44.4	3.9	0.9	0.8	18.9	1.8	1.4	1.2	<0.05

Discussion

The purpose of this study was to analyze the barriers to participation in SRA of Poles before and after the pandemic. According to the Medline database as of 24.04.2023, this is the first such analysis in Polan. It is

based on a representative sample, people aged 5 and older (in 2016 – 12183 household members; in 2021 – 8351).

The COVID-19 pandemic and the restrictions associated with it led to impeded access to sports and recreational facilities, suspension of group activities, restrictions on time spent outdoors, etc. (Stockwell et al., 2021; Wojtyn-

iak & Goryński, 2020) and had a significant impact on people's PA levels. The negative impact of the pandemic on the number of active people and on the duration of PA was noted worldwide (Rhodes et al., 2020; Stockwell et al., 2021). This was independent of the population studied (healthy adults, children and adults with disease) or the methods of assessment (Stockwell et al., 2021). In Poland, it was similar (Wojtyniak & Goryński, 2020). According to our results, there was a decrease in the number of Poles who were physically active (regularly or occasionally) in 2021 compared to 2016 (38.8%) by 7.6 percentage points. The situation was different for those who regularly undertake PA (exclusively), as only a small difference was found, and it was insignificant (20.6% in 2021; 21.7% in 2016). We speculate that physically active individuals (for whom exercise was an indispensable part of their lifestyle) were more effective in coping with barriers resulting from the COVID-19 pandemic than inactive individuals – a finding confirmed by other researchers (Girgin & Okudan, 2021; van Veldhuijzen Zanten et al., 2015). This indicates the importance of forming active leisure habits. The psychological theory of health behavior maintenance says that the construct of human behavior – in addition to identity – is planning and habit (the power of habits). Researchers say that the relationship between habit and PA is bidirectional, although it is unclear whether habit influences PA or vice versa (Feil et al., 2021). Some studies show that PA is partly regulated by unconscious processes, such as habit formation (Rebar et al., 2016) and others show that PA has a positive relationship with habit (Feil et al., 2021). Considering this, we suggest that intervention strategies pay more attention to planning PA and developing the habit of participating in it. From an application point of view, reminders (Liu & Willoughby, 2018), joining an organized exercise group, or putting a PA date in one's calendar and that of a friend or family member can be particularly important here (Biernat & Piątkowska, 2018b). Active individuals can aid this process, since, according to Biernat et al. (Biernat et al., 2020), a "contagion" effect of PA is evident in households with active individuals.

Of course, the COVID-19 pandemic may have disrupted "automatic" behavioral patterns through "habit discontinuity" (Ding et al., 2019; Farah et al., 2021). Therefore, it was particularly important during this period to maintain motivation to participate in PA. This is confirmed by global reports showing that during the pandemic the biggest obstacles were lack of ability and motivation (Tallis et al., 2022). According to the wheel of behavioral change, three components are required for a specific behavior (e.g., PA or sedentary behavior) to occur: ability (mental and physical), opportunity (physical and social) and motivation (reflexive and automatic) (Michie et al., 2014). This is shown by the example of Canada, where most respondents were not motivated to exercise because they

felt excessive anxiety (+8%), lack of social support (+6%) or had limited access to equipment (+23%) or space (+41%) (Marashi et al., 2021). Therefore, supporting people who motivated through: training (e.g., virtual or online), persuasion, education, advice on makeshift or inexpensive PA at home or in difficult circumstances (Hammami et al., 2022) may have been important here. Unfortunately, during this unprecedented public health crisis in the conduct of the Polish authorities, these activities were essentially absent – something that should change in the event of another crisis (and beyond).

Identifying opportunities and barriers to PA participation in different populations and situations is an important first step in preparing effective interventions (Skrok et al., 2019). In the event of another blockage resulting from a pandemic and/or a return to "normal life," ready-made action scenarios – targeting key determinants – can be vital to maintaining public health.

Our analysis shows that in both 2016 and 2021 men engaged in SRA significantly more often than women (48.4% vs. 44.6% and 41.0% vs. 36.7%, respectively). Previous studies from most European countries confirmed this fact before the pandemic period (Breuer et al., 2011; Hartmann-Tews, 2016; Orlandi et al., 2021). According to them, women were about 1.2 times less active (Scheerder & Vos, 2016). Although it should also be mentioned that there were dissenting opinions; namely that in terms of the level of participation in sports, women caught up with men and were even much more active (Grima et al., 2017). Some argued that women spent less time on recreational and sports activities than men but were more likely to participate in such activities at all stages of life (Grima et al., 2017).

