Kundalini Yoga in Physical Education and affective organization in early primary schoolchildren: a quasi-experimental study

Kundalini Yoga en Educación Física y organización afectiva en escolares de primaria temprana: estudio cuasi-experimental

Authors

Dr. Antonio López-Fuenzalida [1, 2]
Dra. Ludmila Varas-Yupátova [1]
Dr. Fernando Barraza-Gómez [3]
Dr. Pablo Valdés-Badilla [4]
Prof. Pamela Cubillos-Bianchini [3]
Prof. Lizber Castro-González [5]
Prof. Elena Carrasco-García [6]
Prof. Valentina Henríquez-Camus [7]
Prof. Vjera Saad-Tomasovic [3]
Prof. Carolina Guerra-Ferrer [3]
MSc. Eduardo Báez-SanMartín [1, 2]

[1] Universidad de Playa Ancha (Chile)
[2] Laboratorio de Fisiología del Ejercicio y Rendimiento Deportivo – UPLA (Chile)
[3] Universidad Andrés Bello (Chile)
[4] Universidad Católica del Maule (Chile)
[5] Colegio Alicante del Rosal (Chile)
[6] Casa Escuela Montessori (Chile)
[7] Saint Gabriel's School Santiago (Chile)

Corresponding author:
Antonio López-Fuenzalida
antonio.lopez@upla.cl

Received: 30-09-25
Accepted: 23-02-26

How to cite in APA

López-Fuenzalida, A., Varas-Yupátova, L., Barraza-Gómez, F., Valdés-Badilla, P., Cubillos-Bianchini, P., Castro-González, L., Carrasco-García, E., Henríquez-Camus, V., Saad-Tomasovic, V., Guerra-Ferrer, C., & Báez-SanMartín, E. (2026). Kundalini Yoga in Physical Education and affective organization in early primary schoolchildren: a quasi-experimental study. *Retos, 78*, 451-464. https://doi.org/10.47197/retos.v78.117747

Abstract

Introduction: Early primary education represents a sensitive developmental period for the emergence of affective self-regulation. The integration of mind–body practices within Physical Education, such as Kundalini Yoga (KY), may foster more adaptive processes of affective organisation and contribute to children's psychological well-being.
Objective: To examine the effects of a seven-week KY programme, delivered during Physical Education lessons, on affectivity in first-grade pupils.
Methodology: An exploratory, controlled quasi-experimental study using intact groups of children aged 6–8 years was conducted (Yoga *n*=14; Control *n*=14). Affectivity was assessed pre- and post-intervention using a four-level ordinal classification applied across four affective domains. A cumulative link mixed-effects model (CLMM) with a logit link was estimated, incorporating a participant-level random intercept alongside fixed effects for time, group, the Time × Group interaction, and affective domain. Complementary non-parametric analyses and qualitative thematic analysis conducted by child psychologists were also undertaken.
Results: The CLMM revealed a statistically significant Time × Group interaction (OR= 4.06; 95% CI [1.46, 11.28]; *p*= .007), demonstrating a substantially greater likelihood of transitions towards more adaptive affective classifications in the KY group. Within this group, significant improvement in affective involvement was observed (*p*= .034), alongside qualitative indications of affective stabilisation, enhanced impulse regulation, increased bodily awareness, and a more competence-oriented self-perception.
Discussion: These findings are consistent with previous research examining mental and emotional outcomes of yoga-based practices in older school-aged populations.
Conclusions: KY integrated within Physical Education may support more adaptive affective trajectories in early primary schoolchildren. Nevertheless, the non-randomised design and modest sample size warrant cautious interpretation of the findings.

Keywords

Children; Physical education; student health; well-being; yoga.

Resumen

Introducción: La educación primaria temprana constituye un período sensible para el desarrollo de la autorregulación afectiva. La incorporación de prácticas mente–cuerpo en la Educación Física, como el Kundalini Yoga (KY), podría favorecer procesos de organización afectiva más adaptativos y contribuir al bienestar psicológico infantil.
Objetivo: Examinar los efectos de un programa de KY de siete semanas, integrado en Educación Física, sobre la afectividad en estudiantes de primer grado.
Metodología: Estudio exploratorio cuasiexperimental controlado con grupos intactos de niños de 6–8 años (Yoga n=14; Control n=14). La afectividad se evaluó pre y postintervención mediante una clasificación ordinal de cuatro niveles aplicada a cuatro dominios afectivos. Se estimó un modelo de efectos mixtos de enlace acumulativo (CLMM) con enlace logit, incorporando intercepto aleatorio por participante y efectos fijos para tiempo, grupo, interacción Tiempo×Grupo y dominio afectivo. Se realizaron análisis no paramétricos complementarios y análisis temático cualitativo por psicólogos infantiles.
Resultados: El CLMM reveló una interacción Tiempo×Grupo significativa (OR=4.06; IC95% [1.46, 11.28], p=.007), demostrando una probabilidad mayor de transición hacia clasificaciones afectivas más adaptativas en el grupo KY. Se observó mejora intragrupo en compromiso afectivo (p=.034), junto con indicaciones cualitativas de estabilización afectiva, mejor regulación de impulsos, mayor conciencia corporal y una autopercepción más centrada en competencias.
Discusión: Los resultados son coherentes con investigaciones previas sobre componentes mentales mediante prácticas de yoga en escolares de mayor edad.
Conclusiones: Se sugiere que el KY integrado en Educación Física podría favorecer trayectorias afectivas más adaptativas en niños de primaria temprana. No obstante, el diseño no aleatorizado y el tamaño muestral reducido requieren una interpretación prudente.

Palabras clave

Bienestar; Educación Física; niños; salud de los estudiantes; yoga.

Introduction

The educational sector faces multifaceted challenges that require comprehensive solutions that address socio-emotional, ethical, and formative dimensions. These challenges have prompted critical evaluation of both current and future strategies and their impact on students (Suárez, 2023). Child maltreatment and school bullying, now recognised as public health concerns (Armitage, 2021), are associated with affective instability, compromised mental health, diminished self-esteem (Palmier-Claus et al., 2024), impaired cognitive and socio-emotional development, and adverse adult outcomes (Dye, 2018; Lugones Botell & Ramírez Bermúdez, 2017; Vitero, 2021). Addressing these issues requires evidence-based prevention and intervention programmes that strengthen students' affective competencies and promote adaptive behaviours in educational settings (Zhang et al., 2023). Affective skills are essential for meeting academic demands (Supervía et al., 2023) and support the development of social skills, creativity (Agnoli et al., 2023), and cognitive abilities (Solís et al., 2024). Within this framework, affectivity is increasingly recognised as a foundational element of socio-emotional development (Duque-Romero & Naucin-Cabezas, 2024).

