

---

## Title

### ***Obesity and Arterial Hypertension in Children: Systematic Review***

## Abstract

Overweight, obesity, and arterial hypertension in children have become a serious and growing public health problem in this group. However, there is a lack of updated data to determine whether these conditions correlate. This systematic review was designed and developed following the "Preferred Reporting Items in Systematic Reviews and Meta-Analyses" (PRISMA) statement, performed through a bibliographic search in the SciELO (Scientific Electronic Library Online), MEDLINE (National Library of Medicine), and LILACS (Latin American and Caribbean Health Sciences Literature) databases. Finally, 7 studies were included in the quantitative analysis based on 5,364 subjects considered, and 14 studies were used for the qualitative analysis contributing to the discussion on the investigated topic. The presence of pre-AHT and early-stage AHT was high in all the studies, mostly in overweight and obese children, which, through the results, demonstrate that these values and the increase in BP are closely related to the increase in BMI (SciELO Scientific Electronic Library Online), MEDLINE (National Library of Medicine); LILACS (Latin American and Caribbean Health Sciences Literature). Overweight and obesity in children contribute to a serious health problem. Being necessary to verify the opinions of the authors in recent years in relation to the relationship between these variables and the presence of hypertension in children. A systematic review was designed following the statement "Preferred Reporting Items in Systematic Reviews and Meta-Analyses" (PRISMA). A search was carried out in the Scielo, Google academic, PubMed, Latindex databases. Finally, 7 studies were included in the quantitative analysis based on 5,364 topics considered. Concluding that the presence of preHBP and HBP in the early stage was high in all the studies, mainly in

---

overweight and obese children, which, through the results, demonstrates that these values and the increase in BP are closely related to the increase in BMI. © Kamla-Raj S-EM 2024.

## **Authors**

Valladares D.L.; Barrio Mateu L.A.; Hernández A.; Sanhueza J.; Warner Í.; Plana A.M.C.; Godoy S.H.; Olivos C.L.; Villarroel D.H.; Ávila-Montiel A.G.

## **Author full names**

Valladares, Dayneri León (35363063000); Barrio Mateu, L.A. (57208652920); Hernández, A. (59137630400); Sanhueza, J. (59137630500); Warner, Í. (59137785600); Plana, A. M. Cabanas (56581757700); Godoy, S. Helena (57208648101); Olivos, C. Lagos (58021618800); Villarroel, D. Henriquez (59137785700); Ávila-Montiel, A.G. (59137630600)

## **Author(s) ID**

35363063000; 57208652920; 59137630400; 59137630500; 59137785600; 56581757700; 57208648101; 58021618800; 59137785700; 59137630600

## **Year**

2024

---

## Source title

Studies on Ethno-Medicine

## Volume

18.0

## Issue

1

## Page start

1

## Page end

9

## Page count

8.0

## DOI

10.31901/24566772.2024/18.1.660

---

## Link

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85193829961&doi=10.31901%2f24566772.2024%2f18.1.660&partnerID=40&md5=09564b145c28495a637a1c2670efe1c2>

## Affiliations

Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Faculty of Sciences, Department of Physics, University of Tarapaca, Chile; Medical Hospital San Luis de Buin, Autonomous University of Chile, Chile

## Authors with affiliations

Valladares D.L., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Barrio Mateu L.A., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Hernández A., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Sanhueza J., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Warner Í., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Plana A.M.C., Faculty of Sciences, Department of Physics, University of Tarapaca, Chile; Godoy S.H., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Olivos C.L., Faculty of Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Villarroel D.H., Faculty of

---

Education and Humanities, Department of Physical Activity and Sport Sciences, University of Tarapaca, Chile; Ávila-Montiel A.G., Medical Hospital San Luis de Buin, Autonomous University of Chile, Chile

## **Author Keywords**

Body Composition; Childhood Obesity; Hypertension; Overweight; Pre-Hypertension

## **Funding Details**

Universidad de Tarapacá, UTA; Department of Sciences of the Physical Activity and the Sport

## **Funding Texts**

The paper is part of the Research Project Innovation in Higher Education UTA 2022. Entitled: Semillero de Investigación. Semillas que germinan. From the Universidad de Tarapacá, pertaining to the Department of Sciences of the Physical Activity and the Sport of the Faculty of Education and Humanities of the Universidad de Tarapacá.

