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Physical Education Teachers' Role of Physical Activity Leadership: Distance Learning Experiences in Turkey

Beden Eğitimi Öğretmenlerinin Fiziksel Aktivite Liderliğindeki Rolü: Türkiye'deki Uzaktan Eğitim Deneyimleri

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Öz

Bütüncül Okul Fiziksel Aktivite Programları (BOFAP), sürdürülebilir fiziksel aktivite fırsatları yaratmak amacıyla öğrenci, aile ve okul arasında iş birliğini geliştiren; okulun ötesine geçerek öğrencinin yaşadığı ev ve topluma etki etme potansiyeline sahip bir yaklaşımdır. Literatürde, COVID-19 sürecinde beden eğitimi öğretmenlerinin uzaktan eğitim bağlamında fiziksel aktivite liderliği rollerini ve özellikle küçük yerleşim yerlerinde karşılaştıkları deneyimleri inceleyen çalışmalar sınırlıdır. Bu araştırmada beden eğitimi öğretmenlerinin, COVID-19 salgını süresince bütüncül okul fiziksel aktivite programı çerçevesinde uzaktan eğitim ile fiziksel aktivite liderliği rolünü incelemek amaçlanmıştır. Uygun örnekleme yöntemi kullanılarak seçilen Milli Eğitim Bakanlığı'na bağlı devlet okullarında çalışan 32 öğretmen çalışmaya katılmıştır. Temel nitel araştırma odağıyla tasarlanan çalışma; COVID-19 salgın süreci risk faktörleri dikkate alınarak yapılandırılmış görüşme soruları ile çevrim içi görüşmeler ve Google Documents aracılığıyla online olarak açık uçlu sorular şeklinde yapıldı. Ayrıca alan gözlem notları tutuldu. COVID-19 salgın süresince uzaktan eğitim ile fiziksel aktivite liderliği rolünü incelemek için yapılan çalışmada veriler bireysel, sosyal ve organizasyonel olmak üzere 3 seviyeye ayrılarak her bir seviye için fiziksel aktivite rolünü etkileyen temalar oluşturulmuştur. Bireysel seviye: Fiziksel aktivite seviyesi, Sosyal seviye: Öğretmen desteği ve aile desteği, Organizasyonel seviye: Uzaktan eğitimin niteliği ve teknoloji alt yapı sorunu, şeklinde temalara ayrılmış ve her bir temayı etkileyen etkenler belirlenmiştir. Sonuç olarak; beden eğitimi öğretmenlerinin, COVID-19 salgını süresince uzaktan eğitim ile fiziksel aktivite liderliği rolünün etkin bir şekilde uygulanamadığı belirlenmiştir.

Anahtar Kelimeler: Bütüncül Okul Fiziksel Aktivite Programı, COVID-19, Fiziksel Aktivite Liderliği, Beden Eğitimi

Abstract

Comprehensive School Physical Activity Program (CSPAP) is an approach that aims to create sustainable physical activity opportunities by fostering collaboration among students, families, and schools, and that has the potential to extend beyond the school setting to influence students' homes and communities. There is limited research examining the physical activity leadership role of physical education teachers during COVID-19, particularly in the context of distance education and small rural communities. This study aimed to examine physical education teachers' physical activity leadership roles through distance education within the framework of a CSPAP during the COVID-19 pandemic. Using purposive sampling, 32 teachers working in public schools affiliated with the Turkish Ministry of National Education participated in the study. Designed with a basic qualitative research focus, the study was conducted through online interviews using structured interview questions developed in consideration of the risk factors of the COVID-19 pandemic process, as well as open-ended questions administered online via Google Documents. Additionally, field notes were taken. In order to examine the physical activity leadership role through distance education during the COVID-19 pandemic, the data were categorized into three levels—individual, social, and organizational—and themes affecting the physical activity leadership role were revealed for each level. At the individual level, the theme was physical activity level; at the social level, teacher support and family support; and at the organizational level, the quality of distance education and technological infrastructure problems. Factors influencing each theme were identified. It was determined that physical education teachers were not able to effectively implement their physical activity leadership role through distance education during the COVID-19 pandemic.

Keywords: Comprehensive School Physical Activity Program, COVID-19, Physical Activity Leadership, Physical Education

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INTRODUCTION

During the COVID-19 pandemic, teachers who were separated from their schools and colleagues experienced the stress of practicing their profession under unfamiliar conditions (Aktaş Salman et al., 2021; Gobbi et al, 2021). Beyond its general impact on educational settings, the pandemic significantly affected physical education (PE), creating a sense of "bodiless" PE and leading to emotional tensions and identity-related concerns (Varea & González-Calvo, 2021). Teachers encountered challenges in adapting core concepts, content, roles, and responsibilities (Kamoga & Varea, 2021). Studies have highlighted the difficulty of delivering quality PE through distance education and emphasized the need for improvements in infrastructure, curriculum, and content development if remote learning persists (Çetin et al., 2021; Lenka et al., 2021; Varea et al., 2022). Research further indicates significant declines in young people's physical activity levels during school closures (Clemente-Suárez et al., 2021; Ding et al., 2021; Howe et al., 2021; Kovacs et al., 2021; Moore et al., 2020; Salway et al., 2021).

