

PESO MÁXIMO DA MOCHILA RECOMENDADO PARA CRIANÇAS (6-12 ANOS) EM CONTEXTO ESCOLAR: PROTOCOLO DE SCOPING REVIEW

PESO MÁXIMO RECOMENDADO DE LA MOCHILA PARA NIÑOS (6-12 AÑOS) EN EL CONTEXTO ESCOLAR: UN PROTOCOLO DE REVISIÓN DEL ALCANCE

MAXIMUM RECOMMENDED BACKPACK WEIGHT FOR CHILDREN (6-12 YEARS-OLD) IN SCHOOL CONTEXT: A SCOPING REVIEW PROTOCOL

DOI 10.33194/rper.2019.v2.n2.02.4575 | Submitted 21.05.2019 | Approved 03.12.2019

Maria Matos² ; Catarina Barreiras¹ ; Constança Festas² 

1 - Unidade Local de Saúde do Alto Minho;

2 - Universidade Católica Portuguesa, Instituto de Ciências da saúde, Centro de Investigação Interdisciplinar em Saúde, Portugal

RESUMO

Contexto: A utilização regular de mochilas escolares apresenta riscos, no período de crescimento da criança. A percentagem de peso da mochila recomendada não é unânime, sendo esta problemática multifatorial, que merece uma revisão de literatura mais aprofundada.

Objetivos: mapear a evidência em relação ao peso máximo da mochila recomendado para crianças dos 6 aos 12 anos em contexto escolar.

Método: sugerido pelo Joanna Briggs Institute. Incluir-se-ão estudos primários em fulltext em língua portuguesa, inglesa e espanhola publicados em bases de dados científicas, diretrizes internacionais e literatura cinzenta. A análise de relevância dos artigos, a extração e síntese dos dados desenvolver-se-á por dois revisores independentes.

Apresentação e discussão dos resultados: os dados extraídos apresentar-se-ão em diagrama PRISMA, permitindo a interpretação e disseminação da evidência disponível.

Conclusão: espera-se que os resultados sintetizem a melhor evidência sobre o peso máximo da mochila recomendado para crianças (6-12 anos) em contexto escolar.

Descritores: criança, suporte de carga, escolas, Serviços de saúde escolar, Enfermagem em Reabilitação

RESUMEN

Contexto: el uso regular de mochilas escolares presenta riesgos durante el crecimiento de un niño. El porcentaje de peso de la mochila recomendada no es unánime, y este problema multifactorial merece una revisión adicional de la literatura.

Objetivos: mapear la evidencia sobre el peso máximo de mochila recomendado para niños de 6 a 12 años en el contexto escolar.

Método: sugerido por el Instituto Joanna Briggs. Se incluirán estudios primarios de texto completo en portugués, inglés y español publicados en bases de datos científicas, guías internacionales y literatura gris. El análisis de la relevancia de los artículos, la extracción y la síntesis de los datos serán desarrollados por dos revisores independientes.

Presentación y discusión de los resultados: los datos extraídos se presentarán en un diagrama PRISMA, permitiendo la interpretación y difusión de la evidencia disponible.

Conclusión: se espera que los resultados resuman la mejor evidencia sobre el peso máximo de mochila recomendado para niños (6 a 12 años) en entornos escolares.

Palabras clave: Niño, Carga de peso, Escuelas, Servicios de salud escolar, Enfermería en Rehabilitación

ABSTRACT

Context: Regular use of school backpacks presents risks during a child's growth period. The weight percentage of the backpack recommended is not unanimous, and this multifactorial problem deserves further literature review.

Objectives: to map the evidence regarding the maximum backpack weight recommended for children from 6 to 12 years-old in school context.

Method: It is suggested by Joanna Briggs Institute. Primary fulltext studies in Portuguese, English and Spanish published in scientific databases, international guidelines and gray literature will be included. The analysis of the relevance of the articles, the extraction and synthesis of the data will be developed by two independent reviewers.

Presentation and discussion of the results: the extracted data will be presented in a PRISMA diagram, allowing the interpretation and dissemination of the available evidence.

Conclusion: The results are expected to summarize the best evidence on the maximum backpack weight recommended for children (6-12 years-old) in school settings.

Keywords: Child, Weight-Bearing, Schools, School Health Services, Rehabilitation Nursing.