Affectivity refers to the sensory quality of subjective experience (Calonge, 2005) and is closely related to emotionality, although it represents a broader construct encompassing stable patterns of affective organisation, which encompasses both the generation of emotions and individual responsiveness (Varona, 2019). Contemporary psychology conceptualises affectivity as a multidimensional construct extending beyond immediate emotional reactions. It incorporates cognitive–evaluative elements such as interests, attitudes, and ethical dispositions, and is dynamically linked to personality traits (e.g., extraversion), motivational beliefs (e.g., self-efficacy), and dispositional affect (positive and negative affectivity) (Varona, 2019; Martínez & Valiente, 2019; Smillie, Deyoung & Hall, 2014). These factors contribute to distinct affective profiles that influence learning, peer relationships, behavioural adjustment, and mental health (Watson & Naragon-Gainey, 2010). Notably, affective development in early childhood significantly shapes subsequent psychological well-being (Minihan et al., 2024; Peñate et al., 2020) and academic performance (Pinheiro et al., 2023).

Given the significance of affective development, Physical Education plays a vital role in promoting students' mental health and positive social interactions (López-Sánchez et al., 2023). Its pedagogical and disciplinary approaches have facilitated the development of strategies to prevent and address bullying in schools (Aguilar Herrero et al., 2021; Benítez-Sillero et al., 2021). Motor education, a central component, integrates physical activity with mental health by developing motor skills and fostering attitudes and values related to the body, movement, and environment (Gil-Madrona et al., 2020). Physical Education supports the mental well-being of children and adolescents, with demonstrated benefits for academic achievement (Sánchez et al., 2023), affective well-being (López et al., 2021), reduced anxiety, increased resilience and well-being (Andermo et al., 2020), and improved self-concept and affective functioning (Annesi, 2005) and affect (Huerta-Ojeda et al., 2022).

Yoga represents a promising school-based physical activity intervention for enhancing children's psychological well-being. Research indicates that yoga can improve overall well-being and health (Guerra & Rovetto, 2020; Laxman, 2022), postural control (Agudo et al., 2024), stress and anxiety management (Nanthakumar, 2018; Ortiz et al., 2022), and psychosocial adjustment in children with specific needs (Luarte-Rocha et al., 2022). Kundalini Yoga (KY) integrates physical, respiratory, and meditative elements, including postures (asanas), rhythmic breathing (pranayama), and vocalisation (mantras) in structured sequences (Brandão et al., 2024). Evidence suggests that KY enhances emotional regulation, resilience, and stress management in children and adolescents aged 9–15 years (McMahon et al., 2021; Sarkissian et al., 2018).

Despite encouraging evidence, research examining the effects of KY in early primary education, particularly among children aged 6–8 years, remains limited. Early childhood is a critical period for the development of affective patterns and socio-emotional skills, and interventions during this stage may yield especially positive and enduring outcomes (Blewitt et al., 2021). However, empirical studies investigating the impact of KY on affective organisation in this age group are currently lacking.

Addressing this research gap is essential for understanding the potential of integrative mind–body practices to support emotional maturation in young children and for informing evidence-based educational interventions that promote mental health in school settings.

Given the paucity of empirical data in this specific age cohort, the present study was conceptualised as an exploratory trial. Affectivity was operationalised as an ordinal classification of affective organisation across four functional domains derived from the Lüscher Colour Test: affective involvement, self-worth and self-efficacy, proactivity, and motivation/extraversion.

Within this framework, the study examined the effects of a 7-week KY intervention delivered during regular Physical Education lessons on affective organisation in first-grade pupils aged 6–8 years. It was hypothesised that systematic adherence to the KY programme would be associated with a higher probability of transitions towards more adaptive affective classifications compared to both baseline measures and the control group, reflecting enhanced emotional regulation and affective stability.

Method

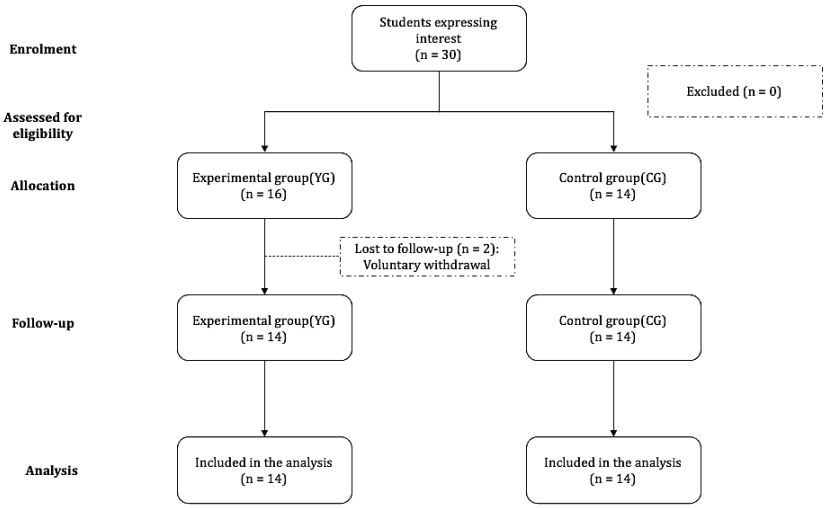
An exploratory, controlled quasi-experimental study with parallel groups and repeated measures was conducted using intact classroom allocation within a natural school context. Pre- and post-intervention assessments were conducted using assessor-blinded procedures, with psychological assessors unaware of group allocation; however, blinding was not feasible for participants or teaching staff due to the educational setting.

Participants were assigned at the classroom level, reflecting the school's organisational structure. One first-grade class served as the Control Group (CG), continuing regular Physical Education activities, while the other class formed the Yoga Group (YG), participating in a 14-session Kundalini Yoga programme delivered over 7 weeks. Initial group sizes reflected classroom enrolment; two pupils from the yoga group withdrew during the study period, resulting in a final sample of 28 participants.

No adverse events, musculoskeletal injuries, cardiorespiratory disturbances, or pain were reported during or following the intervention sessions. Figure 1 presents the participant flow and group composition.

Pre- and post-intervention assessments were conducted in a quiet and private area of the school to ensure confidentiality. The KY sessions were delivered in the first-grade classroom, which provided adequate space and environmental comfort to support safe and age-appropriate implementation of the activities.

Figure 1. Study flow diagram adapted from CONSORT guidelines for non-randomised studies.



Participants

Participants were recruited from two intact first-grade classrooms within a private primary school. The sample size was inherently determined by natural classroom enrolment, reflecting the ecological constraints typical of school-based intervention research. Consequently, this study was designed as an exploratory trial. One intact classroom was allocated to the Kundalini Yoga Group (YG) and the other to the Control Group (CG), aligning with a quasi-experimental, classroom-based design. This classroom-

level allocation preserved ecological validity, minimised disruption to routine educational activities, and reduced the likelihood of intervention diffusion between groups within the school environment.

Inclusion criteria were: (i) enrolment as a regular first-grade pupil at the participating school; (ii) written informed consent provided by a parent or legal guardian; and (iii) assent from the participating child. The exclusion criterion was any medical contraindication to participation in physical activity.

The initial sample comprised 30 pupils distributed across two intact classrooms (16 in one class and 14 in the other). The sex distribution was 7 boys and 9 girls in the Yoga Group (YG), and 7 boys and 7 girls in the Control Group (CG). During the intervention period, two pupils from the YG voluntarily withdrew for reasons unrelated to the study, resulting in a final sample of 28 participants (YG = 14; CG = 14). In the final sample, the YG included 6 boys and 8 girls, while the CG maintained an equal distribution of 7 boys and 7 girls. No adverse events, injuries, or health-related concerns were reported.