Prior to the pandemic, schools provided structured opportunities for students' social-emotional development and safe physical activity through school climate and recess (Bear et al., 2017; Massey et al., 2018; Varea, 2018). Although PE days are associated with increased moderate-to-vigorous physical activity (Cheung, 2019; Farwell, 2019; Viciana et al., 2019), students require support and motivation to sustain physical activity beyond school hours (Parker et al., 2018). In this context, Comprehensive School Physical Activity Programs (CSPAP) promote collaboration among schools, families, and communities to create sustainable physical activity opportunities extending beyond school settings (Beddoes & Castelli, 2017; Langley & Kulinna, 2018). Evidence suggests that CSPAP can enhance daily physical activity levels and foster behavioral change toward regular participation (Beard, 2019; Brian et al., 2017; Goh et al., 2014; Nazaruk & Hack, 2018; Stylianou, 2016), while also contributing to students' personal, social, and academic well-being (Doolittle & Rukavina, 2014).

Although PE teachers are central leaders and facilitators in promoting physical activity within CSPAP (Dauenhauer et al., 2018; McMullen et al., 2014; Webster & Nesbitt, 2017), successful implementation requires administrative support and consideration of contextual constraints (Allar et al., 2017; Centeio et al., 2014; Jones et al., 2014; Kahan & McKenzie, 2017). Social capital and institutional support for PE are key elements in sustaining physical activity leadership (Wenner et al., 2019). However, digital communication with families—shaped by beliefs about technology use and self-efficacy—may complicate collaboration (Bordalba & Bochaca, 2019). Webster et al. (2021) emphasized that effective online PE during COVID-19 requires attention to school, family, community, and student-related factors, ensuring at least 60 minutes of daily moderate-to-vigorous physical activity and fostering lifelong engagement.

Given these complexities, this study adopts the Socio-Ecological model (Sallis et al., 2006; Stokols, 1996) to examine PE teachers' physical activity leadership across individual, interpersonal, and institutional levels, consistent with the Turkish PE curriculum framework (MEB, 2018). Previous research grounded in this model highlights the influence of self-confidence, school culture, peer interactions, leadership,

and policy contexts on physical activity participation (Defever et al., 2021; Orendorff et al., 2020; Pawlowski et al., 2018).

Despite the recognized importance of physical education teachers as leaders who connect policy, schools, and health stakeholders in promoting lifelong physical activity (Cooper et al., 2016), little is known about how they sustained this leadership during COVID-19 remote education, particularly in socioeconomically disadvantaged and small communities. Existing research has highlighted the importance of teachers' emotional resilience (Day & Hong, 2016), school e-leadership (Håkansson Lindqvist, 2019; Wu et al., 2019), and challenges related to out-of-school physical activity and teacher preparation (Smith & Madden, 2014; Hill, 2018; Kwon et al., 2018). However, there remains a lack of evidence documenting physical education teachers' lived experiences and the challenges they encountered while fostering students' physical activity through distance education. Addressing this gap is important for informing future teacher education, school leadership, and policies that support effective physical activity promotion in online and hybrid learning environments.

Accordingly, the present study aims to investigate physical education teachers' physical activity leadership roles through distance education during the COVID-19 pandemic within the framework of CSPAP.

METHOD

Research Model

A basic qualitative research design was employed. The defining characteristic of qualitative research is its focus on how individuals construct reality through their interactions within the social world. Construction of meaning therefore underlies basic qualitative inquiry, as the researcher seeks to interpret a phenomenon from the perspectives of those who experience it. The primary purpose of basic qualitative research is to understand how people make sense of their lives and experiences (Merriam, 2018). Within this framework, physical education teachers' experiences of physical activity leadership through distance education during the COVID-19 pandemic were examined, with a focus on the Comprehensive School Physical Activity Program (CSPAP). The aim was to interpret how participants conceptualized the physical activity leadership role of PE teachers in online PE lessons and how they made sense of these experiences; therefore, the study was designed as a basic qualitative inquiry.

Sampling Method

Convenience sampling was used. A total of 32 physical education teachers participated in this study examining physical activity leadership within the framework of the Comprehensive School Physical Activity Program (CSPAP) during the COVID-19 pandemic. Twenty-six teachers employed in public schools affiliated with the Turkish Ministry of National Education across different provinces completed online open-ended questionnaires. These participants were aged between 25 and 45 years, had between 1 and 15 years of teaching experience, and included 19 middle school and 7 high school physical education teachers. In addition, a focus group interview was conducted with six

public school physical education teachers from Giresun province. These participants were aged between 30 and 48 years, had between 8 and 21 years of teaching experience, and included four middle school and two high school teachers. Prior to data collection, all participants were introduced to the CSPAP framework. Data collection continued until thematic saturation was achieved, with additional data yielding no substantially new codes or themes.

