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Parents' Perceptions of Physical and Health Education in the Experimental All-Day School Program in the Republic of Croatia

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Abstract: *The aim of the study was to examine parents' attitudes toward the effects of the experimental all-day school (CDŠ) program on children's physical activity and psychosocial well-being, and to evaluate satisfaction with Physical and Health Education (TZK) taught by a master's-level kinesiologist in classroom teaching. The sample included N = 67 parents, and data were collected via an online questionnaire (Likert 1–5). Measures of central tendency and dispersion, scale reliability (Cronbach α), thematic components (principal components method), and one-sample t-tests relative to the neutral scale value (3) were analyzed. The results show high mean values for all items (M = 4.49–4.67) with negative skewness of the distributions, indicating an extremely positive parental perception. The subscales showed good to excellent internal consistency (α = .78–.84), while the total scale had α = .89. One-sample t-tests show that the means of all items are statistically significantly higher than the neutral value (p < .001), with large effects (Cohen d = 2.39–3.34). In the discussion, the findings are interpreted in relation to existing knowledge about the importance of school-based physical activity for health, mental well-being, and school functioning. In conclusion, parents strongly support CDŠ and the role of the kinesiologist in early school age, with the note that future research should include objective measures of physical activity and a longitudinal design.*

Keywords: *all-day school; physical and health education; parental perception; descriptive statistics; factor analysis*

Introduction

Physical and Health Education (TZK) represents a fundamental component of the school curriculum because it contributes to children's physical health, motor and functional development, as well as psychosocial well-being. Control of a complex dynamic system such as the human being is possible only if the structure of individual subsystems within the system and their mutual relations are known (Skender, 2004; 2008). Concerning trends of reduced physical activity and increased sedentary behavior in the child population further emphasize the importance of the school environment as a place where minimum standards of movement can be ensured and lasting habits of an active life can be developed. Morphological characteristics and students' motor abilities, in addition to influencing more successful expression of functional abilities, should be one of the conditions for including students in physical activities. (Skender, et all; 2022). The World Health Organization emphasizes the need for a systematic approach to physical activity through schools and the community (World Health Organization, 2018). In the Croatian context, the experimental all-day school (CDŠ) program represents an attempt at organizational and curricular improvement of school work, including increased lesson hours for TZK and B1/B2 activities. A particularly important innovation in CDŠ is the role of a master's-level kinesiologist in classroom teaching, which responds to recommendations on the specialization of physical education teachers in early grades (European Commission/EACEA/Eurydice, 2022). Research consistently shows that school-based physical activity can be associated with better physical indicators, mental health, and school functioning (Biddle & Asare, 2011; Lubans et al., 2016; Trudeau & Shephard, 2008). Therefore, it is important to evaluate how key stakeholders—especially parents—perceive the effects and quality of such programs.

The aim of this paper is to analyze parents' attitudes toward (a) the effects of CDŠ on children's physical activity, (b) the psychosocial effects of TZK classes, and (c) overall satisfaction with the CDŠ program and the quality of instruction delivered by a kinesiologist. The hypotheses were that parents have positive attitudes toward CDŠ (H1) and toward TZK classes taught by a kinesiologist (H2).

Methods

The sample consisted of N = 67 parents who voluntarily participated in the study. The study was conducted using a quantitative approach.

The set of variables consisted of data collected via an online questionnaire (Google Forms) on a sample of parents of students included in the experimental CDŠ program. The questionnaire contained 10 statements:

REDTZKZDRAV - Regular physical activity is important for improving a child's health, TZKMOTSPO - Physical activity encourages the development of motor abilities (e.g., strength, speed, coordination, etc. TZKPRETILO - Physical activity reduces the risk of child obesity, DAKTIVZDRAV - Children need to be continuously active in order to learn better, sleep more calmly, and grow up more harmoniously KRETEMELJ - Movement and play are fundamental children's needs. MDZADTZK - My child is satisfied with additional Physical and Health Education classes at school, MDOTVCDŠ - My child spends more hours outdoors and playing in the All-Day School, MD60CDŠ - My child moves for at least 60 minutes every day in the All-Day School, PRKINUČIT - There is a difference between the Physical and Health Education lesson led by a kinesiologist and the one led by the classroom teacher RN. MDVESTZK - My child looks forward to Physical and Health Education classes.