## **References**

Alba M, Prevalence of childhood obesity and eating habits in primary education, *Global Nursing*, 15, 42, pp. 40-51, (2016); Alvarez J, Aguilar F, Lurbe E, The measurement of blood pressure in children and adolescents: Key element in the evaluation of arterial hypertension, *Annals of Pediatrics*, 96, 6, (2022); Atalah E, Epidemiology of obesity in Chile, *Las Condes Clinic Medical Journal*, 23, 2, pp.

---

117-123, (2012); Bancalari R, Diaz C, Martinez A, Aglony M, Zamorano J, Cerda V, Fernandez M, Garbin F, Cavada G, Valenzuela M, Garcia H, Prevalence of arterial hypertension and its association with obesity in children, *Chilean Medical Journal*, 139, 7, pp. 872-879, (2011); Bastias-Gonzalez F, Jorquera C, Matamala C, Aguirre P, Escandon-Nagel N, Marileo L, Viscardi S, The weight stigma of nutrition and dietetics students towards people with obesity, *Rev Chil Nutrition*, 49, 3, (2022); Bitew ZW, Alemu A, Ayele EG, Tenaw Z, Alebel A, Worku T, Metabolic syndrome among children and adolescents in low and middle income countries: A systematic review and meta-analysis, *Diabetol Metab Syndr*, 12, 1, (2020); Bartkowiak J, Spitzer E, Kurmann R, Zurcher F, Krahenmann P, Garcia-Ruiz V, Et al., El impacto de la obesidad en la hipertrofia ventricular izquierda y la disfunción diastólica en niños y adolescentes, *Informes científicos*, 11, (2021); Caro-Bustos D, Uribe-Barra M, Lopez-Alegria F, Pediatric obesity and early onset of cardiometabolic syndrome: Systematic review, *Rev Chil Nutr*, 48, 3, (2021); Cho WK, Han K, Ahn MB, Park YM, Jung MH, Suh BK, Metabolic risk factors in Korean adolescents with severe obesity: Results from the Korea National Health and Nutrition Examination Surveys (K-NHANES) 2007-2014, *Diabetes Res Clin Pract*, 138, pp. 169-176, (2018); Crovetto M, Henriquez C, Parraguez R, Relationship between the institutional feeding of Kindergartens and the Home with the nutritional status of preschoolers who attend two Kindergartens in Valparaíso, Chile, *Spanish Journal of Human Nutrition and Diet*, 20, 1, pp. 4-15, (2016); The Fourth Report on the Diagnosis, Evaluation, and Treatment of Elevated BP in Children and Adolescents 2004, *Pediatrics*, 114, pp. 555-576; De la Torre MJV, Castellanos JLV, Sagastume RC, Arterial Hypertension in Overweight and Obese School Children, *Public Health and Nutrition Magazine*, 12, 3, (2011); Diaz A, Calandra L, Elevated blood pressure in school children and adolescents in Argentina in the last 25 years: systematic review of observational studies, *Argentine Archives of Pediatrics*, 115, 1, pp. 5-11, (2017); Erzurum-Alim N, Yuksel A, Tefvikoglu-Pehlivan L, Karakaya RE, Besler ZN, Risk of eating disorders