All procedures were conducted in accordance with the Declaration of Helsinki and were approved from the Academic Committee of the Physical Education programme at Andrés Bello University, as well as from the Academic Governing Board of the educational institution attended by the participating children. These approvals confirmed that all study procedures adhered to established standards of safety, confidentiality, and child protection.

Written informed consent was obtained from parents or legal guardians, and verbal and written assent was obtained from all participating children prior to enrolment

Procedure

Affectivity assessment

Based on the functional–dynamic interpretative framework of the Lüscher Colour Test, four affective functioning domains were operationalised: affective involvement, self-worth and self-efficacy, proactivity, and motivation/extraversion. These domains represent interpretative indicators of affective organisation rather than psychometric scale dimensions.

Affective functioning was assessed before and after the intervention using the Lüscher Colour Test (Lüscher, 1990), an ordinal projective classification instrument designed to explore affective preferences and affective organisation. The instrument allows classification of affective functioning across hierarchical response categories derived from colour preference patterns.

Although the Lüscher Colour Test is interpretative in nature and therefore requires cautious inference, empirical research has documented its use as an exploratory indicator of affective state in clinical populations, while also highlighting limitations in reliability that necessitate careful interpretation (Braun & Bonta, 1979; Stanzani Maserati et al., 2019). Colour-based projective approaches may offer developmentally sensitive means of accessing children's internal experiences when verbal articulation of emotional processes is limited, particularly when interpreted within multimethod assessment frameworks (Santillo et al., 2025). Therefore, the outcomes in this study were treated as ordinal classifications that reflect patterns of affective organisation, rather than as continuous psychometric scores. The assessment involved multiple card sets (Grey, Eight Colours, Forms, Four Fundamental Colours, and Variations), which were presented sequentially. Participants were asked to arrange the cards according to their personal preferences. The Eight Colours set was re-administered to capture stabilised preferences. Responses were interpreted within the context of the instrument's functional-dynamic framework, with each affective functioning domain hierarchically classified as "Preference," "Functional Zone," "Indifference," or "Rejection." These categories were operationalised as ordered levels for the purpose of statistical modelling. All evaluations were conducted independently by two psychologists, both trained in child assessment and formally certified to administer the Lüscher test. The evaluators were blinded to group allocation and were not involved in the intervention. Assessments were performed individually in a quiet area of the school under standardised natural lighting conditions. Consensus scoring procedures were implemented to ensure consistency in classification across evaluators.

Intervention

The YG participated in a seven-week KY programme integrated within the Physical Education curriculum, comprising 14 sessions delivered twice weekly. Each session lasted approximately 30–35 minutes.

Sessions were led by a Physical Education teacher trained and supervised by certified Kundalini Yoga instructors accredited by the Kundalini Research Institute and Yoga Alliance. Teacher preparation included pedagogical adaptation of KY for children and review of session content to ensure safety, developmental appropriateness, and methodological fidelity.

Each session followed a standardised structure: (i) opening and grounding activities, (ii) structured KY exercises involving movement, breathing, and attention regulation, and (iii) closing relaxation and meditation. Additional Physical Education staff supported pupil engagement and safety, and the classroom teacher was present in accordance with school safeguarding protocols.

The CG participated in their regular Physical Education curriculum with comparable session frequency and duration but without exposure to yoga, mindfulness, or breathing-based practices.

Implementation fidelity was monitored through structured session logs completed by teaching staff. No protocol deviations or adverse events were reported.

Figure 2. Sessions of Kundalini Yoga intervention programme for children.

Session 1	**Kriya**: Autumn tale: a) Easy pose (seated cross-legged with arms overhead); b) Seated forward bend (legs extended, fingers to toes); c) Frog pose; d) Downward-facing dog; e) Cobra pose.	**Session 8**	**Kriya: Spring tale:** a) Easy pose with spinal flexions, hands on the ankles; b) Seated forward bend, alternately touching the toes with both hands; c) Easy pose with hands on the knees, rotating the trunk to both sides; d) Easy pose with head movements ("as if saying Yes, No, Maybe"); e) Tree pose.
	Relaxation: Supine (corpse pose).		**Relaxation:** *Hari Har* mantra.
	Meditation: *Ra-Ma-Da-Sa.*		**Meditation:** *Aad Gureh Name.*
Session 2	**Kriya: A tale for letting go of anger:** a) Corpse pose with "lion's breath" (snoring sound); b) Corpse pose with hips flexed to 90° (legs raised); c) Child's pose; d) Seated, gentle tapping on the thighs; e) Corpse pose.	**Session 9**	**Kriya: A tale for any season:** a) Easy pose, arms forward, powerful nasal breathing; b) Easy pose with arms at the sides, "flapping" while repeating the mantra *Jar*; c) Easy pose, both arms forward with finger movements; d) Cat–cow; e) Cobra pose; f) Corpse pose.
	Relaxation: *Long Time Sun* mantra.		**Relaxation:** *Ray Man Shabad* mantra.
	Meditation: *Sa-Re-Sa-Sa.*		**Meditation:** *Sa-Re-Sa-Sa.*
Session 3	**Kriya: Tale—season II:** a) Supine, alternating hip flexion to 90° without bending the knee; b) "Penguin" pose with vocalisations; c) Sitting on heels, hands joined in front, raising and lowering the arms; d) Corpse pose with gentle tapping over the navel.	**Session 10**	**Kriya: Session II:** a) Standing, jumping while crossing arms and legs, chanting the mantra *Jar* four times; b) Standing, clapping four times; c) Standing, attempting to touch the floor with the hands without bending the knees (four times); d) Archer pose; e) Standing with arms overhead, moving them side to side; f) Corpse pose.
	Relaxation: *Suni-Ai* mantra.		**Relaxation:** *Ek Ong Kaar* mantra.
	Meditation: *Aad Gureh Name.*		**Meditation:** *Ong Namo Guru Dev Namo* mantra.
Session 4	**Kriya: "Little bird searching for its mother":** a) Child's pose; b) Easy pose with breath of fire, arms overhead; c) Walking around the room with arm movements while chanting the mantra *Har* loudly; d) Frog pose; e) Cat–cow; f) Corpse pose.	**Session 11**	**Kriya: Animal imitation:** a) Frog pose; b) Cobra pose; c) Cat pose; d) Dog pose; e) Cow pose; f) "Little woodlouse" pose (curling into a ball); g) Corpse pose.
	Relaxation: *Ong Namo Guru Dev Namo* mantra.		**Relaxation:** *Suni-Ai* mantra.
	Meditation: *Ra-Ma-Da-Sa.*		**Meditation:** *Ra-Ma-Da-Sa.*
Session 5	**Kriya: Session III (pair work):** a) Easy pose in pairs, facing each other, holding hands and sensing the partner's breath; b) Frog pose in pairs, facing each other; c) Cobra pose in pairs; d) Child's pose in pairs; e) Cat–cow in pairs; f) Corpse pose.	**Session 12**	**Kriya: Session III (pair work):** a) Easy pose in pairs, facing each other, holding hands and sensing the partner's breath; b) Frog pose in pairs, facing each other; c) Cobra pose in pairs; d) Child's pose in pairs; e) Cat–cow in pairs; f) Corpse pose.
	Relaxation: *Ek Ong Kaar* mantra.		**Relaxation:** *By the Grace* mantra (in pairs).
	Meditation: *Sa-Re-Sa-Sa.*		**Meditation:** *Sa-Re-Sa-Sa.*
Session 6	**Kriya: Session II:** a) Standing, jumping while crossing arms and legs, chanting the mantra *Jar* four times; b) Standing, clapping four times; c) Standing, attempting to touch the floor with the hands without bending the knees (four times); d) Archer pose; e) Standing with arms overhead, swaying side to side; f) Corpse pose.	**Session 13**	**Kriya: Session II:** a) Easy pose with arms overhead, breath of fire, then hand over heart to feel the heartbeat; b) Easy pose in pairs, holding hands and sensing the partner's breath; c) Easy pose with arms out to the sides at shoulder height, "flapping" while repeating the mantra *Jar* (eight times); d) Archer pose while repeating the mantra *Jar* (eight times); e) Corpse pose.
	Relaxation: Solo and in pairs with *Guru Ram Das* mantra.		**Relaxation:** *Long Time Sun* mantra.
	Meditation: *Ong Namo Guru Dev Namo* mantra.		**Meditation:** *Aad Gureh Name* mantra.
Session 7	**Kriya: Session VI:** a) Easy pose, striking the floor with the right palm (eight times); b) Easy pose, striking the floor with both palms while repeating the mantra *Jar* (eight times); c) Easy pose with arms out to the sides at shoulder height, clenching fists and making a sharp movement towards the chest, stopping just before contact; d) Corpse pose, bringing the arms together and punching upwards towards the sky.	**Session 14**	**Kriya: Session VI:** a) Easy pose, striking the floor with the right palm (eight times); b) Easy pose, striking the floor with both palms while repeating the mantra *Jar* (eight times); c) Easy pose with arms out to the sides at shoulder height, clenching fists and making a sharp movement towards the chest, stopping just before contact; d) Corpse pose, bringing the arms together and punching upwards towards the sky.
	Relaxation: *Wah Yantee* mantra.		**Relaxation:** *Guru Ram Das* mantra.
	Meditation: *Ra-Ma-Da-Sa.*		**Meditation:** *Ra-Ma-Da-Sa.*