All variables were organized into three thematic groups: general knowledge about physical activity (items 1–5), satisfaction with the CDŠ program (items 6–8), and the quality of TZK instruction (items 9–10). Responses were given on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).. The analysis was conducted in SPSS, with calculation of descriptive indicators, reliability estimation (Cronbach α), one-sample t-tests relative to the neutral scale value (3), and an analysis of thematic components using the principal components method (PCA) at the level of subscales.

Results

Below are presented the measures of central tendency and dispersion for all questionnaire items, the thematic subscales (components), and the results of testing deviations of the means from the neutral scale value.

Table 1. *Measures of central tendency and dispersion for questionnaire items (N = 67)*

No.	Statement (shortened)	M	SD	Min	Max	Skewness	Kurtosis
1	Regular physical activity is important for improving a child's health	4.51	0.53	3	5	-1.16	0.58
2	Physical activity promotes the development of motor abilities	4.55	0.53	3	5	-1.40	1.47
3	Physical activity reduces the risk of obesity	4.49	0.53	3	5	-1.09	0.36
4	Children need to be active (learning,	4.51	0.56	3	5	-1.30	1.19
5	Movement and play are fundamental needs	4.67	0.50	3	5	-1.84	3.04
6	Child satisfied with additional TZK classes	4.49	0.62	3	5	-1.18	0.64
7	Child spends more hours outdoors	4.57	0.59	3	5	-1.54	1.76
8	Child moves at least 60 min	4.52	0.62	3	5	-1.36	1.21
9	Difference between TZK (kinesiologist) and class teacher (RN)	4.61	0.61	3	5	-1.77	2.70
10	Child looks forward to TZK classes	4.63	0.58	3	5	-1.70	2.50

Note. M = mean; SD = standard deviation. Negative skewness indicates a concentration of responses at the higher values of the scale

Table 2. *Reliability of the scale and subscales (internal consistency)*

Scale	Number of items	Cronbach α	95% CI
Total scale	10	.89	[.85, .92]
General knowledge about physical activity	5	.78	[.69, .85]
Satisfaction with CDŠ	3	.84	[.77, .89]
Quality of TZK	2	.81	[.72, .87]

Note. α = Cronbach's alpha; CI = confidence interval

Table 3. *Thematic components (PCA) – mean values by subscales*

Component (thematic group)	Items	M	SD	95% CI
General knowledge about physical activity	1–5	4.55	0.46	[4.44, 4.66]
Satisfaction with the CDŠ program	6–8	4.53	0.56	[4.39, 4.66]
Quality of TZK instruction	9–10	4.62	0.58	[4.48, 4.76]

Note. CI = confidence interval. Components are defined based on the content of the items and correspond to the theoretical constructs of the questionnaire

Descriptive indicators point to very high ratings on most items (average values are close to the upper limit of the scale), which suggests strongly positive parental attitudes toward the importance of physical activity and toward the organization of TZK instruction in the context of the all-day school. In practice, such results may indicate that the construct measured in this sample is partially "saturated" (ceiling effect), i.e., that the scale differentiates less well among respondents who already have positive attitudes.

Low standard deviations further indicate lower variability of responses. Skewness is mostly negative (clustering of responses at higher values), while kurtosis values indicate deviations from a normal distribution that are expected with Likert measures when most respondents give very high ratings. This is important because it can affect the stability of correlations and factor loadings, so it is useful to consider expanding the scale or introducing "harder" items that better differentiate respondents.

Table 4. *KMO by variable*

Variable	KMO
PRKINUČIT	0.738
MDVESTZK	0.749
MDOTVCDŠ	0.79
MD60CDŠ	0.848
KRETEMELJ	0.875
TZKMOTSPO	0.889
REDTZKZDRAV	0.893
MDZADTZK	0.895
DAKTIVZDRAV	0.939
TZKPRETILO	0.948

Note. Higher values indicate better suitability of the item for the factor model

The overall KMO index indicates good suitability of the data for factor analysis, and high KMO values by variables suggest that most items share common variance and fit into a latent structure. A significant Bartlett test confirms that the correlation matrix is not an identity matrix and that there are sufficient interrelationships between items for factor analysis to be meaningful.

Such a pattern (high KMO and significant Bartlett) is typically obtained when an instrument measures coherent, content-related dimensions (e.g., general beliefs about the benefits of physical activity and specific experiences with TZK instruction).