Data Collection Tools, Data Analysis and Trustworthiness

Data were collected through a focus group interview, online open-ended questions, and field notes. The interview questions and online questionnaire items were developed in line with the core components of the CSPAP: quality physical education, physical activity before and after school, physical activity during school, staff involvement, and family and community engagement. Inclusive questions were prepared for each component. The development of the data collection tools was also informed by relevant literature and expert opinion. The interview protocol consisted of five main questions aligned with the five components of the CSPAP framework, along with related sub-questions questions, resulting in a total of 11 questions. The online open-ended questionnaire was developed based on the same set of questions. Ethical approval was obtained on April 9, 2021, and research permission from the Ministry of National Education was granted on May 28, 2021. Data were gathered through face-to-face interviews and an online open-ended survey.

Content analysis involves the careful, detailed, and systematic examination and interpretation of materials to identify patterns, themes, biases, and meanings (Berg & Latin, 2008; Leedy & Ormrod, 2005; Neuendorf, 2002). The data were analyzed using thematic content analysis to examine physical education teachers' physical activity leadership roles within the CSPAP framework during the COVID-19 pandemic. MAXQDA software was used to code the data and organize them into main themes and subthemes.

To enhance credibility, researcher triangulation was employed. Research triangulation involves multiple researchers collaboratively analyzing data to ensure consistency and agreement in findings (Merriam & Tisdell, 2015). During the coding process, a second field expert contributed to the analysis, and thematic interpretations were refined through mutual discussion and consensus.

FINDINGS

Within the distance education implemented during the pandemic, the factors influencing physical education teachers' physical activity leadership and the CSPAP program's feasibility were categorized into three levels: individual, social, and organizational environment. Each level was analyzed and discussed separately.

Individual Environment: Physical Activity Levels

Under the theme of physical activity levels within the individual environment, five main factors were appeared: lack of adequate physical activity space at home, the failure of recess to fulfill its purpose, absence of physical activity habits, a decline in

physical activity levels, and changes in student orientations (toward phones and tablets).

During the distance education process, it was determined that physical education teachers were unable to implement the physical activity activities they had prepared due to insufficient space in students' homes. For example, Teacher 17 expressed this issue as follows:

"The living spaces in children's homes are not very suitable for physical education classes conducted through distance education, but we still tried to manage the process effectively by making use of the materials available to us."

Similarly, Teacher 7 stated:

"Due to the conditions at home, physical activity constraints are at an undeniable level."

Recess Not Fulfilling Its Purpose: It is well known that during school recess, students typically increase their physical activity levels through active play and movement. However, interviews clearly revealed that recess did not serve its intended function during the pandemic. Teacher E described the situation as follows:

"There was a 10-minute break between lessons, but since we could not get feedback from the children, we do not know what they were doing or not doing during that time."

The researcher's field notes further indicated that recess failed to achieve its purpose:

"Before the pandemic, children had ample opportunities for physical activity during recess and lunch breaks throughout the school day. They played games together and spent enjoyable time, which allowed their physical activity levels to reach higher levels. Many areas at school were allocated for physical activity. However, with distance education, insufficient opportunities for physical activity at home, lack of peer interaction, and absence of necessary sports equipment prevented students from engaging in sufficient physical activity during breaks and significantly reduced their activity levels."

Lack of Physical Activity Habits: One of the most prominent individual factors identified during the interviews was the absence of physical activity habits among students, teachers, parents, and school staff. Teacher D explained:

"This is related to sports culture. Since such a culture does not exist, I do not think anyone engaged in physical activity during the pandemic."

The researcher also observed:

"The cognitive processing of physical education classes, the inability to conduct active lessons, and the absence of fun games played with friends during breaks further reduced children's orientation toward physical activity. Interest in computer games gradually increased, which naturally led to a decline in students' physical activity levels."

In the survey responses, Teacher 11 compared the pre-pandemic and pandemic periods as follows:

"Since students are not in the school environment, they cannot engage in physical interaction through educational games or release their energy with friends. When we

think about our students who used to immediately play matches, tag, and run during breaks, it is clear that physical development is not the same as in the school environment."

With the advancement of technology, access to digital devices has become easier, and the use of computers, tablets, the internet, and smartphones among students and families has increased significantly. During the pandemic, staying at home, attending classes online, and the absence of social life at school further intensified this trend. Teacher E stated:

"During this period, I observed that most children turned toward different activities such as computers, television, and phones. In their free time, they spent it not on physical activity but mostly on phones, tablets, and computers."

Teacher E also highlighted the consequences of this tendency:

"When we conducted face-to-face exams, we saw that most children in all classes had gained weight. We saw that many had become sluggish and that most were not engaging in physical activity."

The researcher's field notes further noted:

"Children who spent most of their time playing computer games or watching television gradually stopped complaining about this situation."

Social Environment: Teacher Support and Family Support

The social environment was examined under two subthemes: teacher support and family support. Teacher support was discussed in relation to the difficulty of physical activity leadership and insufficient communication with students. Family support was analyzed through three factors: academic anxiety–driven guidance, pandemic-related anxiety, and parental indifference.