INTRODUCTION

The evidence of the existence of degenerative changes in the spine, namely scoliosis, hyperkyphosis and hyperlordosis at various stages of growth, alerts to the importance and urgency of early intervention⁽²⁻³⁾, through "School Health" with actions aimed at the school community towards the implementation of health promotion proposals⁽¹¹⁾.

Thus, it is considered that the school period is essential to work on health from the perspective of its promotion, where the discipline of Nursing, namely the specialist nurse in Rehabilitation, can develop actions for the prevention of diseases and for the strengthening of protective factors.

The National School Health Program (2015-2020) states that musculoskeletal injuries in students result from physical overload associated with excess weight in backpacks, the adoption of incorrect postures and due to inadequate sports activity⁽⁴⁾.

The regular use of school backpacks, often heavy and/or unfit, which hold manuals and materials for the entire school day, presents a multiplicity of risks, including postural changes and back pain⁽¹⁾, especially during the period of growth of the child⁽¹²⁻¹³⁾.

Since 1977, there has been scientific reference regarding the percentage of weight that a child must carry in the school bag, which should not exceed 10% of their body weight, ie, the maximum acceptable limit will be 1/8 of their body weight⁽⁵⁾.

Since then, this value has been accepted by the scientific community⁽¹²⁻¹³⁾, although there are studies that contrast this percentage, suggesting other values, such as 7.4%⁽⁶⁾ or even a non-specific interval between 5 and the 15% depending on the child's gender⁽⁷⁾, or even mentioning that it is not appropriate to suggest the same backpack weight limit for all children, that is, a single weight limit may not be suitable for all students⁽⁸⁾.

Currently, in Portugal it is suggested by the General Directorate for Health that the weight of backpacks, briefcases and similar items and their contents should not exceed 10% of the child's body weight⁽⁴⁾.

As seen, the percentage of weight of the recommended school backpack is not unanimous, and this problem involves a multifactorial complexity, transversal to several areas where knowledge about anatomy, biomechanics and pathophysiology of the spine provide ergonomic and postural guidance for the activities of the daily life⁽⁴⁾, which should deserve the

full attention of the school community and a more in-depth literature review, since after conducting preliminary research at the Joanna Briggs Institute (JBI) Database of Systematic Reviews and Implementation Reports, Cochrane Database of Systematic Reviews, in the Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCO, and in the Medical Literature Analysis and Retrieval System Online (MEDLINE), via PubMed, no literature reviews were found published in this thematic area.

In this sense, it is proposed to carry out this scoping review with the general objective of mapping the evidence in relation to the maximum backpack weight recommended for children aged 6 to 12 years in a school context, seeking to answer the question: what is the maximum backpack weight recommended for children (6-12 years-old) in a school setting?

METHODS

In order to deepen the knowledge on this subject, this scoping review protocol will adopt the methodology suggested by (JBI), described by The JBI Reviewers' Manual⁽⁹⁾. This method is intended to provide a map of the scope of available evidence, when a specific issue is not clear.

Research strategy and identification of studies

Selection criteria will be defined and applied according to the Population, Concept, Context (PCC) methodology:

- Population (P): children aged 6 to 12 years-old, regardless of gender;
- Concept (C): maximum backpack weight recommended for children from 6 to 12 years-old;
- Context (C): Basic education schools (BE) (1st and 2nd cycles of studies), regardless of geographic location and educational system.

As for the types of sources, quantitative primary studies and international guidelines published in databases and gray literature, covering the subject studied, will be included. Only documents in English, Portuguese and Spanish will be considered for inclusion in this review.

In studies with children who present a different age range, studies in which the average age of the participants is less than 13 years-old will be

established as inclusion criteria. As exclusion criteria, opinion articles and news will not be included.

The search strategy will be divided into three stages: first, an initial search will be carried out in the CINAHL, MEDLINE, MediciLatina, Sportdiscus, Academic Searchcomplete databases, via EBSCO Host Online Research Databases, where the words will be analyzed contained in the title, abstract and keywords.

In a second search, the keywords and/or descriptors properly selected will be used: schoolbag OR backpack* AND load* AND safe weight OR load carriage AND child* AND school* NOT adult* NOT adolescen*.