Data analysis

All statistical analyses were conducted using JAMOVI (v2.6; www.jamovi.org). The discrete, ordinal nature of the affective classifications strictly required the use of cumulative link mixed modelling for longitudinal analysis.

The primary outcome (affective classification) was measured on an ordered four-level scale across two time points (pre- and post-intervention) and four affective functioning domains. Accordingly, the main

inferential analysis employed a mixed-effects ordinal logistic regression (proportional odds model) appropriate for longitudinal ordinal data (Agresti, 2010). The model included fixed effects for time (post vs pre), group (Yoga vs Control), their interaction (Time × Group), and affective domain. A participant-level random intercept was specified to account for within-subject dependency across repeated measures and to capture between-subject heterogeneity. Model results are reported as log-odds coefficients (β), standard errors (SE), Wald z-statistics, odds ratios (OR) with 95% confidence intervals (CI), and p-values.

To provide descriptive resolution at the domain level, medians and interquartile ranges (IQR) were calculated for each group and time point. Baseline comparability between groups was examined using the Mann–Whitney U test. Within-group pre–post changes were explored using Wilcoxon signed-rank tests, and between-group differences in change scores were examined using Mann–Whitney U tests. These secondary analyses were conducted as descriptive complements to the primary ordinal mixed-effects model.

Where multiple domain-level comparisons were performed, p-values were adjusted using the Benjamini–Hochberg false discovery rate (FDR) procedure (Benjamini & Hochberg, 1995). Statistical significance was set at $\alpha = .05$.

Qualitative analysis consisted of an independent expert evaluation conducted by child psychologists experienced in administering the Lüscher Colour Test (Lüscher, 1990). Descriptive reports were subjected to thematic analysis following established methodological guidelines (Braun & Clarke, 2006), identifying categories related to emotional regulation, affective stability, self-concept orientation, and bodily awareness. An interpretative triangulation strategy (Carter et al., 2014; Farmer et al., 2006) was subsequently employed to integrate qualitative themes with quantitative findings, thereby enhancing analytical depth and interpretative validity.

Results

Quantitative findings

Participant characteristics

The final analytical sample comprised 28 first-grade pupils aged 6–8 years (M = 6.93, SD = 0.48). Fourteen children were allocated to the Kundalini Yoga group and fourteen to the control group. Attendance at Physical Education sessions was high and comparable between groups, indicating similar exposure to the educational context across the intervention period.

A total of 224 observations were analysed, reflecting repeated assessments across two time points (pre- and post) and four affective components per participant. The outcome variable consisted of an ordinal four-level affective classification (0–3), with higher levels indicating more adaptive affective classifications.

No baseline differences between groups were observed at the global outcome level, supporting initial comparability.

Primary Analysis: Ordinal mixed-effects model

Table 1 presents a cumulative logit mixed-effects model with proportional odds, estimated to evaluate intervention effects on affective classification. The model included time, group, Time × Group interaction, and affective functioning domain as fixed effects, with a participant-level random intercept to account for within-subject dependency.

The model identified a robust and statistically significant Time × Group interaction (OR = 4.06, 95% CI 1.46–11.28, [1.46, 11.28], p = .007). This substantial odds ratio indicates that pupils partaking in the Kundalini Yoga programme were approximately four times more likely to transition towards higher, more adaptive affective classifications at post-intervention relative to their control counterparts.

No significant main effect of group was observed (p = .863), suggesting overall baseline equivalence. Similarly, the main effect of time was not statistically significant (p = .427), suggesting no uniform shift in affective classifications across the full sample when groups were considered jointly.

Domain contrasts were not significant.

Table 1. Fixed effects from the ordinal mixed-effects model

Predictor	β	SE	z	OR	95% CI OR	p
Self-worth & self-efficacy vs affective involvement	-0.124	0.365	-0.34	0.88	0.43–1.81	.734
Proactivity vs affective involvement	0.501	0.356	1.41	1.65	0.82–3.32	.159
Motivation & extraversion vs affective involvement	-0.059	0.357	-0.16	0.94	0.47–1.90	.870
Time (Post vs Pre)	-0.293	0.369	-0.79	0.75	0.36–1.54	.427
Group (Yoga vs Control)	0.078	0.450	0.17	1.08	0.45–2.61	.863
Time × Group	1.402	0.521	2.69	4.06	1.46–11.28	.007*

β: regression coefficients; SE: standard error; OR: Odds ratios; CI: confidence interval; z: Wald z statistics; * p < .05: statistically significant differences.