Difficulty of Physical Activity Leadership: Promoting physical activity habits, fostering a sports culture, and providing leadership are among the core responsibilities of physical education (PE) teachers, typically carried out most effectively in school settings. However, interviews revealed that these responsibilities became significantly more difficult during distance education. Teacher B stated:

"Providing leadership through distance education is very difficult. You push the student. In face-to-face education, you can convey things better and make students like the lesson, but in distance education, with these limited opportunities, you cannot make them see you as a leader. Our lesson is visual and practical; it does not work well through distance education—it is hard."

Teacher A similarly expressed:

"We did our best for physical activity leadership, but how successful were we? I do not think we were able to draw students fully into physical activity. Yes, we made them active during lessons, but could we spread this more broadly? I do not think so. Distance physical education definitely does not work."

Insufficient Communication with Students: Before the pandemic, teachers interacted with students during lessons, recess, lunch breaks, after school, and in

extracurricular activities. During the pandemic, communication was limited to online PE lessons. Teacher A explained:

"We can only communicate with students during PE lessons. In school, when the bell rings, all students are ready. But in distance education, you do not know when students join. Some join late; some drop out due to internet problems. It is impossible to compare this with face-to-face education in terms of classroom control. I open the lesson and wait to start a video and make them exercise. You cannot establish proper communication or conduct regular lessons. Due to technological problems, you cannot fully deliver the lesson."

The researcher's field notes supported this view:

"Communication limited to lesson hours remained insufficient. Warnings that went no further than good intentions were ineffective in directing children toward an active life or ensuring engagement in physical activity."

Family Support and Academic Anxiety: Another factor emerging from interviews was families' increased focus on academic subjects due to concerns about learning loss and exam performance. Teacher 21 noted:

"I think families were insensitive during distance education and focused mainly on core subjects."

Teacher 13 stated:

"During distance education, greater emphasis was placed on main academic subjects."

These statements suggest that academic concerns led families to prioritize core subjects over physical activity like Teacher 15 added:

"I do not think physical activities were given much importance because general lessons and exam-related future anxiety took precedence."

Pandemic Anxiety: High infection rates, deaths, and personal losses intensified fear among families. Many restricted their children's access to parks, playgrounds, and schoolyards outside permitted hours. Teacher A observed:

"This process psychologically exhausted families. People were caught in a fear mentality to avoid getting sick. Because of this, individuals did not allocate time for physical activity."

Teacher 12 similarly stated:

"During this pandemic that affected our lives, no one wants to be together. They prefer to spend more time at home."

Field notes further indicated:

"Limited outdoor access, lack of equipment, and families' reluctance to allow social interaction due to the pandemic significantly reduced physical activity levels and gradually accustomed children to a sedentary lifestyle."

Parental indifference was one of the most frequently emphasized issues. Teacher E expressed:

"I do not think families provided any support. When I asked them to encourage their children to exercise at home or go for walks outside, most said they could not control their children and that they usually spent time on phones or computers."

Teacher D added:

"In my school, parents are not interested in education, so they are not interested in PE or physical activity either. Participation was low. I see the biggest problem in parents during distance education. They do not even care whether their child attends the lesson."

Teacher B highlighted that supportive families were limited in number:

"Conscious families prepare their children for lessons and build habits. You can tell from the child's participation how the family views the situation. We see such families, but they are very few."

Overall, although some families were conscious and supportive, the majority did not provide sufficient encouragement or support for their children's engagement in physical activity during the pandemic.

Organizational Environment: Distance Education Quality and Technology Problems

Distance education quality was discussed through eight factors: insufficient PE lesson time, pandemic restrictions limiting active living, lack of equipment for physical activity, PE being perceived as unimportant, a shift toward cognitive concepts, inability to conduct active lessons, inability to evaluate the program, and failure to implement the program in online education. Technology infrastructure problems were discussed through two factors: insufficient resources and lack of devices and internet access. Distance Education Quality leads Insufficient PE Lesson Time. Teachers who could only communicate with students through online lessons during the pandemic commonly emphasized that lesson time was insufficient. Weekly one- or two-hour lessons were seen as inadequate for increasing students' physical activity levels. Teacher D stated:

"Our lesson time is already insufficient. And I teach at an imam-hatip middle school; the lesson is 1 hour—actually not even 1 hour, it is basically half an hour. By the time we connect, join, and check whether there is sound, 5 minutes pass. I have 25 minutes left. We try to use those 25 minutes as efficiently as possible, but one hour is very insufficient. They would need to give me 5 hours a week so we can really contribute something physically to children. I mean, what can we do in a 25-minute lesson?"

Regarding increasing students' physical activity levels, Teacher D added:

"Because our lesson time is short, we are not given the chance to raise that level. How can we increase students' physical activity levels in 20 minutes? I do not have the opportunity to increase physical activity levels—20 minutes a week, what is that? If it were 20 minutes daily, I would say okay, we could increase the child's physical activity level, but the child does not have such an opportunity in PE. Especially in imam-hatip middle schools it is even less. It could only happen like this: by making the child like the lesson and telling them things that will make them do physical activity outside the lesson, maybe you can increase their activity level. Other than that, it is very difficult within the lesson."