---

---

and factors associated with obesity prejudice in college students: A descriptive cross-sectional study, *Spanish Journal of Human Nutrition and Diet*, 26, 2, pp. 104-113, (2022); Escudero-Lourdes GV, Morales-Romero L V, Valverde-Ocana C, Velasco-Chavez JF, Cardiovascular Risk in Children Aged 6 to 15 with Exogenous Obesity, *Rev Med Inst Mex Seguro Soc*, 52, S1, (2014); Estrago V, Tabarez A, Munoz M, Gonzalez G, Et al., Overweight, obesity and arterial hypertension in children, an approach to the problem, *Archives of Pediatrics of Uruguay*, 89, 5, pp. 301-310, (2018); Fernandez-Altuna MA, Martinez del Prado A, Arriaran - Rodriguez E, Et al., Use of MeSH: A practical guide, *Medical Educ Research*, 5, 20, (2016); Ferrero HP, Marcial AD, Munoz VD, Effects of a remote physical exercise program for overweight and obese people on anthropometric and psycho-emotional indicators: proposal for a pilot intervention protocol in the context of COVID-19, *Archives of the Chilean Society of Sports Medicine*, 67, 1, pp. 3-11, (2022); Garcia SA, Ninatanta-Ortiz JA, Abanto MV, Perez KM, Et al., Lifestyle school-based intervention to increase the proportion of adolescents free of components of the metabolic syndrome in an andean region of Peru, *Rev Peru Med Exp Salud Pública*, 39, 1, (2022); Garretto-Guardabassi M, Mena M, Barbero L, Scruzzi G, Nutritional status and blood pressure in school children from Alta Gracia, Córdoba 2016, *Magazine of the Faculty of Medical Sciences of Córdoba*, pp. 1-70, (2017); Gonzalez R, Llapur R, Diaz M, Illa M, Yee E, Perez D, Lifestyles, arterial hypertension and obesity in adolescents, *Cuban Journal of Pediatrics*, 87, 3, pp. 273-284, (2015); Gonzalez R, Llapur R, Diaz ME, Moreno V, Pavon M, Arterial hypertension and obesity in schoolchildren from five to eleven years of age, *Cuban Journal of Pediatrics*, 85, 4, pp. 418-427, (2013); Guardabassi V, Tomasetto C, Weight status or weight stigma? Obesity stereotypes-Not overweight-Reduce working memory in school-age children, *J Exp Child Psychol*, 189, (2020); Leiva LE, Vasquez-Guillen M, Vasquez-Guillen A, Contreras M, Carrero Y, Obesity-associated complications of Covid-19: Review, *Investigative Nursing*, 7, 2, pp. 80-86, (2022); Leon ML, Gonzalez LH, Morffi A,

---

---

Figueredo A, Ramirez E, Fernandez L, Pathophysiological Relationships between Cardiovascular Hyperreactivity, Obesity and Sedentary Lifestyle, *Rev Finlay*, 12, 1, (2022); Llapur-Milian JR, Gonzalez-Sanchez R, Betancourt-Perez A, Rubio Olivares DY, Left Ventricular Hypertrophy and Cardiovascular Risk Factors in Hypertensive Children and Adolescents, *Cuban Journal of Pediatrics*, 81, 2, (2009); Lopez-Galisteo JP, Gavela-Perez T, Mejorado-Molano FJ, Et al., Prevalence and risk factors associated with different comorbidities in obese children and adolescents, *Endocrinology, Diabetes and Nutrition*, 69, 8, pp. 566-575, (2022); Martos-Moreno GA, Argente J, Monogenic obesity in childhood: Towards precision medicine, *Rev Esp Endocrinol Pediatr*, 13, 2, pp. 23-32, (2022); Moher D, Altman DG, Liberati A, Tetzlaff J, PRISMA statement, *Epidemiology*, 22, 1, (2011); Molina-Avilez DL, Guzman-Ortiz E, Diaz-Manchay RJ, Childhood obesity during the COVID-19 pandemic: Challenge for the health professional and the family, *Rev Cubana Pediatr*, 94, 1, pp. 1-14, (2022); Muros J, Relationship between physical condition, physical activity and different anthropometric parameters in school children from Santiago (Chile), *Hospital Nutrition*, 33, 2, pp. 314-318, (2016); Norman FR, Evaluation of nutritional status, eating habits and physical activity in 1<sup>st</sup> grade schoolchildren on Easter Island in Chile in the last decade, *Chilean Nutrition Magazine*, 43, 4, pp. 375-380, (2016); Nunez-Rivas HP, Holst-Schumacher I, Rosello-Araya M, Campos-Saborio N, Guzman-Padilla S, Duration of breastfeeding, combined feeding and health risk in young Costa Ricans, *Andes Pediatric*, 93, 1, (2022); Padilla-Vinueza VE, Tisalema-Tipan HD, Acosta-Gavilanez RI, Jerez-Cunalata EI, Moreno-Carrion AA, Salvador-Aguilar AD, Childhood Obesity and Intervention Methods, *Rev Domain of Sciences*, 8, 1, (2022); Pazmino MJ, Importance of Blood Pressure Screening in Children and Adolescents, *Bibliographic Review*, (2022); Pineda B, Hernandez P, Balanzar A, Legorreta J, Paredes S, Ponce J, Overweight and obesity in primary school students from two municipalities on the Costa Chica de Guerrero, Mexico, *Current Nursing of Costa Rica*, 38, pp. 151-162, (2020); Pompa Y,



