



Journal Homepage: [-www.journalijar.com](http://www.journalijar.com)

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/23262

DOI URL: <http://dx.doi.org/10.21474/IJAR01/23262>



RESEARCH ARTICLE

MOTOR RESTLESSNESS AND SCHOOL LUNCHBOXES: A COMPARATIVE STUDY IN IBAGUE, COLOMBIA

Diana Mallerly Mora-Urrea¹, Diana Marcela Mendez-Cardenas¹, Gloria Ivonne Hurtado-Munoz¹, Ricardo Leon Reina-Patino¹ and Ivan Posada-A²

1. Universidad Minuto de Dios, Ibagué-Colombia, Administrative Science Faculty.
2. Universidad Cooperativa de Colombia. Ibagué-Colombia.

Manuscript Info

Manuscript History

Received: 10 February 2026

Final Accepted: 12 March 2026

Published: April 2026

Key words:-

Motor restlessness; school lunchbox; teacher perception; learning-environments; qualitative comparative study

Abstract

Motor restlessness perceived in the classroom is a highly relevant phenomenon for educational psychology and school health in Colombia, where the prevalence of associated symptoms reaches critical levels between 16% and 19% (Faraone et al., 2021). Although it has traditionally been approached from a clinical perspective centered on the diagnosis of Attention-Deficit/Hyperactivity Disorder (American Psychiatric Association, 2022), this study adopts a biopsychosocial and interpretive framework (Engel, 2012; Weissenberger et al., 2017). Under this paradigm, physical agitation is understood as a dynamic response modulated by critical environmental factors (Cuartas & Morris-Perez, 2026), in which the school lunchbox acts as the systemic interface between home and school (Bronfenbrenner & Morris, 2007; Tong & An, 2023). The purpose of this research was to analyze teachers' and parents' perceptions of the relationship between the nutritional content of lunchboxes and post recess agitation. A qualitative descriptive-comparative multiple-case design was employed in two schools in Ibagué with contrasting socioeconomic contexts (López Jiménez et al., 2020). Findings revealed significant disparities in macronutrient composition and strong differences in perceived post-recess motor restlessness, reinforcing the interpretation of classroom agitation as a learning-environment phenomenon shaped by nutritional inequalities, teacher meaning-making, and school climate.

"© 2026 by the Author(s). Published by IJAR under CC BY 4.0. Unrestricted use allowed with credit to the author."

Introduction:-

Motor restlessness perceived in the classroom is a phenomenon of high relevance for educational psychology and school health in Colombia, where the prevalence of associated symptoms reaches critical levels between 16% and 19% (Faraone et al., 2021). Although it has traditionally been addressed from a clinical perspective centered on the diagnosis of Attention-Deficit/Hyperactivity Disorder (American Psychiatric Association, 2022), this study adopts a biopsychosocial and interpretive approach (Engel, 2012; Weissenberger et al., 2017). Within this paradigm, physical agitation is understood as a dynamic response modulated by critical environmental factors (Cuartas &

Corresponding Author:-Diana Mallerly Mora-Urrea

Address:-Universidad Minuto de Dios, Ibagué-Colombia, Administrative Science Faculty.

Morris-Perez, 2026), where the school lunchbox acts as the systemic interface between home and school (Bronfenbrenner & Morris, 2007; Tong & An, 2023).

In the city of Ibagué, local health reports indicate that 74% of assessed children present ferritin deficiencies and 83% show low Omega-3 levels, factors that intensify behavioral instability in the context of diets rich in ultra-processed foods (Colsubsidio, 2025; Hospital Federico Lleras, 2025; Secretaría de Salud del Tolima, 2025; Synab, 2025; Universidad del Tolima, 2025). The purpose of this research is to analyze teachers' and parents' perceptions regarding the relationship between the nutritional content of school lunchboxes and post-recess agitation, framing the study within the Healthy School strategy (Ministerio de Salud y Protección Social, 2018) and the ICBF Food-Based Dietary Guidelines (Instituto Colombiano de Bienestar Familiar, 2024; Universidad de Antioquia, 2025).