During the lockdown period, a disappearance of gender differences in adherence to PA recommendations was noted (Orlandi et al., 2021), and even a lower tendency for women to reduce their PA levels (Orlandi et al., 2021; Smith et al., 2020). According to a Polish study by the National Institute of Public Health – National Institute of Hygiene (Wojtyniak & Goryński, 2020), men were less active during the pandemic period (29.6% vs. 35.6% of women), and this effect was exacerbated after accounting for differences in the age structure of the population of both sexes (women are older on average). The above findings may be surprising when compared with the literature from non-pandemic times (Christensen et al., 2022; Smith et al., 2020) and with our results. We suppose that our female respondents – like those studied by Nienhuis & Lesser (Nienhuis & Lesser, 2020) – were more affected by pandemic restrictions than men. The researchers pointed out that women during the COVID-19 pandemic had significantly higher rates of depression and fatigue (Nienhuis & Lesser, 2020), as well as lower vigor, than men (Roshanaei-Moghaddam et al., 2009). They were

also noted to have greater work-related changes (Nienhuis & Lesser, 2020) and less protection from loss of employment (Christensen et al., 2022).

Although it should also be mentioned that there were reports that spoke of greater PA in men (Abate Daga et al., 2021) or a similar decline in PA as in women (Christensen et al., 2022) and argued that family discouragement was a significant barrier for both men and women (Girgin & Okudan, 2021) – indicating the need for further analysis.

In the group of Poles we studied, participation in sports or physical recreation decreased with age (in both 2016 and 2021). The opposite phenomenon during the pandemic period was observed in the UK, where older people achieved higher levels of PA than other groups (Smith et al., 2020). However, analysis of global studies shows that the results are inconclusive in this regard (probably due to the lack of homogeneity of studies) (Christensen et al., 2022). In our group, people aged 60 and older were the least active (in 2016 – 25.1%, as well as in 2021 – 18.3%), which during the pandemic may have been due to the fact that COVID-19 was particularly dangerous for older populations (senior.gov.pl). According to a report by Poland's Senior Policy Institute (Wiśniewski, 2021), as much as 62.8% of people aged 60+ reduced PA during the COVID pandemic era. Therefore, in an effort to minimize the risk of infection, seniors complied with local and governmental recommended safety measures, kept their social distance, and were simply more cautious about taking PA (Rhodes et al., 2020). This finding underscores the potential value of helping the elderly maintain a physically active lifestyle. This assistance should focus not only on instruction on how to be safe, but also on how to safely participate in PA (Hammami et al., 2022; Jiménez-Pavón et al., 2020; Middleton et al., 2020), how to make available or restructure an environment in which exercise could be undertaken (Rhodes et al., 2020), and how to motivate people to exercise.

Analysis of the most important factors hindering or preventing SRA also showed that in both 2021 and 2016 two barriers were the most prevalent, namely lack of free time (29.9% and 30.3%, respectively) and lack of interest, willingness or preference for passive leisure activities (22.9% and 19.1%, respectively). These obstacles were, of course, identified before the COVID-19 pandemic in clinical (Barbosa et al., 2015; Cavalcante et al., 2015) and healthy populations (Herazo-Beltrán et al., 2017; Justine et al., 2013). What is surprising, however, is that during the period of social isolation, it was not the lack of activity provider or suitable facilities close to place of residence (in 2016 - 3.4%; in 2021 – 3.2%), but precisely the lack of free time and lack of desire/interest that were the most important personal obstacles. At the same time, this was not an isolated phenomenon, as exactly the same barriers during the pandemic were reported, for example, in Bra-

zilians (Farah et al., 2021). This once again draws attention to the need to motivate people and raise awareness of the role of PA in maintaining health and reducing the risk of developing diseases (including COVID-19) (CDCP, 2022).

On the other hand, looking at it, both the first and the second barriers revealed in the Polish population may have been the result of increased household duties during the pandemic (resulting, for example, from the presence of all family members, doing professional work at home and helping with children's school assignments), which, of course, in our group requires more extensive analysis. This is indirectly confirmed by the fact that working-age Poles, especially 30 to 49-year-olds (58.1%), who have families and perform parental roles, significantly more often declared lack of time. In order to meet the needs of this group of people, it seems necessary to relieve their burden, for example, through the implementation of PA programs for their children at various socio-educational centers, and, of course, motivational programs. This becomes all the more important because, in light of our results, the most serious obstacle to sports/exercise recreation in 2021 among 15 to 19-year-olds was precisely the lack of interest, willingness to engage in physical activity or preference for passive recreation (in 2021 – 39.3%; in 2016 – 28.4%). This constitutes an alarming social problem. It can be seen that this phenomenon is growing and, for those at the stage of forming leisure habits, may have further consequences.