Teacher B similarly emphasized the difficulty of building physical activity habits with limited lesson time:

"How can we build a physical activity habit when PE is only 2 hours a week? I make them do my exercise in the second lesson hour. Since it is difficult to teach practical activities online, I show 15–20 minute videos in that lesson hour. I do not think that is sufficient either. The child needs repetition so we can increase cognitive, affective, and psychomotor development in a short time. So it again comes down to spreading sports activities across days and increasing lesson hours. It cannot work with 1 or 2 hours a week."

Pandemic Restrictions Limiting Active Living: Before the pandemic, children could be physically active before and after school—walking or cycling to school, attending after-school courses, training in sports clubs, playing in schoolyards or neighborhoods, or visiting youth centers. During the pandemic, restrictions limited outdoor access beyond certain hours. The closure of social spaces and clubs and restricted outdoor hours reduced community interaction, undermined physical activity habits, and hindered the development of a physical activity culture. Teacher B stated:

"When we look at the environment, the largest spaces are schoolyards. Opportunities in the environment are limited; sports areas and social areas are far from children, and even if they are close, most are prohibited because of restrictions. There are also curfews due to the pandemic. So how can they do these activities in this environment? They do not have the chance."

Lack of Equipment for Physical Activity: Teachers trying to conduct high-quality lessons reported that students' lack of equipment prevented planned activities from being implemented. Teacher B explained:

"When we need materials in lessons—say, a ping-pong ball, a cup, etc.—and you tell 20 students to have it ready for next week, how many of them actually bring the materials? Very few—2 or 3. Then you cannot do the lesson you planned."

PE Being Perceived as Unimportant: Many teachers stated that PE was considered unimportant by various stakeholders. They emphasized that families, students, and administrators prioritized academic subjects, and because PE is not exam-oriented, it was pushed into the background. Teacher A stated:

"Participation of 7th and 8th graders is low because PE is not an academic subject, it does not include questions that will be asked in exams. Children may see it as an unimportant lesson—maybe even parents say, 'Forget PE, my son, why would you attend PE?' We are facing such a situation."

Teacher E described students' attitudes during online lessons:

"Children see the lesson as a burden. They think it is a lesson they will pass anyway, and that any knowledge they gain here will not benefit them."

Teacher D offered a self-critical reflection on how this attitude might be changed:

"We are role models for students. What we do or say becomes like rules in their lives, I think. Our behaviors and attitudes are very beneficial for them. I think they can spread these into their lives. It depends on the reaction we show here. If we do not value our lesson or do not place importance on physical activity, if we do not explain its importance, they will not value it either. But if we emphasize how important it is and how useful it will be throughout life, and keep highlighting this, I think it will definitely have an impact on children."

Emphasis on Cognitive Concepts: Because teachers struggled to teach psychomotor skills during the process, they shifted toward cognitive topics such as game rules, motor skills concepts, physical activity, and bodily health. Although guidelines were included in distance education PE plans, lessons largely focused on cognitive concepts, preventing an active PE experience. Teachers reported limited psychomotor gains but some cognitive benefits. Teacher C stated:

"In distance education, we mostly taught theoretical knowledge—like what the basketball rules are, how volleyball is played—these kinds of things. I think they benefited from these theoretical lessons, but there is no development in terms of how badminton is played or how to hold a racket. Still, they learned the rules."

Teacher E similarly noted:

"Online lessons were productive for children who wanted to learn theoretical information. We explained many topics they did not know, so it was very productive in that sense, but we could not support children much in practice."

Inability to Conduct Active Lessons: The researcher's field notes emphasized that many motor-skill-based instructions designed to support physical, cognitive, and socio-emotional development could not be transferred to students, and practice could not be carried out:

"Many instructions involving motor skills that were designed to support physical, mental, and social-emotional development within the program could not be conveyed to students, and no practice could be conducted on motor skills."

Teacher E attributed this to the difficulties of online instruction:

"The children were not active; they were mostly passive. As I said, we had difficulty getting most children to turn on their cameras and do the exercises we demonstrated. They do not want to turn on the camera, they do not want to turn on the microphone. Generally, they only listened, and they turned on the camera or microphone only when I asked questions, so we could not do much of the practical part."

Teacher A described similar challenges:

"Distance PE is not a system we were used to. At the beginning of the term, I tried to draw children into the lesson by doing sports together with them. But exercising in front of a screen brought difficulties like communicating, starting and stopping, and explaining."

Inability to Evaluate the Program: Teachers stated that a healthy evaluation of the program could not be conducted. Teacher E explained:

"It is very difficult to track their development. We could only conduct one exam during face-to-face exams. In those exams, we tried to get feedback by asking questions about what we taught. And in the last 5 minutes of lessons, I asked questions about the topics I covered and got some feedback. I do not think it was very useful or had a major impact on children."

Teacher D explained why evaluation was not healthy:

"I do not see the student; I do not know what they are doing. I ask questions, the microphone is off, they do not respond. We cannot get much feedback, so it is not easy to track."