Related Work:-

Contemporary scientific evidence supports the association between diet and child self-regulation (Sadeghirad et al., 2016). A recent meta-analysis shows that high consumption of ultra-processed foods negatively affects cognitive domains and executive functions in schoolchildren (Nguyen et al., 2025). Likewise, a significant correlation has been identified between high glycemic load intake and increased perceived symptoms of hyperactivity (Namimi-Halevi et al., 2026). From neurobiology, additives and simple sugars may induce neuroinflammatory states that behaviorally manifest as agitation (Poon et al., 2026). Controlled trials have also confirmed that artificial colorings increase hyperactive behavior in the general child population (McCann et al., 2007).

Within the regional context, observational studies have revealed a structural dependence on simple carbohydrates in lunchboxes from Colombian schools (Villalba Arango & Zambrano Benavides, 2023). The most relevant local antecedent is the pilot study conducted by Universidad del Tolima (2025), which documented that replacing ultra-processed foods with natural foods reduced perceived motor restlessness symptoms by 59% (Dinu & Martini, 2023; Universidad del Tolima, 2025).

While the relationship between nutrition and child behavior has been explored globally (Nguyen et al., 2025; Sadeghirad et al., 2016), there is a significant research gap regarding how the school lunchbox—as a systemic interface between home and school—modulates perceived motor restlessness in specific socio-territorial contexts like Ibagué, Colombia. Existing literature often focuses on clinical genetics or formal ADHD diagnoses (American Psychiatric Association, 2022; Faraone et al., 2021), leaving a gap in understanding classroom agitation as a social representation interpreted by educational actors in developing urban settings. This study is novel as it provides the first deep qualitative evidence in the region, shifting the focus from clinical hyperactivity labels to a bioecological analysis of how socioeconomic disparities in nutritional quality directly influence the perceived agitation in the learning-environment.

Methodology:-

The study was conducted under a qualitative descriptive-comparative approach, utilizing the contrasting multiple-case study design as defined by López Jiménez et al. (2020). This design facilitated the analysis of pedagogical dynamics and social discourses within their natural setting. The research focused on the phenomenon of motor restlessness through systematic frequency observation of disruptive classroom behaviors. Furthermore, the methodological framework incorporated the evaluation of participants' perceptions (Salcedo Aparicio et al., 2022) and their social representations (Méndez-Munévar, 2024) across two educational institutions in Ibagué with divergent socioeconomic profiles.

Participants and Sampling:-

As in Tambo-Lizalde et al. (2021), a purposive, non-probabilistic sampling was used to select two educational institutions representing contrasting socioeconomic extremes in Ibagué: a public school (Socioeconomic Stratum 1-2) and a private school (Stratum 4-6). The sample consisted of 20 primary school students (10 from each institution) along with their respective parents and teachers. This allowed for a comparative analysis of the "qualitative restriction" in vulnerable sectors versus "excess by convenience" in affluent contexts.

Data Collection:-

Data collection was structured in three phases using systematic non-participant observation through a frequency checklist and event records during the post-recess transition. To ensure validity, the study employed methodological

triangulation, integrating systematic observation of lunchboxes, 35-minute semi-structured interviews, and anthropometric characterization.

Data Analysis:-

Reliability was maintained through a consensus-based coding process (inter-coder agreement) during the six phases of manual thematic analysis proposed by Braun and Clarke cited by Byrne (2022) and Naeem et al (2023). Six core dimensions were identified: caloric density, presence of natural foods, motor restlessness, parental nutritional knowledge, openness to change, and economic factors.

Ethical Considerations:-

The research adhered to the Declaration of Helsinki and Colombian Resolution 8430 of 1993. Participation was voluntary, and Informed Consent was obtained from all parents, alongside oral assent from the children. To ensure anonymity, participants and institutions were coded (e.g., Public School A, Student 1).