Research will also be carried out in the Scientific Open Access Repository of Portugal (RCAAP).

Finally, a list of all publications found will be created, delimited to the last 5 years, for the sake of human resources and time management. However, to overcome this limitation, care will be taken to analyze the bibliographical references considered relevant to the topic in question, cited by the articles included, without a temporal boundary.

Data Extraction

Data will be extracted from the included articles, by two independent reviewers, using a table-type instrument (Table 1), developed specifically for this review, taking into account specific details about the relevant population, concept, context and research methods for the question and purpose stated in this scoping review, as indicated by the methodology developed by JBI. However, it may be refined during the review process.

ARTICLE ANALYZED	
Reviewer:	Extraction date: __/__/__
Database	
Article Code	Title
Authors	
Year	
Country	
Specialty	
Population/Sample	
Methodology	
Results/Details	
Recommended backpack weight	
Suggestions/Recommendations	
Reviewer Comments	
Bibliography cited	

Table 1 – Data extraction instrument from the analyzed studies. Porto, Portugal, 2018

Disagreements that may occur between the two reviewers will be resolved, if necessary, by resorting to a third reviewer.

Data Mapping

The extracted data will be presented in the form of a PRISMA diagram (figure 1).

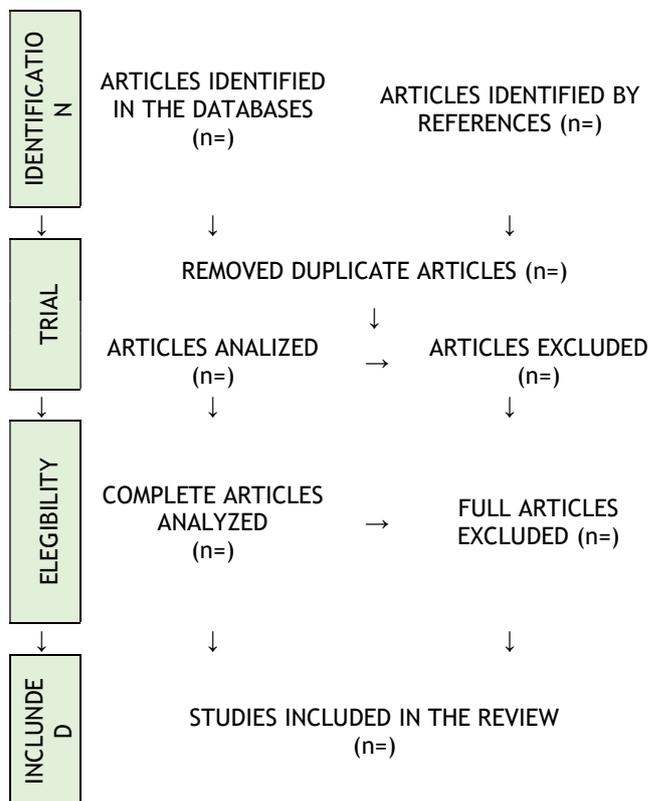


Figure 1 – PRISMA diagram of the study selection process. Porto, Portugal, 2018

PRESENTATION AND DISCUSSION OF RESULTS

A narrative summary will accompany the tabulated and/or diagram results and describe how they relate to the objectives and the starting question.

A data presentation table will be developed specifically for this mapping. However, it can be refined during the review process.

The mapping of the maximum recommended backpack weight for children aged 6 to 12 in a school context will contribute to the dissemination of available evidence on the subject.

CONCLUSION

The School, in addition to having a specific pedagogical function, has a social and political nature aimed at transforming society, related to the exercise of citizenship and access to development and learning opportunities, reasons that justify actions aimed at the school community, responding to health promotion needs⁽¹⁰⁾.

Health promotion by specialist nurses in Rehabilitation Nursing in School Health should take as a starting point the real needs of the school population, developing teaching and learning processes that improve academic results, in order to contribute to raising the level of literacy in health and improving the lifestyle of the educational community⁽⁴⁾.

With the synthesis of research results, through the scoping review methodology, it will be possible to see the percentage of maximum backpack weight

recommended for children (6-12 years-old) in the school context, in order to promote the incorporation of scientific evidence in professional practice of Nursing, more specifically in the Rehabilitation specialty.