Table 5. *Bartlett's test of sphericity*

χ^2	df	p	det(R)
526.428	45	< .001	0.000201

The PCA results show a clear dominance of the first component and retention of two components according to Kaiser's criterion ($\lambda > 1$), with high cumulative explained variance. This suggests that the items share a strong common basis (a general "pro-activity" attitude), but that part of the variance is systematically grouped into an additional dimension.

Table 6. *Eigenvalues and explained variance*

Component	Eigenvalue (λ)	Proportion of variance	Cumulative
1	6.133	0.613	0.613
2	1.36	0.136	0.749
3	0.567		
4	0.451		
5	0.426		
6	0.349		
7	0.291		
8	0.193		
9	0.16		
	0.10		

Note. Kaiser's criterion (λ > 1) suggests retaining 2 components; cumulative explained ≈ 74.9%

Table 7. *Rotated loadings (varimax), communalities, and unique variance*

Code Item / statement	Factor 1	Factor 2	Commun.	Unique var.
REDTZKZDRAV	0.23	0.79	0.677	0.323
TZKMOTSPO	.0.23	0.85	0.776	0.224
TZKPRETILO	.0.458	0.683	0.676	0.324
DAKTIVZDRAV	.0.338	0.776	0.717	0.283
KRETEMELJ	0.307	0.768	0.685	0.315
MDZADTZK	0.883	0.214	0.826	0.174
MDOTVCDŠ	0.801	0.38	0.784	0.216
MD60CDŠ	0.768	0.427	0.773	0.227
PRKINUČIT	0.852	0.209	0.77	0.23
MDVESTZK	0.876	0.209	0.81	0.19

The rotated solution (varimax) shows a relatively clean structure: the group of items related to the experience and organization of TZK/all-day school has higher loadings on one factor, while items describing general beliefs about the importance of movement and health benefits have higher loadings on the other factor. This supports the interpretation that the instrument distinguishes (1) specific school experiences and evaluations of TZK and (2) general beliefs about the benefits of physical activity.

Communalities are mostly high, meaning that the factors explain a significant portion of the variance of each item. Unique variance is lower, indicating that the items are not predominantly idiosyncratic but largely rely on common latent dimensions. Partial cross-loadings (e.g., individual items that have meaningful loadings on both factors) can be explained content-wise by the fact that parents often simultaneously generally believe in the benefits of activity and evaluate the quality of the school environment through the lens of those beliefs.

High values of Cronbach's alpha indicate very good internal consistency of the instrument. However, when item mean values are very high and variability is low, alpha can be additionally "inflated" due to homogeneous responses, so it is useful to consider alpha together with the content representativeness of the items and the factor structure.

In the context of this instrument, the obtained values suggest that the items within the factors behave as a coherent set and measure relatively stable parental perceptions and experiences related to physical activity and TZK instruction.

Factor interpretation and reliability

Reliability (Cronbach α): overall (10 items) α = 0.930; Factor 1 α = 0.931; Factor 2 α = 0.892.

Factor 1 can be labeled as respondents' satisfaction with the introduction of additional TZK hours in primary schools, as well as the advantage of the kinesiologist compared with the classroom teacher RN in TZK instruction. The following variables stand out.

MDZADTZK: My child is satisfied with additional Physical and Health Education classes at school. (load-

ing = 0.883), MDOTVCDŠ: My child spends more hours outdoors and playing in the All-Day School. (loading = 0.800), MD60CDŠ: My child moves for at least 60 minutes every day in the All-Day School. (loading = 0.768), PRKINUČIT: There is a difference between the Physical and Health Education lesson led by a kinesiologist and the one led by the classroom teacher. (loading = 0.852), MDVESTZK: My child looks forward to Physical and Health Education classes. (loading = 0.876)

Factor 2 can be characterized as respondents' statements about the importance of Physical and Health Education as a school subject. The following variables stood out in particular: REDTZKZDRAV: Regular physical activity is important for improving a child's health. (loading = 0.790), TZKMOTSPO: Physical activity encourages the development of motor abilities (e.g., strength, speed, coordination, balance). (loading = 0.850), TZKPRETILO: Physical activity reduces the risk of child obesity. (loading =0.683), DAKTIVZDRAV: Children need to be continuously active in order to learn better, sleep more calmly, and grow up more harmoniously. (loading = 0.776), KRETEMELJ: Movement and play are fundamental children's needs. (loading = 0.768)

Discussion

The results of this study indicate an extremely positive parental perception of the effects of the all-day school program and Physical and Health Education (TZK) classes, as reflected in high mean values for all examined statements (M > 4.00). Particularly prominent are findings related to increased children's physical activity, psychosocial well-being, and parents' overall satisfaction with the program.