Also noteworthy is the fact that among Polish respondents, men (33.3% vs. women 26.9%) more often declared lack of time. Meanwhile, in Polish reality, culturally defined patterns of what is “masculine” and “feminine” mean that it is women who are more often burdened with household duties, and taking care of children (Biernat & Piątkowska, 2018a). This raises the assumption that it may not be a lack of time, but rather men's passivity, “dozing off” at home when they lose touch with their professional work, a point previously made by Biernat et al. (Biernat et al., 2019). On the other hand, perhaps the problem is that a person working remotely spends more time on responsibilities than on-site. A survey conducted by PAP (Jarco, 2020) shows that this applies to 45% of Poles. Nevertheless, we find evidence in the literature that time constraints strongly affect men's propensity to take PA (Biernat et al., 2020).

As already mentioned, lack of interest, willingness to engage in physical activity or preference for passive recreation is a major barrier for 15 to 19-year-olds. Across the Polish population, men (23.2%) and women (22.7%) declared this reason equally (in 2021). In 2016, these percentages were smaller, respectively (19.9% and 18.4%), which again (and perhaps even more so) draws attention to the increasing importance of this barrier over the years, as well as insufficient motivational measures on the part of government recommendations.

Other significant obstacles were a medical condition and doctor's advice and the age of respondents. Thus, in the case of the first of these barriers, the fraction of inactive Poles decreased in successive waves of the survey (2016 – 18.2%; in 2021 – 10.8%). It should be mentioned that in both 2016 and 2021, medical condition and doctor's advice were more common among those aged 50–59 (20.4% and 11.3%, respectively) and over 60 (32.4% and 17.9%, respectively), which is confirmed in the literature (Rhodes et al., 2020). No significant differences were shown in this regard depending on the gender of the subjects. An example from the UK shows that a different phenomenon was noted in that country, namely that middle-aged women (45–55 years) more often reported greater health complaints and less social support as a barrier to PA (Lum & Simpson, 2021). Nevertheless, our results indicate a positive change in the perception of this barrier during the COVID-19 pandemic. Could it be that, as Girgin and Okudan (2021) argue, there was an increase in the perception of PA's role in disease prevention and treatment? This would indicate that Polish doctors are more effective at raising awareness and promoting regular PA among their patients. Alternatively, has COVID-19 pushed other diseases into the background? Maybe many elderly people avoided visits to health centers for fear of infection, or could not get to one, and simply didn't receive medical help with their diseases? A report by Poland's Senior Policy Institute confirms that more than 60% of seniors declared limited access to health care during the outbreak. However, this requires a broader analysis.

In the second case – the age of respondents as an obstacle to undertaking PA – the opposite phenomenon was observed, i.e. an increase in its importance (in 2016 – 13.7%; in 2021 – 17.1%). In 2021, this was particularly true for women (19.6%) and those over 60 years of age (44.4%). With that said, an analysis of the latter group showed that it was the most serious barrier for them, and that perceptions had increased significantly compared to 2016 (36.4%). In comparison, in Australia, older people reported the closure of exercise facilities, cancellation of group activities and unavailability of equipment as the biggest barrier (Ng et al., 2009). We presume that in our case this is due to a decrease in the functional fitness of respondents – something that other researchers have also pointed out (Richardson et al., 2022). Low fitness even before the pandemic was a common barrier in this age group (Gray et al., 2016; Yarmohammadi et al., 2019). Lockdown further compounded this effect (Richardson et al., 2022). By limiting mobility, it lowered PA and thus negatively affected the fitness of seniors (Richardson et al., 2022; Tallis et al., 2022). Given that perceptions of barriers increase as PA decreases (Girgin & Okudan, 2021), intervention strategies should focus on overcoming barriers in this age group and enhancing seniors' inde-

pendence. Raising awareness and developing intrinsic motivation – based on emphasizing the benefits of PA and its role in maintaining health and preventing disease – is essential for this (Biernat, 2015). This issue seems crucial, as researchers believe that convincing one to take regular PA, to program it into one's daily schedule, requires (1) knowledge of the subject, (2) experience of the benefits. Knowledge alone is not convincing enough to get people (especially inactive people) to exercise (Biernat et al., 2019). A belief that PA will meet seniors' various needs (e.g., health or emotional) – and therefore that it is “mandatory” or “nice to do” will make it more likely to be prioritized. Creating new behaviors and then sustaining this change, however, requires support from the health service. Ongoing efforts by physicians, including instruction on how to undertake PA safely and effectively, collecting feedback on engaging in PA, can improve the existing status quo (Bethancourt et al., 2014). However, this requires careful consideration of how to monitor the effectiveness of interventions.