With this literature review, it will allow the future transfer of knowledge by highlighting aspects inherent to the maximum backpack weight recommended for children aged 6 to 12 years-old in a school context, according to the scientific literature on the subject.

As a strategy of differentiation in the promotion of School Health, it is essential to link knowledge from research in clinical practice, so it is expected that this scoping review will constitute a preliminary exercise that justifies the development of systematic reviews on effectiveness of some practices in the promotion of healthy postural habits in the school context.

BIBLIOGRAPHIC REFERENCES

1. Noll M, Candotti CT, Tiggemann CL, Schoenell MC, Vieira A. Prevalência de hábitos posturais inadequados de escolares do ensino fundamental da cidade de Teutônia: um estudo de base populacional. *Rev Bras Ciênc Esporte*. 2013;35⁽⁴⁾:983-1004.
2. Carnide, Maria Filomena. Ergonomia Escolar: Recomendações. Programa Nacional de Saúde Escolar: Programa Nacional Contra as Doenças Reumáticas. [Online] 2006. Disponível em: https://www.dgs.pt/ficheiros-de-upload-3/pncdr-recom-ergonomia-escolar_final-out06-pdf.aspx.
3. Moreira, Jacqueline, Cornelian, Bianca dos Reis e Lopes, Carmén Patrícia Barbosa. A importância do bom posicionamento postural em escolares - o papel do professor de educação física. *Rev Uningá*. [Online] 2013 Dec 10;16⁽³⁾, 42-8. Disponível em: <http://revista.uninga.br/index.php/uningareviews/article/view/1480>.
4. Von Amann, Gregória Paixão, Monteiro, Helena e Leal, Paula. Programa Nacional de Saúde Escolar. Lisboa : Direcção-Geral da Saúde, 2015. ISBN: 978-972-675-227.
5. Voll, H. e Klimt, F. On Strain in Children Caused by Schoolbags. *Offentliche Gesundheitswesen*. 1977; Vol. 39: 369-78.
6. Al-Katheri, Abeer E. Impact of backpack load on ventilatory function among 9-12 year old Saudi girls. *Saudi Medical Journal*. 2013; Vol. 34⁽¹²⁾: 1255-61.
7. Khallaf, Mohamed Elsayed, Fayed, Eman Elsayed e Ashammery, Reem Adheem. The Effect of Schoolbag Weight on Cervical Posture in Schoolchildren. *Turk J Phys Med Rehab*. 2016, Vol. 1⁽⁶²⁾: 16-21.
8. Adeyemi, A. J., Rohani, J. M. e Rani, M. R.A. Interaction of body mass index and age in muscular activities among backpack carrying male schoolchildren. *Work* 2014; Vol. 52⁽³⁾: 677-86.
9. Aromataris E, Munn Z (Editors). The Joanna Briggs Institute Reviewers' Manual. The Joanna Briggs Institute, 2017. Available from: <https://reviewersmanual.joannabriggs.org/>
10. Rocha, Belarmino Manuel Pereira. Contributos para o Plano Nacional de Saúde 2011-2016. Associação Portuguesa de Enfermagem de Reabilitação. [Online] 2010. <http://aper.pt/ficheiros/documentos/aper2.pdf>.
11. Descritores em Ciências da Saúde: DeCS. [Online] BIREME / OPAS / OMS, 2017. <http://decs.bvsalud.org>.
12. Mosaad, Dalia Mohammed e Abdel-Aziem, Amr Almaz. Backpack Carriage Effect on Head Posture and Ground Reaction Forces in School Children. *Work*. 2015; Vol. 52⁽¹⁾: 203-9.
13. Silva, D., et al. Schoolbag Weight and the Postural and Psychophysical Changes in Young Students: a Pilot Study. [ed.] Arezes et al. London : Occupational Safety and Hygiene IV, 2016.
14. Dockrell, Sara, Blake, Catherine e Simm, Ciaran. Guidelines for schoolbag carriage: An appraisal of safe load limits for schoolbag weight and duration of carriage. *Work*. 2016; Vol. 53: 679-88.
15. Drzał-Grabiec, Justyna, et al. Effect of asymmetrical backpack load on spinal curvature in school children. *Work*. 2014; Vol. 51⁽²⁾: 1-

6.



This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Copyright (c) 2021 Portuguese Rehabilitation Nursing Journal