Secondary analyses: component-level comparisons

Component-level analyses were conducted to provide descriptive resolution and should be interpreted as exploratory complements to the primary ordinal mixed-effects model. Descriptive ordinal summaries (Table 2) showed a consistent pattern of post-intervention shifts towards higher affective classifications in the Yoga group, particularly in motivation and extraversion, whereas the control group tended to remain stable or exhibit minor declines.

Within-group analyses indicated a significant transition towards higher affective classifications in affective involvement in the Yoga group (p = .034). Between-group comparisons of change scores revealed a significant difference for self-worth and self-efficacy (p = .037); however, this effect did not remain statistically significant after false discovery rate adjustment.

Taken together, these component-level findings provide descriptive support for the global Time × Group interaction identified in the ordinal mixed-effects model, while also highlighting variability in response patterns across affective functioning domains.

Table 2. Pre-post comparison on affective domains between YG and CG

Component	Group	Pre Median [IQR]	Post Median [IQR]	p (Within)	p (Between Change)	p FDR (Interaction)
Affective involvement	Control	1.00 [1.00–1.00]	1.00 [1.00–1.75]	.317	.072	.086
	Yoga	1.00 [1.00–1.00]	1.00 [1.00–2.00]	.034*		
Self-worth and self-efficacy	Control	1.00 [0.00–2.00]	1.00 [0.00–1.00]	.271	.037*	.074
	Yoga	1.00 [0.00–1.75]	1.00 [1.00–2.00]	.083		
Proactivity	Control	1.00 [1.00–1.75]	1.00 [1.00–2.00]	.706	.177	.177
	Yoga	1.00 [1.00–1.75]	1.50 [1.00–2.00]	.096		
Motivation and extraversion	Control	1.00 [0.00–1.00]	1.00 [0.00–1.00]	.527	.087	.116
	Yoga	1.00 [1.00–1.00]	2.00 [1.00–2.00]	.053		

IQR: Interquartile range; Wilcoxon signed-rank test: Within-group comparisons; Mann–Whitney U test: Between-group comparisons; FDR: Adjusted p-values using Benjamini–Hochberg; * p < .05: statistically significant differences.

Taken together, these secondary analyses provide component-level granularity that complements and substantiates the significant Time × Group interaction identified in the ordinal mixed-effects model, thereby offering a more nuanced understanding of the affective shifts associated with the intervention.

Qualitative findings

Qualitative analysis was conducted through independent evaluations undertaken by child psychologists experienced in administering the Lüscher Colour Test. In line with the analytical protocol, descriptive reports were subjected to thematic analysis, identifying categories related to emotional regulation, affective stability, self-concept orientation, and bodily awareness.

Yoga Group

Pre-intervention

At baseline, experts indicated that the YG "*presents adequate levels of general affectivity*", although *"the physical demonstration of affection appears reduced"*. Regarding self-perception, psychologists observed that *"self-evaluation and self-perception are focused on achievements, which is normal for their age"*.

However, thematic coding revealed that *"the group, in general, shows instability within internal affective ranges".* In light of this pattern, evaluators recommended that *"activities and strategies should be implemented to promote self-valuation centred on personal competencies and individual personality traits".* These observations were categorised under themes of affective instability and achievement-oriented self-concept.

Post-intervention and comparative analysis

Following the intervention period, qualitative descriptions reflected notable changes. Experts reported *"notably regularised ranges, with previously unstable levels becoming stabilised, while maintaining adequate levels of affectivity".* A thematic shift in motivational orientation was also identified, with psychologists noting *"a change in goals more centred on personal competencies and less exclusively focused on achievements".*

Furthermore, evaluators stated that *"important changes were observed in impulse control and bodily awareness".* These post-intervention descriptions corresponded to themes of enhanced affective stability, improved emotional regulation, and increased embodied awareness.

Control Group

Pre-intervention

At baseline, psychologists reported that *"the group, in general, demonstrates adequate affectivity in terms of self-perception and perception of the environment"*, although *"affect expressed through gestures, that is, physical demonstrations of affection, appears reduced."* They further indicated that *"the group requires greater self-control and tolerance".*

A gender-related pattern was observed, as *"there is a tendency among boys towards forming a self-concept focused on achievements, which is entirely normal at their developmental stage".* As in the experimental group, evaluators recommended that *"personal competencies of each child should be reinforced in order to promote a self-concept increasingly centred on individual personality characteristics".*

Post-intervention and comparative analysis

At post-test, experts reported *"no significant changes in the group overall".* They further described that *"there is a general concern and fluctuation in self-efficacy, which is typical at this stage of the school year when abilities are formally assessed".* Additionally, psychologists noted that *"tension generally increases, and in the absence of protective factors, children may become temporarily unsettled".*

Unlike the experimental group, no references were made to affective stabilisation, shifts in goal orientation, or improvements in impulse control and bodily awareness.

Discussion

The present study examined the effects of a seven-week Kundalini Yoga (KY) programme integrated within Physical Education on affectivity in first-grade children, conceptualised as a multidimensional construct encompassing affective engagement, self-perception, proactive orientation, and motivational disposition. The findings provide convergent quantitative and qualitative evidence indicating that participation in KY was associated with a more adaptive affective trajectory during early primary schooling.

The primary CLMM analysis yielded a highly significant Time × Group interaction (OR = 4.06, 95% CI [1.46–11.28], p = .007). In epidemiological and educational terms, an odds ratio of this magnitude reflects a substantial intervention effect; it demonstrates that the KY practice facilitated a meaningful probabilistic shift towards higher affective stability, rather than merely a marginal improvement in a continuous latent trait.

The absence of a significant main effect of group (OR = 1.08, p = .888) supports baseline comparability between groups, while the main effect of time was not statistically significant (OR = 0.75, p = .427) suggesting no uniform shift in affective classifications across the sample over the study period. Importantly, the significant interaction indicates that KY participation buffered against this less favourable temporal trend observed in the control group.

These findings are consistent with the theoretical framework outlined in the introduction, which positions Physical Education as a pedagogical context capable of fostering socio-emotional competencies alongside motor development (Soriano Sánchez et al., 2023; López et al., 2021; Andermo et al., 2020; Huerta-Ojeda et al., 2022). The magnitude of the interaction effect suggests that KY may meaningfully influence affective organisation during a developmental stage characterised by ongoing consolidation of emotional regulation and heightened environmental sensitivity (Blewitt et al., 2020).

Component-level analyses provided additional descriptive insight. Within-group comparisons indicated a significant transition towards higher affective classifications in affective involvement in the KY group ($p = .034$), while trends towards higher affective classifications were observed in motivation and extraversion. Between-group differences in change were detected for self-worth and self-efficacy ($p = .037$), although these effects did not remain significant after false discovery rate adjustment. This attenuation is consistent with the multidimensional nature of affectivity and the modest sample size, suggesting that the intervention effect may operate as a distributed regulatory shift rather than isolated changes in specific affective domains.

The qualitative psychological evaluation strengthens the interpretative coherence of these quantitative findings. Experts reported post-intervention affective stabilisation, indications of enhanced impulse regulation, enhanced bodily awareness, and a shift from achievement-centred to competence-oriented self-perception among children in the KY group. These observations parallel the statistical pattern of increased probability of higher affective classifications and are developmentally meaningful in early schooling, where self-evaluative processes and emotional regulation are still in formation.