As a result of COVID-19, pandemic-related restrictions (4.2%) and fear of COVID-19 contagion (1.2%) were added to the factors hindering or preventing participation in sports or physical recreation (in 2021). However, Polish respondents cited these barriers less frequently than the ones discussed earlier, which may come as a bit of a surprise when analyzing results from other countries. In Brazil, the barrier most strongly associated with changing PA levels during the pandemic was lack of adequate facilities/space/equipment (Farah et al., 2021). In Ireland, the main barriers were the inability to undertake PA in the usual way and the recommendation not to leave the place of residence (Barrett et al., 2022). We speculate that the low perception of this barrier in the adult Polish population is because they do not associate participation in sports/exercise recreation with indoor activities (many of which were indoor). Euromonitor (EC, 2018) confirms that Poles are fans of taking PA outdoors. As many as 40% of those who practice sports like to do so outdoors, including in parks or city gyms. The second most preferred location is the home/apartment, where more than one third of active Poles train. Local sports centers are chosen by 15% of exercisers, followed by fitness clubs (11%) and sports clubs (7%). The situation is different for children/young people, for whom the main place to exercise is preschool and school facilities, and social proximity is an important factor in the activity. Therefore, respondents aged 5–9 (20.6%) and 10–14 (22.2%) indicated pandemic-related strictures significantly more often. This result reveals the need to maintain the social aspect of exercise, including support from peers and teammates, where possible, as previously pointed out by McGrath et al. (McGrath et al., 2021). This is an important consideration during periods of restriction.

Fear of COVID-19 infection was a significantly more common barrier among children aged 5–9 (2.5%) and adolescents aged 10–14 (3.4%) and 15–19 (2.8%) than among other age groups. We suppose this was a consequence of preventive measures such as school closures and remote education, which produced negative social, emotional, and behavioral effects. Idoiaga et al. (Idoiaga et al., 2020) claimed that Spanish children experienced conflicting emotions during the lockdown. On the one hand, they felt scared, upset, lonely, sad, bored, and angry, while on the other hand, they experienced a sense of security, calm, and happiness. However, numerous publications from around the world have highlighted children's increasing psychosocial problems, such as fear, anxiety, nervousness and excessive attachment to the caregiver, as well as negative changes in previous lifestyles (including, PA and diet) (Pfefferbaum, 2021). They noted a decrease in PA and an increase in screen time (Francisco et al., 2020). Guan et al. (2020) *Kliknij lub naciśnij tutaj, aby wprowadzić tekst.* argued that children are less physically active when they do not go to school, as much of this activity involves getting from home to school, physical education classes, and playing during recess. The closure of schools and the reduction of interpersonal contacts have definitely reduced the possibility of undertaking PA, especially for children living in cramped apartments (Rundle et al., 2020). In addition, the fact that parks and playgrounds were visited less frequently increased sedentary lifestyles. The consequences of this may be particularly significant for obese children.

Conclusion

What can make it easier to understand the nature of the problem of low PA, and thus counteract it more effectively, is to explain why people do not exercise during a pandemic and what can motivate them to exercise. The presented results identified four main barriers: (1) lack of free time, (2) lack of interest or willingness, or a preference for passive leisure activities, (3) a medical condition and doctor's advice, and (4) age of respondents. This indicates that these barriers were not overcome over time, and during the COVID-19 pandemic they persisted or even increased in importance (in addition to poor health or medical advice). This reveals specific areas that exercise and health professionals should address. First, it is necessary to address these barriers with an eye to their importance in specific populations. For the first barrier, interventions should focus on 30 to 49-year-olds (especially men), for the second on 15 to 19-year-olds, for the third on people 50 and older, and for the fourth on 60-year-olds (especially women). Second, it is essential to motivate people to overcome internal barriers (fatigue, reluctance to exercise,

lack of time, age) in times of limited socialization. Active promotion of PA as a means of supporting treatment and maintaining health (especially among seniors) and as an important and attractive form of leisure time (especially among young people) can help this process. It is also necessary to emphasize systematic planning of PA to create a habit (writing in your own calendar and that of a loved one), creating targeted, attractive programs (e.g., online training or virtual classes), and providing advice on safe, impromptu or inexpensive PA at home.

Motivating people should have the support of the public, health services, and the government. We recommend that efforts to promote PA be prioritized and integrated into routine medical care. The goal should not be to return PA levels to "normal," but to establish sustainable mechanisms to promote healthy behavior, and to prevent potential further declines in PA with additional waves of COVID-19

Limitations

Our study has some limitations. First, it is cross-sectional and no causality can be inferred. Also, we used a limited set of social variables as predictors. However, the large sample size of our study and its timely assessment of health behaviors make our findings valid and quite relevant.

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