The researcher's field notes supported this:

"In distance education, lessons were mostly cognitive, and student evaluations were carried out in a question–answer format. Practical evaluations could not be conducted. The planned program could not be implemented for various reasons; therefore, a healthy evaluation process did not take place."

Failure to Implement the Program in Online Education: Although programs included many motor-skill-based instructions designed to support students' physical, cognitive, and socio-emotional development, deficiencies prevented implementation. Teacher C stated:

"At the beginning of the year, which of the learning outcomes in our annual plans did we deliver? I think none. I cannot say any of us followed our annual plans."

Teacher A also noted not adhering to plans:

"My aim was this: academic lessons already put pressure on children. I thought about how I could please this student group in PE, how I could help them have a good time, and how I could draw them into the lesson. So I cannot say I strictly followed the plans."

Technology Infrastructure Problems caused by Insufficient Resources. Teachers reported a lack of resources for online instruction and stated that the Education Informatics Network (EBA), an educational content platform established by the Ministry of National Education, did not provide sufficient PE-related resources. Teacher D stated:

"First of all, I think the Education Informatics Network (EBA) is very insufficient in terms of PE. We mostly taught with slides and programs we prepared ourselves. EBA is weak in PE, in my opinion."

Teacher C similarly stated:

"I think the resources provided by the Ministry of National Education were somewhat insufficient."

Lack of Devices and Internet Access: The researcher's field notes indicated that during the first months of distance education, significant problems emerged in EBA, and infrastructure issues made communication difficult. Students' economic conditions created gaps in internet and computer access, and connectivity problems, as well as microphone/camera issues, were common. Over time, the Ministry made agreements with platforms such as Zoom, Google Meet, and Skype to address infrastructure issues, and campaigns were organized to distribute computers, tablets, and internet packages. However, overall, full participation could not be achieved due to persistent device and internet deficiencies, and participation differed by socioeconomic status.

Teacher F emphasized the issue for students in villages:

"Also, students living in villages had internet connection problems, and some students living in the city center also had connection problems. In short, participation was not very high due to internet connection problems."

Teacher 3 similarly highlighted device and internet shortages in rural areas:

"In rural areas, the problem of tablets, computers, and internet is very high. For example, our students are from rural regions."

DISCUSSION, CONCLUSION AND SUGGESTIONS

The present study found that students lacked adequate space for physical activity at home, recess did not fulfill its intended function, students did not have established physical activity habits, overall physical activity levels were low, and students' orientations shifted (e.g., increased screen-based engagement). Taken together, these factors indicate a decline in students' physical activity levels. Similar conclusions have been reported in the wider literature. Many countries introduced strict lockdown measures during the COVID-19 pandemic—particularly curfews and mobility restrictions—which reduced time spent in physical activity and substantially increased sedentary behaviors (Atalay, 2021). In a study evaluating changes in children's leisure activities through parents' perspectives, Yıldız and Bektaş (2021) reported decreases in children's movement and socialization during the pandemic compared to the pre-pandemic period, and noted that such reductions may negatively influence personality and character development. Likewise, Ünlü et al. (2020) examined changes in adults' physical activity levels during COVID-19 by comparing pre- and post-pandemic periods among individuals aged 18 and above in different cities, and found a significant decline during the pandemic. Focusing on university students, Koca and Fazlıoğulları (2021) similarly identified reduced physical activity time and lower activity levels, emphasizing the need to increase activity time due to population health implications. In a study conducted in Bursa, Korkmaz et al. (2020) reported that 65% of middle-school students stated their physical activity levels decreased during the pandemic, and analyses showed a significant reduction in time spent exercising compared with normal periods. Consistent with these findings, Bulguroğlu et al. (2021) reported low physical activity levels among university students during the pandemic, alongside negative impacts on depression and quality of life. International evidence also aligns with this pattern: Moore et al. (2020) found that Canadian children and youth gathered less frequently, spent more time on screens, slept longer, and showed reduced physical activity during the pandemic.

Beyond restrictions, this study also highlighted that limited societal adoption of a "sport culture," a lack of pre-pandemic physical activity habits, and increased screen time contributed to reduced activity levels. Supporting this, Kovacs et al. (2021) reported in a 10-country European observational study that daily screen time exceeded two hours, while regular physical activity habits helped children maintain a healthy active lifestyle. Similarly, Schmidt et al. (2020) found increased screen time and reduced sport participation during the pandemic, and Limone and Toto (2021) reported an overall 15% increase in children's technology use, with smartphone use rising to 61.7% during COVID-19. Overall, the literature suggests that physical activity levels declined during the pandemic compared to pre-pandemic conditions. At the same time, research indicates that Comprehensive School Physical Activity Programs (CSPAP) can increase children's physical activity and support healthier behaviors (Mattson et al., 2020), and that comprehensive health programs integrating physical activity, physical education, and nutrition education can still contribute to curricula despite the challenges of virtual learning environments (Whalen, Barcelona, Centeio, & Mccaughtry, 2021).