Results:-

The findings are structured into three levels: quantitative nutritional characterization, qualitative analysis of perceptions, and anthropometric description of the sample.

Nutritional Content Analysis:-

Photographic examination and calculations based on official food tables revealed a significant disparity in nutrient supply between both contexts. The results reveal a critical glycemic gap, lunchboxes in the public sector contained an average of 214.4 g of simple carbohydrates, compared to 165.2 g in the private sector—a difference of 49.2 g of rapid-absorption sugars (Table 1).

Table 1. Comparison of macronutrient composition and mean caloric intake across school lunchboxes.

School	Protein (g)	Lipid (g)	Carbohydrates (g)	Caloric intake (kcal)
Public (Estrato 1-2)	33.6	24.8	214.4	1215
Private (Estrato 3-4)	24.3	28.8	165.2	1017
Key difference	+9.3	-4.0	+49.2	+198

Source: Prepared by the authors based on photographic analysis and nutritional tables.

Qualitative Synthesis:-

Following Braun and Clarke's thematic analysis methodology (Byrne, 2022), as referenced by Naeem (Naeem et al., 2023), a qualitative assessment was conducted across six key dimensions. The radar chart (Figure 1), derived from the multivariate profile analysis, shows an inverted configuration between the two cases: the public-school polygon expands across risk-related dimensions (perceived motor restlessness), whereas the private-school polygon expands in nutritional knowledge and the presence of natural foods. Survey findings further revealed that perceived motor restlessness operates as a "social representation" for teachers, as proposed by Jodelet (1986). In this sense, such perception is not objective; rather, it is socially constructed through classroom expectations of order, stillness, and academic performance.

Teachers in the public sector reported a maximum Motor Restlessness Perception of 9.5/10. Narrative evidence supports this: "The children seem restless right after recess, then they crash", reflecting a state of over-arousal followed by metabolic fatigue. In the private sector, while the restlessness score was lower (6.2/10), there was a higher frequency of "marketing-driven consumption" of ultra-processed snacks. This perception was consistent with the stronger influence of the economic factor (9.5/10), confirming that "qualitative restriction" in lower socioeconomic strata limits adherence to the Food-Based Dietary Guidelines (GABAs) (Universidad de Antioquia, 2025), in contrast to the "convenience-driven excess" observed in the private sector. This agitation reflects what Wallon (2000) describes as "tonic dialogue", through which the child expresses metabolic tensions and exploratory needs through movement, which in turn collide with the traditional school's norms of "docile bodies".