The convergence between quantitative modelling and qualitative interpretation aligns with previous research indicating that yoga-based interventions may support emotional regulation and psychosocial adjustment in school contexts (Kerekes et al., 2024; Khunti et al., 2023; Felver et al., 2015; Chen & Pauwels, 2014; James-Palmer et al., 2020). Studies in older children and adolescents have reported reductions in emotional dysregulation and shifts in affective functioning patterns following KY and other yoga modalities (McMahon et al., 2021; Sarkissian et al., 2018). Similarly, school-based mindfulness and yoga interventions have demonstrated benefits in emotional well-being and psychosocial quality of life (Bazzano et al., 2018), although findings remain heterogeneous. The present study extends this literature by suggesting that comparable affective modulation may occur at earlier developmental stages.

From a mechanistic perspective, the observed changes may be interpreted within frameworks linking yoga practice to attentional regulation, interoceptive awareness, and autonomic balance (Streeter et al., 2012; Khalsa et al., 2016). The structured combination of breathing, coordinated movement, and focused attention inherent to KY may facilitate regulatory processes that support affective stability and adaptive self-perception. Nevertheless, given the absence of physiological measures, such mechanisms should be regarded as theoretically plausible rather than empirically demonstrated within the present study.

Pedagogically, the findings reinforce arguments that Physical Education can serve as a meaningful context for socio-emotional development when experiential and reflective practices are intentionally integrated (Haden, Daly & Hagins, 2014). Early primary education represents a sensitive developmental window in which interventions targeting affective regulation may exert sustained influence on later psychological and academic trajectories. Within this framework, KY may function as a regulatory scaffold supporting children's capacity to integrate bodily experience, emotional awareness, and motivational orientation.

Several limitations should be considered when interpreting the present findings. First, the use of intact classroom groups limits causal inference and introduces the possibility of contextual confounding, despite evidence of baseline comparability between groups. Second, the small sample size ($n = 28$) fundamentally restricts the study to an exploratory scope. Such a sample constrains the statistical power for highly granular component-level analyses, thereby increasing the risk of Type II errors in the secondary domain-specific contrast and widening the confidence intervals of the primary estimates.

In addition, affectivity was assessed using a single classification-based instrument, which may not fully capture the multidimensional complexity of children's affective functioning. The interpretative nature of colour-based projective methods remains debated; nevertheless, empirical evidence suggests their

potential value as exploratory indicators of affective organisation when applied cautiously and complemented by additional sources of information (Braun & Bonta, 1979; Stanzani Maserati et al., 2019). Accordingly, the Lüscher Colour Test was employed in the present study as an exploratory ordinal classification of affective organisation and interpreted in conjunction with qualitative psychological evaluation to strengthen interpretative validity.

Future research should adopt multimethod assessment strategies, including validated socio-emotional scales, behavioural observations, physiological indicators, and longitudinal follow-up designs to examine the durability and broader significance of affective changes over time.

Despite these limitations, the integration of ordinal longitudinal modelling and expert qualitative evaluation provides coherent evidence suggesting that KY may contribute to affective stabilisation, indications of enhanced impulse regulation, and competence-oriented self-perception in early primary schoolchildren. These findings extend the emerging literature on school-based yoga interventions and highlight the potential value of developmentally sensitive mind–body practices within Physical Education contexts.

Future research employing cluster-randomised designs, larger samples, and multimethod measurement will be essential to confirm these findings, clarify underlying mechanisms, and determine the long-term educational relevance of KY-based interventions.

Conclusions

The findings of the present study indicate that the implementation of a seven-week school-based Kundalini Yoga programme, integrated within Physical Education lessons, was associated with significant transitions towards higher and more adaptive affective classifications among first-grade pupils. The ordinal mixed-effects analysis revealed a statistically significant time × group interaction, demonstrating that children exposed to the intervention were substantially more likely to transition to higher and more adaptive affective classifications at post-intervention than controls.

Acknowledgements

We extend our gratitude to the children who participated in this study for their commitment and collaboration, and to their parents/legal guardians for placing their trust in our proposal and contributing to the pupils' well-being.

Financing

No external funding was received.

References

Agnoli, S., Mastria, S., Mancini, G., Corazza, G. E., Franchin, L., & Pozzoli, T. (2023). The dynamic interplay of affective, cognitive and contextual resources on children's creative potential: The modulatory role of trait emotional intelligence. *Journal of Intelligence*, *11*(1), 11. https://doi.org/103390/jintelligence11010011

Agresti, A. (2010). *Analysis of ordinal categorical data*. John Wiley & Sons.

Agudo Villarejo, C. M., Cachón Zagalaz, J., Pérez Navío, E., & Lara Sánchez, A. J. (2024). Beneficios del yoga para la educación postural: propuesta de programa de intervención para educación primaria [Benefits of yoga for postural education: proposed intervention program for elementary education]. *Retos,* 56, 265-270. https://doi.org/10.47197/retos.v56.103795

Aguilar Herrero, M. D., García Fernández, C. M., & Gil del Pino, C. (2021). Efectividad de un programa educativo en Educación Física para fomentar las habilidades socioafectivas y prevenir la violencia en educación primaria [Effectiveness of educational program in physical education to

promote socio-affective skills and prevent]. *Retos,* 41, 492-501. https://doi.org/10.47197/retos.v0i41.82683

Andermo, S., Hallgren, M., Nguyen, T.-T.-D., Jonsson, S., Petersen, S., Friberg, M., Romqvist, A., Stubbs, B., & Elinder, L. S. (2020). School-related physical activity interventions and mental health among children: a systematic review and meta-analysis. *Sports Medicine-Open*, *6*, 1-27. https://doi.org/10.1186/s40798-020-00254-x

Annesi, J. J. (2005). Improvements in self-concept associated with reductions in negative mood in preadolescents enrolled in an after-school physical activity program. *Psychological Reports*, *97*(2), 400-404. https://doi.org/10.2466/pr0.97.2.400-404

Armitage, R. (2021). Bullying in children: impact on child health. *BMJ Paediatrics Open*, *5*(1), e000939. https://doi.org/10.1136/bmjpo-2020-000939

Bazzano, A. N., Anderson, C. E., Hylton, C., & Gustat, J. (2018). Effect of mindfulness and yoga on quality of life for elementary school students and teachers: results of a randomized controlled school-based study. *Psychology Research and Behavior Management*, 11, 81-89. https://doi.org/10.2147/PRBM.S157503

Benítez-Sillero, J. d. D., Corredor-Corredor, D., Córdoba-Alcaide, F., & Calmaestra, J. (2021). Intervention programme to prevent bullying in adolescents in physical education classes (PREBULLPE): a quasi-experimental study. *Physical Education and Sport Pedagogy*, *26*(1), 36-50. https://doi.org/10.1080/17408989.2020.1799968

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: a practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B (Methodological)*, *57*(1), 289-300. https://rss.onlinelibrary.wiley.com/doi/abs/10.1111/j.2517-6161.1995.tb02031.x