The present study also found that during synchronous online PE lessons, teachers were unable to establish sufficient communication and interaction with students; consequently, teachers' physical activity leadership roles became less effective and their influence on students diminished. Consistent evidence has been reported in Türkiye: Çetin, Yılmaz, and İlhan (2021) concluded that distance PE could not be sustained successfully due to difficulties in interaction, immediate feedback and assessment, classroom management challenges, limited observation, and inadequate use of methods and techniques; they also emphasized the need for improvements in infrastructure, curriculum, and content development. Similarly, Metin, Gürbey, and Çevik (2021) reported predominantly negative teacher views on distance education, particularly regarding classroom control, effective communication, student motivation, and participation. Overall, these findings suggest that reduced teacher–student interaction constrained the support teachers could provide in distance education.

In terms of CSPAP capacity-building, prior studies highlight the value of professional development and school support. Carson et al. (2020) found that a CSPAP leader professional development program provided effective guidance for increasing school-wide physical activity and created learning opportunities to address future challenges. Lee et al. (2020) reported that preservice classroom teachers held positive views of CSPAP, valued it, and expressed support for its implementation. Goh, Moosbrugger, and Mello (2020) found that preservice teachers experienced autonomy and competence during CSPAP implementation and developed a sense of belonging through relationships with children and classroom contexts. Webster, Mindrila, Moore, and Stewart (2020) reported that PE teachers' innovative perspectives and school support facilitated CSPAP adoption and that professional development informed improvements and generated new evidence. In addition, Webster et al. (2020) developed a survey to measure PE teachers' perceived attributes of CSPAP and provided program-quality insights to support broader adoption.

Regarding family-related barriers, this study showed that families often did not guide children toward physical activity due to academic concerns, avoided outdoor spaces because of health-related fears, and showed limited interest in supporting physical activity. Supporting evidence indicates that during live online lessons, parental interventions and directions became a source of pressure for teachers (Aktaş Salman et al., 2021). International work also reported that pandemic-related stress affected parent–child relationships, with parents displaying harsher and more indifferent behaviors (Chung et al., 2020). Earlier evidence from Türkiye further shows that family exercise habits and parental permission/support positively influence middle-school students' attitudes toward PE and sport, highlighting the importance of family support (Erden & Özmutlu, 2017).

This study additionally found that online PE lesson time was insufficient for delivering high-quality instruction; practical teaching opportunities were limited, equipment shortages were common, students' interest and motivation declined, and PE was increasingly perceived as unimportant. Similar patterns were reported by Han et al. (2021), who highlighted low participation, inefficiency, the difficulty of teaching practice-based courses (e.g., PE, arts, music) online, lack of eye contact/physical

presence, unsuitable home environments, and short lesson times. Likewise, Fakazlı and colleagues (2021) identified barriers such as lack of space and equipment, inability to use demonstration–practice methods, challenges in psychomotor skill transfer, limited communication, and the absence of eye contact. In Pakistan, Mata et al. (2021) also reported that the pandemic negatively affected adolescents' motivation for PE. Additional studies similarly emphasize disadvantages in psychomotor-domain courses, assessment, emotional communication, and interaction, along with unequal access to infrastructure and decreases in motivation (Balaman & Hanbay Tiryaki, 2021; Özdoğan & Berkant, 2020). Erdoğan and Ayanoğlu (2021) reported that EBA content was aligned with learning outcomes but qualitatively simple, insufficient, and often inaccessible, with limited interaction and inadequate assessment materials. Broadly, limited interaction, reduced active participation, technical issues, and lack of alignment with individual differences have been reported as key shortcomings of distance education (Başaran et al., 2020), and distance delivery has been described as inefficient for practice-based courses such as PE (Esentürk et al., 2021). Collectively, the evidence suggests lower instructional quality in distance PE compared with face-to-face instruction.

Finally, technology infrastructure constraints constituted a major barrier. In Türkiye, distance education during the pandemic was delivered via EBA and TRT EBA TV, with synchronous lessons possible where internet access was available; however, regional infrastructure differences, lack of internet, and inadequate devices hindered access. According to a Ministry statement, more than 3.5 million students—including 1.5 million in rural areas—lacked internet access (Kıygı, 2021). In the present study, teachers were caught unprepared, lacked adequate instructional resources, and reported that many students could not attend lessons due to missing devices (computers, phones, tablets) and internet access. Similar findings were reported by Kavuk and Demirtaş (2021), who identified device inadequacy and internet connectivity as central problems, alongside inequality of opportunity, EBA insufficiency, limited participation, technical disruptions, and heavy parental involvement. Bakırcı, Özcan, and Kara (2021) likewise emphasized low participation, infrastructure limitations, restricted technological opportunities, crowded households, and lack of eye contact, while also noting perceived benefits such as multimodal access, learning from anywhere, time savings, rapid information access, effective EBA use, and lesson recording. Avcı and Akdeniz (2021) found frequent technological infrastructure and internet problems and concluded that educational inequality increased. From a broader access perspective, Işık and Bahat (2021) reported that disparities in educational technology ownership became more visible during the pandemic. Similar concerns have been raised internationally, with warnings that digital device and internet access may differ by socioeconomic status and rural–urban residence, producing inequalities among students (Sosa Diaz, 2021). Kıygı (2021) further emphasized rural infrastructure limitations and spatial inequities as structural drivers of unequal access to educational opportunities.