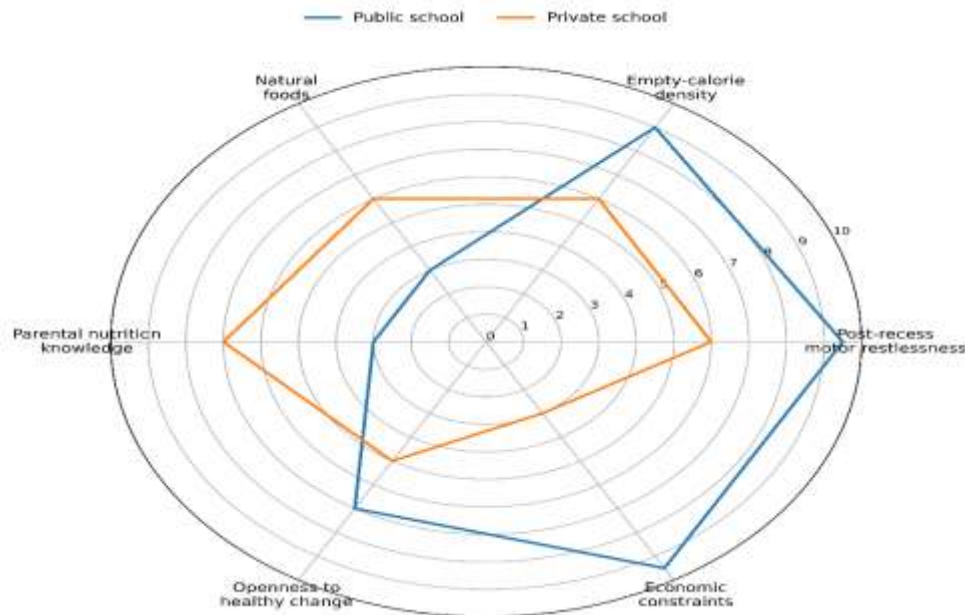


Figure 1. Comparative radar profile of qualitative dimensions and teacher perceptions.

Source: Prepared by the authors based on surveys.

Discussion, Contribution, and Conclusions:-

The findings demonstrate that perceived motor restlessness in schools in Ibagué is closely linked to nutritional disparities in school lunchboxes, with the public sector showing an excess of 49.2 g of rapidly absorbed carbohydrates compared with the private sector. More specifically, these results suggest that teachers are not merely observing isolated disruptive behaviors; rather, they are interpreting environmentally mediated patterns of post-recess dysregulation that emerge from unequal school food ecologies. This glycemic gap helps explain the intensity of post-recess agitation reported by public-school teachers, supporting the premise that physical agitation is a phenomenon modulated by the food environment (Nguyen et al., 2025; Ferreira et al., 2024). These findings align with Bronfenbrenner's bioecological model, where the lunchbox acts as a "proximal process" reflecting structural inequalities (Bronfenbrenner & Morris, 2007; Tong & An, 2023). The perceived restlessness is not merely a clinical symptom but a social representation of the failure of the Healthy School Strategy in Ibagué, as documented by Guzmán Barragán et al. (2020), who found that 89% of local schools have not integrated health policies into their curricula.

This study makes a stronger contribution to Q1 educational scholarship by positioning the school lunchbox as an overlooked component of the learning-environment that shapes teacher perception, classroom climate, and children's self-regulation. By linking nutritional inequality to teacher meaning-making, the study extends current debates in teacher education and learning-environments beyond conventional behavioral frameworks. It also highlights systematic non-compliance with Food-Based Dietary Guidelines and suggests the need to move from a model of bodily disciplining toward a pedagogy of movement and inclusion (Di-Deo, 2018; Ramos et al., 2024).

Implications for Teacher Education:-

For teacher education, the findings underscore the importance of preparing teachers to interpret movement through ecological, developmental, and context-sensitive lenses rather than through exclusively deficit-based models. Pre-service and in-service programs may benefit from incorporating training on post-recess transitions, sensory and motor self-regulation, classroom movement integration, and the role of school food environments in student behavior. Such preparation may strengthen teachers' ability to distinguish between developmentally expected movement, environmentally triggered agitation, and behaviors requiring differentiated support.

Limitations:-

This study should be interpreted in light of several limitations characteristic of its qualitative and descriptive nature. First, the sample size was intentionally small ($n=20$) and context-specific to the city of Ibagué, which supports analytical depth but limits statistical generalizability to the entire national territory. Second, the research relied on teacher and parent perceptions, which constitute socially and institutionally mediated representations rather than objective clinical or behavioral diagnoses. Third, the cross-sectional design captures post-recess patterns at a single moment in time and does not allow for the establishment of biological causality between nutritional intake—specifically the "glycemic gap" found in lunchboxes—and behavioral outcomes or ADHD. Despite these constraints, the study provides a robust framework and a baseline for future research involving longitudinal mixed-methods designs, direct nutritional biomarkers, and classroom-based intervention studies on school food environments.

