



REVIEW ARTICLE

# Nutritional screening in hospitalized pediatric patients: a systematic review<sup>☆,☆☆</sup>



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## KEYWORDS

Screening;  
Malnutrition;  
Pediatrics;  
Systematic review

## Abstract

**Objective:** This systematic review aimed to verify the available scientific evidence on the clinical performance and diagnostic accuracy of nutritional screening tools in hospitalized pediatric patients.

**Data source:** A search was performed in the Medline (National Library of Medicine United States), LILACS (Latin American and Caribbean Health Sciences), PubMed (US National Library of Medicine National Institutes of Health), in the SCIELO (Scientific Electronic Library Online), through CAPES portal (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior), bases Scopus e Web of Science. The descriptors used in accordance with the Descriptors in Health Sciences (DeCS)/Medical Subject Headings (MeSH) list were “malnutrition”, “screening”, and “pediatrics”, as well as the equivalent words in Portuguese.

**Summary of the findings:** The authors identified 270 articles published between 2004 and 2014. After applying the selection criteria, 35 were analyzed in full and eight articles were included in the systematic review. We evaluated the methodological quality of the studies using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS). Five nutritional screening tools in pediatrics were identified. Among these, the Screening Tool for the Assessment of Malnutrition in Pediatrics (STAMP) showed high sensitivity, almost perfect inter-rater agreement and between the screening and the reference standard; the Screening Tool Risk on Nutritional Status and Growth (STRONGkids) showed high sensitivity, lower percentage of specificity, substantial intra-rater agreement, and ease of use in clinical practice.

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**PALAVRAS-CHAVE**

Triagem;  
Desnutrição;  
Pediatria;  
Revisão sistemática

**Conclusions:** The studies included in this systematic review showed good performance of the nutritional screening tools in pediatrics, especially STRONGkids and STAMP. The authors emphasize the need to perform for more studies in this area. Only one tool was translated and adapted to the Brazilian pediatric population, and it is essential to carry out studies of tool adaptation and validation for this population.

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**Triagem nutricional em pacientes pediátricos hospitalizados: uma revisão sistemática****Resumo**

**Objetivo:** Esta revisão sistemática tem por objetivo verificar as evidências científicas disponíveis sobre o desempenho clínico e acurácia diagnóstica dos instrumentos de triagem nutricional em pacientes pediátricos hospitalizados.

**Fonte de dados:** Realizou-se busca nas bases de dados *Medline* (National Library of Medicine United States), *LILACS* (Latin American and Caribbean Health Sciences), *PubMed* (US National Library of Medicine National Institutes of Health), na biblioteca eletrônica *SCIELO* (Scientific Electronic Library Online), através do portal de periódicos da CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior), bases *Scopus* e *Web of Science*. Os descritores utilizados conforme lista do DeCS (Descritores em Ciências da Saúde)/MeSH (*Medical Subject Headings*) foram "desnutrição", "triagem" e "pediatria", bem como, "malnutrition", "screening" e "pediatrics", respectivamente.

**Síntese dos dados:** Identificou-se 270 artigos, publicados entre 2004 e 2014. Após aplicação dos critérios de seleção, 35 foram analisados na íntegra, sendo incluídos 8 artigos na revisão sistemática. Avaliou-se a qualidade metodológica dos estudos utilizando-se o *QUADAS* (*Quality Assessment of Diagnostic Accuracy Studies*). Verificou-se 05 instrumentos de triagem nutricional em pediatria. Dentre estes, o *STAMP* (*Screening Tool for the Assessment of Malnutrition in Pediatrics*) apresentou sensibilidade elevada, concordância quase perfeita inter-avaliador e entre a triagem e padrão de referência; o *STRONGkids* (*Screening Tool Risk on Nutritional Status and Growth*) evidenciou sensibilidade elevada, menor percentual de especificidade, concordância intra-avaliador substancial e facilidade de uso na prática clínica.

**Conclusões:** Os estudos incluídos nesta revisão sistemática demonstraram um bom desempenho dos instrumentos de triagem nutricional em pediatria, principalmente *STRONGkids* e *STAMP*. Evidencia-se a necessidade de mais pesquisas nessa área. Apenas um instrumento foi traduzido e adaptado para a população pediátrica brasileira, sendo imprescindível a realização de estudos de adaptação e validação de instrumentos para essa população.

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**Introduction**

It has been widely described in the literature that inadequate nutritional status has negative implications for the child, resulting in important consequences for the child's health and development.<sup>1-3</sup>

Malnutrition in pediatric patients is a severe pathological condition and a risk factor for unfavorable outcome. It is associated with immune system vulnerability, increased risk of infections, postoperative complications, impaired wound healing, and development of pressure ulcers, as well as increased morbidity and mortality of the affected individuals.<sup>4-8</sup>

This clinical condition slows down the recovery process, demanding prolonged hospital stay and increasing costs related to medication and health care.<sup>4,5,8,9</sup> Even with the frequent association between hospital malnutrition

and risk of adverse clinical events, this is a problem that remains largely underestimated and that sometimes goes unnoticed.<sup>3,10-12</sup>

In recent decades, within the scenario of the epidemiological and nutritional transition, Brazilian studies have evidenced a significant decrease in the prevalence of child malnutrition in the country.<sup>13,14</sup> However, in opposition to a downward trend in malnutrition in the general population, the situation is getting worse in hospitals, as demonstrated by the increase in its incidence<sup>15,16</sup> and prevalence.<sup>17</sup>

Although it is difficult to quantify the actual prevalence of malnutrition in hospitalized children, scientific evidence emphasizes their frequency in this group. International studies show malnutrition rates between 19% and 45.6% in hospitalized children.<sup>1,18-20</sup> In Brazil, surveys indicate rates of 18% to 58%.<sup>21-24</sup>

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