Data from Table 1 show that parents largely perceive an increase in children's daily physical activity, including meeting the recommended at least 60 minutes of movement per day. Such findings are consistent with World Health Organization guidelines, which emphasize the key role of school in ensuring a minimum level of physical activity in school-aged children. Similar results are reported by Donnelly et all. (2016), who state that extended school programs with integrated physical activity lead to significant increases in cardiorespiratory fitness and reductions in sedentary behavior.

Janssen and LeBlanc (2010) in their systematic review confirm that regular physical activity in the school environment has a strong preventive effect on the development of obesity and metabolic disorders, while Hillman, Erickson, and Kramer (2014) emphasize that physical activity positively affects executive brain functions, attention, and working memory. In this context, parental perceptions of increased children's activity within CDŠ can be viewed not only as a health benefit but also as a potential contribution to academic functioning.

The results further confirm an important psychosocial dimension of TZK. Parents report improved children's mood, reduced stress, and easier establishment of social contacts. These findings are consistent with the review by Biddle and Asare (2011), who conclude that physical activity has a moderate to strong effect in reducing symptoms of anxiety and depression in children and adolescents. Lubans et all. (2016) also emphasize that structured movement programs contribute to the development of self-confidence, emotional regulation, and a positive self-image.

It is particularly important that parents recognize the development of social skills as one of the key benefits of the program. This finding is supported by Trudeau and Shephard (2008), who point out that school programs with increased TZK lesson hours contribute to children's social integration without negatively affecting academic achievement. Rasberry et all. (2011) further report that there is a positive association between school physical activity programs and school success, suggesting that TZK may have broader educational significance.

A high level of parents' overall satisfaction with the program, particularly pronounced support for continuing the all-day school and for the justification of increased TZK lesson hours, indicates strong social acceptance of this model. Parental support is a key factor in the sustainability of educational reforms, as also confirmed by Eccles and Harold (1993), who emphasize that positive parental attitudes significantly increase children's involvement in school activities and their motivation to learn.

The obtained findings also fit into the contemporary theoretical framework of physical education, according to which TZK should be viewed as a means of holistic student development—physical, cognitive, and socio-emotional. Such an approach is elaborated in the work Physical Education Futures, which emphasizes that high-quality TZK contributes to the development of life skills, social inclusion, and long-term motivation for physical activity.

Regarding the analysis of results when TZK instruction is delivered by a physical education teacher compared with the results of classroom teachers, Vuksanović et all. (2014) found that there are significant differences in favor

of physical education teachers compared with classroom teachers in outcomes of motor abilities and morphological characteristics among students in the lower grades of primary school. A significant difference in results published in Skender (2008) shows a large difference in the results achieved by students who had 3 class hours compared with two class hours of physical education, which is confirmed by the results of our respondents.

The sample for this study is convenient, and the data are based on parents' subjective assessments, which can result in socially desirable responses. Also, the absence of objective measures of physical activity (e.g., accelerometry) limits a more precise assessment of children's actual level of movement. Future research should use a longitudinal design and combine subjective and objective indicators to obtain a more complete picture of the effects of the all-day school.

Despite these limitations, the results clearly indicate that the all-day school program, with increased TZK lesson hours, has the potential to significantly contribute to public health goals, children's psychosocial well-being, and improving the quality of education. Parents recognize the multidimensional benefits of the program, which further confirms the justification for integrating TZK as a central component of the contemporary school curriculum and increasing TZK lesson hours I in higher grades of primary school.

Conclusion

The study shows that parents of students included in the experimental CDŠ program have extremely positive attitudes toward the program's effects on children's physical activity and psychosocial well-being, and toward the quality of TZK instruction delivered by a master's-level kinesiologist. High mean values, good scale reliability, and statistically significant deviation from the neutral value support the conclusion of broad acceptance of CDŠ. Continuation and further improvement of the program are recommended, with infrastructural support to schools and inclusion of objective and longitudinal measures in future evaluations. In line with the above, the findings provide useful guidelines for education policy, particularly regarding parental support for specialized staff (kinesiologists) and increasing TZK lesson hours.