Acknowledgments:-

The authors would like to thank the Universidad Minuto de Dios – Ibagué and our heartfelt thanks go to Mr. Roger Castebianco, who not only shared his knowledge with us but also inspired us with the teaching that 'half of 13 is Jesus

Generative AI Statement:-

During manuscript preparation the authors used generative artificial intelligence tools exclusively to refine wording, language flow, and grammatical structure. Following this process, the authors fully reviewed, edited, and validated the content, assuming total responsibility for the originality, accuracy, and conclusions of the study.

References:-

1. Bronfenbrenner, U., & Morris, P. A. (2007). The Bioecological Model of Human Development. In *Handbook of Child Psychology*. <https://doi.org/10.1002/9780470147658.chpsy0114>
2. Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality and Quantity*, 56(3), 1391–1412. <https://doi.org/10.1007/s11135-021-01182-y>
3. Cárdenas Pinto, M. J. (2025). Representaciones Sociales de los Docentes en el Contexto de la Educación Primaria. *DIALÉCTICA*, 3(26), 1–27. <https://doi.org/10.56219/dialectica.v3i26.4871>
4. Cecilia, A., Patricio, P., Donna, C., Rakibul, H., Sussanne, R., Betsy, L., & Bharat, B. (2022). Cognitive control inhibition networks in adulthood are impaired by early iron deficiency in infancy. *NeuroImage: Clinical*, 35(June), 103089. <https://doi.org/10.1016/j.nicl.2022.103089>
5. Chaudhary, A., Sudzina, F., & Mikkelsen, B. E. (2020). Promoting Healthy Eating among Young People—A Review of the Evidence of the Impact of School-Based Interventions. *Nutrients*, 12(9), 2894. <https://doi.org/10.3390/nu12092894>
6. Colsubsidio. (2025). Reporte interno de laboratorio sobre niveles de ferritina y Omega-3 en población pediátrica de Ibagué (enero-diciembre 2025) [Unpublished internal report]. Ibagué, Colombia. Copy in possession of author.
7. Cuartas, J., & Morris-Perez, P. (2026). Bringing natural ecosystems into the bioecological model of human development. *Nature Human Behaviour*, 10(1), 7–9. <https://doi.org/10.1038/s41562-025-02334-y>
8. Di-Deo, A. S. (2018). Escuela y medicalización de las infancias como dispositivos de disciplinamiento social. *Revista Internacional de Educación y Aprendizaje*, 6(4), 235–243. <https://edulab.es/revEDU/article/view/1852/1186>
9. Dinu, M., & Martini, D. (2023). Ultra-Processed Foods, Diet Quality and Human Health. In *Nutrients* (Vol. 15, Number 13). <https://doi.org/10.3390/nu15132890>
10. Engel, G. L. (2012). The Need for a New Medical Model: A Challenge for Biomedicine. *Psychodynamic Psychiatry*, 40(3), 377–396. <https://doi.org/10.1521/pdps.2012.40.3.377>
11. Faraone, S. V., Banaschewski, T., Coghill, D., Zheng, Y., Biederman, J., Bellgrove, M. A., Newcorn, J. H., Gignac, M., Al Saud, N. M., Manor, I., Rohde, L. A., Yang, L., Cortese, S., Almagor, D., Stein, M. A., Albatti, T. H., Aljoudi, H. F., Alqahtani, M. M. J., Asherson, P., ... Wang, Y. (2021). The World Federation of ADHD International Consensus Statement: 208 Evidence-based conclusions about the disorder. *Neuroscience & Biobehavioral Reviews*, 128, 789–818. <https://doi.org/10.1016/j.neubiorev.2021.01.022>
12. Ferreira, R. C., Marin, A. H., Vitolo, M. R., & Campagnolo, P. D. B. (2024). Early ultra-processed foods consumption and hyperactivity/inattention in adolescence. *Revista de Saúde Pública*, 58(46). <https://doi.org/10.11606/s1518-8787.2024058005636>