Given that low perceived importance of PE can increase PE teachers' role stress and reduce satisfaction of psychological needs (Washburn, Richards, & Sinelnikov, 2020), schools should recognize that strengthening the perceived value of PE and PE teachers can reduce role stress and emotional exhaustion (Richards, Washburn, & Hemphill,

2019). Frameworks such as CSPAP can help foreground the significance of PE teachers' roles and the educational value of PE. Moreover, when school-based physical activity programs prioritize physical activity and are delivered with appropriate content, sufficient time, and adequate quality, they hold strong potential to prevent obesity and promote physical fitness and physical activity among children (Yuksel, Şahin, Maksimovic, Drid, & Bianco, 2020).

This study examined physical education (PE) teachers' physical activity leadership roles within the framework of Comprehensive School Physical Activity Programs (CSPAP) during the COVID-19 pandemic. Conducted with 32 PE teachers working in schools affiliated with the Turkish Ministry of National Education, the findings were organized across three levels: individual, social, and organizational environment.

At the individual level, teachers reported that insufficient space for physical activity at home, ineffective recess during distance education, lack of prior physical activity habits, increased screen time, and prolonged time spent indoors led to decreased physical activity levels. Pandemic-related restrictions significantly limited children's movement opportunities, rendering PE teachers' physical activity leadership largely ineffective during this period.

At the social level, both teacher and family support were found to be insufficient. Teachers experienced difficulties conducting PE online, struggled to maintain communication and interaction, and therefore could not effectively fulfill their leadership roles. Families, due to academic concerns and fear of infection, often did not encourage children's participation in physical activity and showed limited engagement.

At the organizational environment level, distance education quality and technology infrastructure problems emerged as major barriers. Insufficient lesson time, lack of equipment, the perception of PE as unimportant, emphasis on cognitive rather than psychomotor content, limited assessment opportunities, and failure to fully implement planned curricula negatively affected instructional quality. Additionally, students' lack of devices and internet access, along with limited PE-specific digital resources for teachers, reduced participation and instructional effectiveness.

Overall, across individual, social, and organizational levels, PE teachers' physical activity leadership in distance education during the pandemic did not achieve its intended goals. Key implications include addressing technological inequalities to ensure equal access to devices and internet, increasing PE lesson time to support cognitive, social, and psychomotor development, and enriching the Education Informatics Network (EBA) with PE-specific content. In-service training on online PE models and the formation of professional learning communities are recommended to strengthen teachers' capacity. Families should be encouraged to support children's participation by providing appropriate space and monitoring physical activity tasks.

Looking ahead, physical education should be more closely integrated with health promotion, and stronger school–community partnerships should be developed to enhance resources and support systems (Ward, Van der Mars, Mitchell, & Lawson, 2021). Participation in professional learning communities and collaborative networks will be essential for addressing emerging educational challenges (Lawson et al., 2021).

Beyanlar / Declarations

Etik Onay ve Katılım Onayı / Ethics approval and consent to participate

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During the preparation and writing of this study, scientific, ethical, and citation rules were followed in accordance with the "Higher Education Institutions Scientific Research and Publication Ethics Guidelines." No alterations were made to the collected data, and this study has not been submitted to any other academic publication platform for evaluation. The data collection instruments used in this study were reviewed and approved by the Ethics Committee of Giresun University (Decision date: 07 April 2021, Reference number: E-50288587-050.01.04-17515). The authors accept full responsibility for any potential ethical violations related to this manuscript.

Veri Ve Materyal Erişilebilirliği / Availability of data and material

Bu çalışmanın bulgularını destekleyen veriler, makul talepler üzerine sorumlu yazardan temin edilebilir. Veri seti yalnızca akademik amaçlar için erişilebilir olacak ve verilerin herhangi bir kullanımı, orijinal çalışmayı referans gösterecek ve katılımcıların gizliliğini koruyacaktır.

The data that support the findings of this study are available from the corresponding author upon reasonable request. The dataset will be accessible only for academic purposes, and any use of the data will recognize the original study and maintain the confdentiality of the participants.

Çıkar Çatışması / Competing interests

Yazarlar, bu makalede sunulan çalışmayı etkileyebilecek herhangi bir çıkar çatışması veya kişisel ilişkiye sahip olmadıklarını beyan etmektedirler.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Yazar Katkıları / Authors' Contribution Statement

Çalışmanın tasarımı ve planlanması, veri toplama, analizi ve yorumlanması, makalenin yazımı, veri düzenleme, yöntem belirleme, yazım – özgün taslak ile yazım – gözden geçirme ve düzenleme süreçlerine eşit katkı sağlamıştır. Tüm yazarlar makalenin önemli noktalarını eleştirel bir şekilde gözden geçirmiş ve makalenin son hâlini onaylamıştır.

Contributed equally to the design and planning of the study, data collection, analysis and interpretation, manuscript preparation, data organization, methodology development, writing of the original draft, and review and editing of the manuscript. All authors critically reviewed the manuscript and approved the final version of the article.

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