Blewitt, C., Morris, H., O'Connor, A., Ifanti, A., Greenwood, D., & Skouteris, H. (2021). Social and emotional learning in early childhood education and care: a public health perspective. *Australian and New Zealand Journal of Public Health*, *45*(1), 17-19. https://doi.org/10.1111/1753-6405.13058

Blewitt, C., O'Connor, A., Morris, H., Mousa, A., Bergmeier, H., Nolan, A., Jackson, K., Barret, H., & Skouteris, H. (2020). Do curriculum-based social and emotional learning programs in early childhood education and care strengthen teacher outcomes? A systematic literature review. *International Journal of Environmental Research and Public Health*, *17*(3), 1049. https://doi.org/10.3390/ijerph17031049

Brandão, T., Martins, I., Torres, A., & Remondes-Costa, S. (2024). Effect of online Kundalini Yoga mental health of university students during Covid-19 pandemic: A randomized controlled trial. *Journal of Health Psychology*, *29*(6), 567-580. https://doi.org/10.1177/13591053231220710

Braun, C. M., & Bonta, J. L. (1979). Cross-cultural validity, reliability, and stimulus characteristics of the Luscher color test. *Journal of Personality Assessment*, *43*(5), 459-460. https://doi.org/10.1207/s15327752jpa4305_3

Calonge, A. S. (2005). Afectividad y epistemología de las ciencias humanas. *AIBR: Revista de Antropología Iberoamericana,* (1), 10. https://dialnet.unirioja.es/servlet/articulo?codigo=1382244

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum,* *41*(5), 545–547. https://doi.org/10.1188/14.ONF.545-547

Chen, D. D., & Pauwels, L. (2014). Perceived benefits of incorporating yoga into classroom teaching: Assessment of the effects of "yoga tools for teachers". *Advances in Physical Education*, *4*(03), 138-148. https://doi.org/10.4236/ape.2014.43018

Duque-Romero, M. V., & Naucin-Cabezas, E. Z. (2024). Affectivity as a strategy against school violence. *Mendive. Revista de Educación*, e3131. https://mendive.upr.edu.cu/inf
https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/3131

Dye, H. (2018). The impact and long-term effects of childhood trauma. *Journal of Human Behavior in the Social Environment*, *28*(3), 381-392. https://doi.org/10.1080/10911359.2018.1435328

Farmer, T., Robinson, K., Elliott, S. J., & Eyles, J. (2006). Developing and implementing a triangulation protocol for qualitative health research. *Qualitative Health Research*, *16*(3), 377-394. https://doi.org/10.1177/1049732305285708

Felver, J. C., Butzer, B., Olson, K. J., Smith, I. M., & Khalsa, S. B. S. (2015). Yoga in public school improves adolescent mood and affect. *Contemporary School Psychology*, *19*, 184-192. https://doi.org/10.1007/s40688-014-0031-9

Gil-Madrona, P., Pascual-Francés, L., Jordá-Espi, A., Mujica-Johnson, F., & Fernández-Reveles, A. B. (2020). Affectivity and motor interaction in popular motor games at school. *Apunts Educación Física y Deportes*, *36*(139), 42-48. https://doi.org/10.5672/apunts.2014-0983.es(2020/1).139.06

Guerra, C., & Rovetto, M. E. (2020). Yoga en la escuela. Una experiencia en la ciudad de Rosario. *Praxis Educativa*, *24*(2), 134-153. https://doi.org/10.19137/praxiseducativa-2020-240211

Haden, S. C., Daly, L., & Hagins, M. (2014). A randomised controlled trial comparing the impact of yoga and physical education on the emotional and behavioural functioning of middle school children. *Focus on Alternative and Complementary Therapies*, *19*(3), 148-155. https://doi.org/10.1111/fct.12130

Huerta-Ojeda, Á. C., Riquelme-Vera, G., & Yeomans-Cabrera, M. M. (2022). Affectivity and physical habits in adolescents: A systematic review. *Universidad y Salud*, *24*(1), 65-75. https://doi.org/10.22267/rus.222401.259

James-Palmer, A., Anderson, E. Z., Zucker, L., Kofman, Y., & Daneault, J.-F. (2020). Yoga as an intervention for the reduction of symptoms of anxiety and depression in children and adolescents: a systematic review. *Frontiers in Pediatrics*, *8*, 78. https://doi.org/10.3389/fped.2020.00078

Kerekes, N., Söderström, A., Holmberg, C., & Ahlström, B. H. (2024). Yoga for children and adolescents: A decade-long integrative review on feasibility and efficacy in school-based and psychiatric care interventions. *Journal of Psychiatric Research*, 180, 489-499. https://doi.org/10.1016/j.jpsychires.2024.11.016

Khalsa, S. B., Cohen, L., McCall, T., Telles, S., & Cramer, H. (2024). *The principles and practice of yoga in health care*. Jessica Kingsley Publishers.

Khunti, K., Boniface, S., Norris, E., De Oliveira, C. M., & Shelton, N. (2023). The effects of yoga on mental health in school-aged children: A systematic review and narrative synthesis of randomised control trials. *Clinical Child Psychology and Psychiatry*, *28*(3), 1217-1238. https://doi.org/10.1177/13591045221136016

Laxman, K. (2022). Socio-emotional well-being benefits of yoga for atypically developing children. *Journal of Research in Special Educational Needs*, *22*(2), 158-166. https://doi.org/10.1111/1471-3802.12556

López-Sánchez, M., Arrieta-Rivero, S., & Carmona-Alvarado, F. (2023). Educación física y convivencia escolar, una apuesta desde el currículo. *Retos, 47, 25-34*. https://doi.org/10.47197/retos.v47.93674

López, S. G., Ortega, F. Z., Jiménez, J. L. U., & Valero, G. G. (2021). Importancia de la actividad física sobre la inteligencia emocional y diferencias de género [Impact of physical activity on emotional intelligence and sex differences]. *Retos,* 42, 636-642. https://doi.org/10.47197/retos.v42i0.86448

Luarte-Rocha, C., Candia, R., Machado-Arena, A., Pleticosic, Y., Campos-Campos, K., dos Santos, L. G. T. F., & de Campos, L. F. C. C. (2022). Efectos de los programas de intervención con yoga en estudiantes que presentan trastorno del espectro autista: una revisión sistemática [Effects of yoga intervention programs in students with autism spectrum disorder: a systematic review]. *Retos*, *46*, 386-394. https://doi.org/10.47197/retos.v46.93920

Lugones Botell, M., & Ramírez Bermúdez, M. (2017). Bullying: aspectos históricos, culturales y sus consecuencias para la salud. *Revista Cubana de Medicina General Integral*, *33*(1), 154-162. http://scielo.sld.cu/scielo.php?pid=s0864-21252017000100014&script=sci_arttext

Lüscher, M. (1990). *The Luscher color test*. Simon and Schuster.