13. Gallardo-Echenique, E. (2024). Pasos para realizar análisis sistemático con el programa ATLAS.ti. RISTI - Revista Ibérica de Sistemas e Tecnologías de Informação, e75(11), 437–450.
<https://dialnet.unirioja.es/servlet/articulo?codigo=10138748>
14. Guzmán Barragán, B. L., Gonzalez Rivillas, M. A., & Guzmán Barragán, P. A. (2020). Evaluation of the Implementation of the Healthy School Strategy in the Rural Area of the Municipality of Ibagué: Case Studies. *Hacia La Promoción de La Salud*, 25(1), 76–89. <https://doi.org/10.17151/hpsal.2020.25.1.6>
15. Hospital Federico Lleras Acosta. (2025). Reporte estadístico institucional de pacientes pediátricos con diagnóstico de TDAH (n=1,842) [Unpublished raw data]. Ibagué, Colombia.
16. Instituto Colombiano de Bienestar Familiar (ICBF). (2024). Plan nacional de implementación de las guías alimentarias para Colombia. 2023 -2026. 1–144.
https://www.icbf.gov.co/system/files/plan_nacional_de_implementacion_de_guias_alimentarias_2023-2026_dir_nutricion_8_marzo_2024.pdf
17. Javed, A., Jumean, M., Murad, M. H., Okorodudu, D., Kumar, S., Somers, V. K., Sochor, O., & Lopez-Jimenez, F. (2015). Diagnostic performance of body mass index to identify obesity as defined by body adiposity in children and adolescents: a systematic review and meta-analysis. *Pediatric Obesity*, 10(3), 234–244.
<https://doi.org/10.1111/ijpo.242>
18. López Jiménez, T., Castillo Venegas, C., Taruman Monsalve, J., & Urzúa Calderón, A. (2020). Prácticas inclusivas centradas en el aprendizaje: un estudio de casos múltiples en educación infantil. *Revista Educación*, 45, 102–117. <https://doi.org/10.15517/revedu.v45i1.40536>
19. McCann, D., Barrett, A., Cooper, A., Crumpler, D., Dalen, L., Grimshaw, K., & Stevenson, J. (2007). Food additives and hyperactive behaviour in 3-year-old and 8/9-year-old children in the community: a randomised, double-blinded, placebo-controlled trial. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(07\)61306-3](https://doi.org/10.1016/S0140-6736(07)61306-3)
20. Méndez-Munévar, V. P. (2024). Las representaciones sociales en la educación inclusiva: una revisión sistemática. *Educación y Ciudad*, (47), e3223. <https://doi.org/10.36737/01230425.n47.2024.3223>
21. Ministerio de Salud y Protección Social. (2018). Estrategia de entorno educativo saludable: Dirección de Promoción y Prevención Subdirección de Salud Ambiental.
<https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/VS/PP/SA/estrategia-entorno-educativo-2019.pdf>
22. Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods*, 22(October), 1–18. <https://doi.org/10.1177/16094069231205789>
23. Namimi-Halevi, C., Dor, C., Kaufman-Shriqui, V., Dichtiar, R., Bromberg, M., & Sinai, T. (2026). Attention-deficit/hyperactivity disorder is associated with increased consumption of ultra-processed foods among children. *Pediatric Research*. <https://doi.org/10.1038/s41390-026-04844-5>
24. Nguyen, L., Walters, J., Spies, B., Coppus, A., Massie, J., & Bertonha, T. P. (2025). Food for Thought: A Systematic Review and Meta-Analysis on the Effects of Ultra-Processed Foods on Cognition in Children and Adolescents. *Food Frontiers*. <https://doi.org/10.1002/fft2.70064>
25. Poon, E., Li, C., Schweitzer, D., & Akefe, I. (2026). Neurobiological insights into the effects of ultra-processed food on lipid metabolism and associated mental health conditions: a scoping review. *Frontiers in Nutrition*, 12. <https://doi.org/10.3389/fnut.2025.1754492>
26. Ramos, A. M. J., Cruz, C. F. F., & Jurado, Y. (2024). Perspectives of the body and motor skills from the Physical Education curricular plans and the conceptions of teachers in the area. *Retos*, 52, 191–203.
<https://doi.org/10.47197/RETOS.V52.98509>
27. Sadeghirad, B., Duhaney, T., Motaghipisheh, S., Campbell, N. R. C., & Johnston, B. C. (2016). Influence of unhealthy food and beverage marketing on children’s dietary intake and preference: a systematic review and meta-analysis of randomized trials. *Obesity Reviews*, 17(10), 945–959. <https://doi.org/10.1111/obr.12445>
28. Salcedo Aparicio, D. M., López Mindiola, J. J., Fuentes Torres, B. J., & Salcedo Aparicio, D. J. (2022). La percepción sensorial, la cognición, la interactividad y las tecnologías de información y comunicación (TIC) en los procesos de aprendizaje. *RECIAMUC*, 6(2), 388–395.
[https://doi.org/10.26820/reciamuc/6.\(2\).mayo.2022.388-395](https://doi.org/10.26820/reciamuc/6.(2).mayo.2022.388-395)
29. Secretaría de Salud Tolima. (2025). Boletín epidemiológico (plomo y neurodesarrollo). Gobierno del Tolima. Copy in possession of author.
30. Synab. (2025). Análisis técnico de biomarcadores nutricionales y deficiencias de micronutrientes en entornos escolares de Ibagué [Unpublished internal report]. Ibagué, Colombia. Copy in possession of author.