---

Naranjo-Vazquez S, Casas-Nunez Y, Pena Figueredo R, Gonzalez-Rubio Z, Clinical-epidemiological behavior of pediatric patients diagnosed with arterial hypertension, *Student Scientific Magazine*, 5, 1, (2022); Raimann TX, Verdugo MF, Physical activity in the prevention and treatment of childhood obesity, *Las Condes Clinic Medical Journal*, 23, 3, pp. 218-225, (2012); Raina R, Khooblall A, Shah R, Vijayvargiya N, Khooblall P, Sharma B, Datla N, Narang A, Yerigeri K, Melachuri M, Kusumi K, Implicaciones cardiovasculares en la hipertensión del adolescente y del adulto joven, *Rev Cardiovasc Medicina*, 23, 5, (2022); Rivadeneira J, Soto A, Bello N, Concha M, Parenting styles, childhood overweight and obesity: Cross-sectional study in the Chilean child population, *Rev Chil Nutr*, 48, 1, pp. 18-30, (2021); Rodrigues PRM, Pereira RA, Gama A, Carvalhal IM, Nogueira H, Rosado-Marques V, Body adiposity is associated with risk of high blood pressure in Portuguese school children, *Rev Port Cardiol*, 37, pp. 285-292, (2018); Sanchez BV, Garcia K, Gonzalez AE, Saura-Naranjo HC, Overweight and Obesity in Children from 5 to 12 Years of Age, *Rev Finlay*, 7, 1, (2017); Sanchez CZ, Sanchez MZ, Lopez PC, Angelica Delgado Beltran AD, Et al., Prevalencia de hipertensión arterial en niños y adolescentes de América Latina: revisión sistemática y metaanálisis, *Rev Pediatr Aten Primaria*, 24, pp. e275-e281, (2022); Santana S, Perdomo MC, Oramas A, Gonzalez A, Cardiovascular Hyperreactivity. Its Relationship With Work Demands. A Field Study, *Rev Cubana Salud Trabajo*, 21, 3, (2020); Saw del Rio F, Obesity and coronavirus: the two pandemics, *Rev Méd Chile*, 149, 4, (2021); Soto JR, Non-pharmacological treatment of arterial hypertension, *Las Condes Clinic Medical Journal*, 29, 1, pp. 61-68, (2018); Tagle R, Diagnosis of arterial hypertension, *Las Condes Clinic Medical Journal*, 29, 1, pp. 12-20, (2018); Vandembroucke JP, Von Elm E, Altman DG, Gotzsche PC, Mulrow CD, Pocock SJ, Strengthening the reporting of observational studies in epidemiology (STROBE): Explanation and elaboration, *PLoS Med*, 4, (2007); Vicente B, Garcia K, Gonzalez A, Saura CE, Overweight and obesity in children from 5 to 12 years of age, *Finlay Magazine*, 7, 1, pp. 47-53, (2017); Vio JS,

---

---

Effect of an educational intervention on healthy eating in teachers and preschool and school children in the Valparaíso region, Chile, *Hospital Nutrition*, 29, 6, pp. 1294-1304, (2014); Viscardi S, Quilodran J, Escobar Y, Salazar B, Marileo L, Nutritional education intervention for children with cancer and their parents, *Rev Chil Nutr*, 48, pp. 782-788, (2021); Wells G, Shea B, O'Connell D, Peterson J, Welch V, Losos M, Newcastle-Ottawa Quality Assessment Scale Cohort Studies, (2014)

### **Correspondence Address**

D.L. Valladares; Dirección Oscar Vildoso 2315, Arica y Parinacota, CP 1000000, Chile; email: daynerileon1@gmail.com

### **Publisher**

Kamala-Raj Enterprises

### **ISSN**

09735070

### **Language of Original Document**

English

### **Abbreviated Source Title**

Stud. Ethno-med.

---

## Document Type

Article

## Publication Stage

Final

## Source

Scopus

## EID

2-s2.0-85193829961