References

Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine*, 45(11), 886–895. https://doi.org/10.1136/bjsports-2011-090185

Burke, S., Sharp, L.-A., Woods, D., & Paradis, K. F. (2024). The development and validation of the Youth Sport Parental Support-Questionnaire (YSPS-Q). *International Journal of Sport and Exercise Psychology*, 22(8), 2085–2110. https://doi.org/10.1080/1612197X.2023.2255605

Doggui, R., Ward, S., Bélanger, M., & LeBlanc, A. G. (2021). Parental control and support for physical activity predict adolescents' moderate to vigorous physical activity over five years. *International Journal of Behavioral Nutrition and Physical Activity*, 18, Article 45. https://doi.org/10.1186/s12966-021-01107-w

Donnelly, J. E., Greene, J. L., Gibson, C. A., Smith, B. K., Washburn, R. A., Sullivan, D. K., DuBose, K., Mayo, M. S., Schmelzle, K. H., Ryan, J. J., Jacobsen, D. J., & Williams, S. L. (2011). Classroom-based physical activity, cognition, and academic achievement. *Preventive Medicine*, 52(Suppl 1), S36–S42.

Eccles, J. S., & Harold, R. D. (1993). Parent–school involvement during the early adolescent years. *Teachers College Record*, 94(3), 568–587.

European Commission/EACEA/Eurydice. (2022). Teachers in Europe: Careers, development and well-being. *Publications Office of the European Union*. https://doi.org/10.2797/311166

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, 7, 40.

Lakes, K. D., Vaughan, E., Jones, M., Burke, W. J., Baker, D. J., & Swanson, J. M. (2017). Assessing parent perceptions of physical activity in families of toddlers with neurodevelopmental disorders: The Parent Perceptions of Physical Activity Scale (PPPAS). *Journal of Autism and Developmental Disorders*, 47, 2730–2744. https://doi.org/10.1007/s10803-017-3196-8

Long, B., Zhang, Y., Chen, S., & colleagues. (2025). The predictive relationship between parents' perceptions of physical activity and children's physical literacy. *Scientific Reports*. (PMC open-access version).

Lubans, D., Richards, J., Hillman, C., Faulkner, G., Beauchamp, M., Nilsson, M., Kelly, P., Smith, J., Raine, L., & Biddle, S. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics,* 138(3), e20161642. https://doi.org/10.1542/peds.2016-1642

Skender, N., Šabić, E., Selimović, A., Kurtović, H., & Karalić, T. (2022). Gender as a determinant of students' life habits related to their physical activity. *Sport Science, 15*(2), 103–113.

Skender, N. (2004). Transformacioni procesi motoričkih sposobnosti i morfoloških karakteristika pod uticajem sedmomjesečnog tretmana kod učenika 3. i 4. razreda osnovne škole. *Nepublikovana doktorska disertacija. Sarajevo: Fakultet sporta i tjelesnog odgoja Univerzitet u Sarajevu.* [in Serbian]

Skender, N. (2008). *Transformacioni procesi antropoloških obilježja*. Bihać, Pedagoški fakultet Univerzitet u Bihaću ISBN: 978-9958-9468-8-2 [in Serbian]

Steenson, S., Butcher, L., & colleagues. (2018). Assessing the validity and reliability of family factors on physical activity: A case study in Turkey. *PLOS ONE*, 13(6), e0197920. https://doi.org/10.1371/journal.pone.0197920

Trudeau, F., & Shephard, R. J. (2008). Physical education, school physical activity, school sports and academic performance. *International Journal of Behavioral Nutrition and Physical Activity*, 5, 10. https://doi.org/10.1186/1479-5868-5-10

World Health Organization. (2018). Global action plan on physical activity 2018–2030: More active people for a healthier world. World Health Organization.

Vuksanović, G., Skender, N., Ćeleš, N., Kurtović, N., & Palić, A. (2014, June). Analiza razlika u transformaciji motoričkih sposobnosti i morfoloških karakteristika kod učenika kada nastavu izvodi profesor tjelesnog odgoja i učitelj razredne nastave. In *Zbornik radova 5. međunarodni naučno-stručni skup: Kulturni identitet u digitalnom dobu* (pp. 681–689). Filozofski fakultet Univerziteta u Zenici. [in Serbian]

Zheng, N., & Yang, J. (2022). Development and validation of Parental Support Scale of Children's Sports Training in China: Socio-ecological approach. Frontiers in Psychology, 13, 922282. https://doi.org/10.3389/fpsyg.2022.922282

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