Martínez Vicente, M., & Valiente Barroso, C. (2019). Autorregulación afectivomotivacional, resolución de problemas y rendimiento matemático en Educación Primaria. *Educatio siglo XXI: Revista de la Facultad de Educación*, *37*(3), 33-54. https://doi.org/10.6018/educatio.399151

McMahon, K., Berger, M., Khalsa, K. K., Harden, E., & Khalsa, S. B. S. (2021). A non-randomized trial of Kundalini Yoga for emotion regulation within an after-school program for adolescents. *Journal of Child and Family Studies*, *30*, 711-722. https://doi.org/10.1007/s10826-021-01911-9

Minihan, S., Kumle, L., Maston, K., Bal, D., Werner-Seidler, A., Christensen, H., & Schweizer, S. (2024). The relationship between cognitive and affective control and adolescent mental health. *JCPP Advances*, *4*(1), e12204. https://doi.org/10.1002/jcv2.12204

Nanthakumar, C. (2018). The benefits of yoga in children. *Journal of Integrative Medicine*, *16*(1), 14-19. https://doi.org/10.1016/j.joim.2017.12.008

Ortiz Torres, M. A., Pérez Suárez, S. I. , Vásquez Navarrete, C. A. , Zavala-Crichton, J. P., Hernández-Jaña, S., Olivares-Arancibia, J., & Yáñez-Sepúlveda, R. (2022). Efecto agudo de una sesión de yoga de corta duración en el nivel de estrés en escolares [Acute effect of a short yoga session on the stress level in schoolchildren]. *Retos,* 43, 309-315. https://doi.org/10.47197/retos.v43i0.86102

Palmier-Claus, J., Golby, R., Stokes, L. J., Saville, C. W., Velemis, K., Varese, F., Marwaha, S., Tyler, E., & Taylor, P. (2024). The relationship between childhood adversity and affective instability across psychiatric disorders: A meta-analysis. *Acta Psychiatrica Scandinavica*, 151(1), 33-45. https://doi.org/10.1111/acps.13745

Peñate, W., González-Loyola, M., & Oyanadel, C. (2020). The predictive role of affectivity, self-esteem and social support in depression and anxiety in children and adolescents. *International Journal of Environmental Research and Public Health*, *17*(19), 6984. https://doi.org/10.3390/ijerph17196984

Pinheiro, L. C. L., Mendes, I. d. S. S., & dos Santos, C. d. L. F. (2023). Afectividad en el proceso de enseñanza/aprendizaje. *Revista Ibero-Americana de Humanidades, Ciências e Educação*, *9*(5), 3348-3365. https://doi.org/10.51891/rease.v9i5.10123

Soriano Sánchez, J. G., Jiménez Vázquez, D., & Sastre-Riba, S. (2023). Una revisión sistemática de la importancia del ejercicio físico sobre la autoeficacia y aprendizaje del estudiante [A systematic review of the importance of physical exercise on student self-efficacy and learning]. *Retos,* 48, 911-918. https://doi.org/10.47197/retos.v48.97581

Santillo, G., Morra, R. C., Esposito, D., & Romani, M. (2025). Projective in time: A systematic review on the use of construction projective techniques in the digital era—Beyond inkblots. *Children*, *12*(4), 406. https://doi.org/10.3390/children12040406

Sarkissian, M., Trent, N. L., Huchting, K., & Khalsa, S. B. S. (2018). Effects of a Kundalini yoga program on elementary and middle school students' stress, affect, and resilience. *Journal of Developmental & Behavioral Pediatrics*, *39*(3), 210-216. https://doi.org/10.1097/DBP.0000000000000538

Smillie, L. D., DeYoung, C. G., & Hall, P. J. (2015). Clarifying the relation between extraversion and positive affect. *Journal of Personality*, *83*(5), 564-574. https://doi.org/10.1111/jopy.12138

Solís, E. A. G., Rivera, C. T. A., Franco, M. D. R. G., & Olivo, A. d. R. E. (2024). Inteligencia emocional y rendimiento académico. *Polo del Conocimiento*, *9*(10), 55-69. https://doi.org/10.23857/pc.v9i10.8102

Stanzani Maserati, M., Mitolo, M., Medici, F., D'Onofrio, R., Oppi, F., Poda, R., ... & Capellari, S. (2019). Color choice preference in cognitively impaired patients: a look inside Alzheimer's disease through the use of Lüscher Color Diagnostic. *Frontiers in Psychology*, *10*, 1951. https://doi.org/10.3389/fpsyg.2019.01951

Streeter, C. C., Gerbarg, P. L., Saper, R. B., Ciraulo, D. A., & Brown, R. P. (2012). Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Medical Hypotheses,* *78*(5), 571–579. https://doi.org/10.1016/j.mehy.2012.01.021

Suárez, J. C. P. (2023). Educación holística en básica, secundaria y media: retos y oportunidades. *Revista Internacional de Pedagogía e Innovación Educativa*, *3*(1), 181-206. https://doi.org/10.51660/ripie.v3i1.109

Supervía, P. U., Bordás, C. S., Robres, A. Q., Blasco, R. L., & Cosculluela, C. L. (2023). Empathy, self-esteem and satisfaction with life in adolescent. *Children and Youth Services Review*, *144*, 106755. https://doi.org/10.1016/j.childyouth.2022.106755

Varona Domínguez, F. (2019). La afectividad. Algunas consideraciones desarrolladas a lo largo de su historia. *Dialektika: Revista de Investigación Filosófica y Teoría Social*, *1*(2), 8-21. https://doi.org/10.51528/dk.vol1.id12

Vitero, F. B. (2021). Combatir el bullying para evitar el maltrato en la vida adulta y otras conductas desadaptadas. *Revista INFAD de Psicología. International Journal of Developmental and Educational Psychology*, *2*(2), 93-98. https://doi.org/10.17060/ijodaep.2021.n2.v2.2212

Watson, D., & Naragon-Gainey, K. (2010). On the specificity of positive emotional dysfunction in psychopathology: Evidence from the mood and anxiety disorders and schizophrenia/schizotypy. *Clinical Psychology Review*, *30*(7), 839-848. https://doi.org/10.1016/j.cpr.2009.11.002

Zhang, H., Wang, W., Liu, S., Feng, Y., & Wei, Q. (2023). A meta-analytic review of the impact of child maltreatment on self-esteem: 1981 to 2021. *Trauma, Violence, & Abuse*, *24*(5), 3398-3411. https://doi.org/10.1177/15248380221129587

Authors and translators' details:

Antonio López-Fuenzalida	antonio.lopez@upla.cl	Author / Translator
Pamela Cubillos-Bianchini	pepi.cubillos.bianchini@gmail.com	Author
Pablo Valdés-Badilla	valdesbadilla@gmail.com	Author
Carolina Guerra-Ferrer	caroguerraferrer@gmail.com	Author
Ludmila Varas-Yupátova	ludmila.varas@upla.cl	Author
Vjera Saad Tomasovic	vsaadt@gmail.com	Author
Fernando Barraza-Gómez	fernando.barraza@unab.cl	Author
Lizber Castro-González	lizberc@gmail.com	Author
Valentina Henríquez-Camus	vhenriquezcamus@gmail.com	Author
Elena Carrasco-García	ele.carrascog@gmail.com	Author
Eduardo Baéz-SanMartín	eduardo.baez@upla.cl	Author / Translator