31. Tambo-Lizalde, E., Febrel Bordejé, M., Urpí-Fernández, A. M., & Abad-Díez, J. M. (2021). Health care for patients with multimorbidity. The perception of professionals. *Atencion Primaria*, 53(1), 51–59. <https://doi.org/10.1016/j.aprim.2020.05.013>
32. Tong, P., & An, I. S. (2023). Review of studies applying Bronfenbrenner’s bioecological theory in international and intercultural education research. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1233925>
33. Torres Bastidas, A. C. (2025). Alimentación Real en las Escuelas, Una Decisión de Salud Pública - Dejusticia. *Dejusticia*. <https://www.dejusticia.org/column/alimentacion-real-en-las-escuelas-una-decision-de-salud-publica/>
34. Universidad de Antioquia. (2025). Documentotécnico Guia de Alimentación para la Población Colombiana Basada en Biodiversidad y Alimentación Real. <https://www.icbf.gov.co/guia-de-alimentacion-para-la-poblacion-colombiana-basada-en-biodiversidad-y-alimentacion-real>
35. Universidad del Tolima (2025): Universidad del Tolima. (2025). Piloto nutricional en los barrios Jordán, Cádiz y Picalaña: Impacto de la sustitución de ultraprocesados en la inquietud motora infantil (n=94) [Unpublished manuscript]. Facultad de Ciencias de la Salud, Universidad del Tolima. Copy in possession of author.
36. Villalba Arango, R. S., & Zambrano Benavides, D. (2023). Los datos que necesitamos (y no tenemos) sobre malnutrición - Dejusticia. *Dejusticia*. <https://www.dejusticia.org/column/encuesta-ensin-sobre-nutricion-urge-su-actualizacion/>
37. Wallon, H., Miranda Pacheco, M., & Furió, S. (2000). La evolución psicológica del niño. In *Biblioteca de bolsillo*; 22; 22. (1a ed). Crítica.
38. Weissenberger, S., Ptacek, R., Klicperova-Baker, M., Erman, A., Schonova, K., Raboch, J., & Goetz, M. (2017). ADHD, Lifestyles and Comorbidities: A Call for an Holistic Perspective – from Medical to Societal Intervening Factors. *Frontiers in Psychology*, 8(454). <https://doi.org/10.3389/fpsyg.2017.00454>