



## ORIGINAL ARTICLE

## Malnutrition in children admitted to hospital. Results of a national survey<sup>☆</sup>

José Manuel Moreno Villares<sup>a,\*</sup>, Vicente Varea Calderón<sup>b</sup>, Carlos Bousoño García<sup>c</sup>, On behalf of the Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica (SEGHNP)

<sup>a</sup> Servicio de Pediatría, Hospital Universitario 12 de Octubre, Madrid, Spain

<sup>b</sup> Servicio de Pediatría, Hospital Sant Joan de Déu, Esplugues de Llobregat, Barcelona, Spain

<sup>c</sup> Servicio de Pediatría, Hospital Central de Asturias, Oviedo, Asturias, Spain

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### KEYWORDS

Hospital malnutrition;  
Nutritional status;  
Nutritional  
assessment;  
Undernutrition;  
Nutritional screening;  
Hospital admission

### Abstract

**Introduction:** Malnutrition on admission is closely related to a longer hospital stay and a higher morbidity. The prevalence of hospital malnutrition has been reported as almost as high as 50%, with 6% being the lowest. DHOSPE study investigates nutrition status in Spanish hospitals and its outcome during the hospital stay.

**Patients and methods:** A longitudinal, multicentre, descriptive, cross-sectional study, with a short follow-up period was conducted in 32 hospitals during 2011. A total of 991 patients were included, with ages from 0 to 17 years. Each patient was measured at admission (weight, length, weight for length -W/L-, length for age -L/A-), and at 7 and 14 days. The STAMP nutritional screening tool was completed on admission. Anthropometric measurements were reported as z-score, and nutrition status classified according to W/L and L/A for acute and chronic malnutrition, respectively.

**Results:** The prevalence of malnutrition was 7.1% for moderate, and 0.7% for severe acute malnutrition. For chronic malnutrition, 2.7% was moderate, and 1.4% severe. There were significant differences according to the underlying condition but not according to age. Results of STAMP show that around 75% of patients had a moderate to high risk of malnutrition. Nutritional status changed during admission for weight, as well as W/L and L/A. A worse nutritional status at admission and a higher STAMP score were positively correlated with the need for nutrition support.

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\* Corresponding author.

E-mail address: [josemanuel.moreno@salud.madrid.org](mailto:josemanuel.moreno@salud.madrid.org) (J.M. Moreno Villares).

**PALABRAS CLAVE**

Desnutrición hospitalaria; Estado nutricional; Valoración nutricional; Malnutrición; Cribado nutricional; Hospitalización

**Conclusions:** The prevalence of undernutrition was slightly lower (<8%) than previously reported, probably in relation to the variety of hospitals in the survey. Nevertheless, nutritional risk when evaluated with STAMP showed a high risk of malnutrition.

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**Malnutrición en el niño ingresado en un hospital. Resultados de una encuesta nacional****Resumen**

**Introducción:** La desnutrición al ingreso se relaciona con hospitalizaciones más prolongadas y mayor morbilidad. La prevalencia varía entre un 6 y un 50%. El estudio DHOSPE se pregunta sobre la situación nutricional al ingreso y cómo se modifica durante el mismo.

**Pacientes y métodos:** Estudio observacional, descriptivo, transversal, con un breve seguimiento longitudinal, multicéntrico, realizado en 32 hospitales en 2011. Se incluyó a 991 pacientes. En todos se realizó una valoración nutricional al ingreso, a los 7 y 14 días. Se utilizó la herramienta de cribado nutricional STAMP en el momento del ingreso. Las medidas antropométricas se evaluaron como puntuaciones Z y el estado nutricional con los índices de Waterlow de peso para la desnutrición aguda y de talla para la crónica.

**Resultados:** La prevalencia de desnutrición fue del 7,1% para la aguda moderada y del 0,7% para la grave. Para la crónica: 2,7% moderada y 1,4% grave. No se encontraron diferencias significativas en función de la edad pero sí en función de la enfermedad. Algo más del 75% de los pacientes presentaban riesgo intermedio o elevado de desnutrirse durante el ingreso, valorado con STAMP. La peor situación nutricional al ingreso y una puntuación más elevada en el riesgo nutricional se correlacionaron positivamente con la necesidad de soporte nutricional.

**Conclusiones:** La prevalencia de desnutrición fue sensiblemente inferior (< 8%) a lo publicado, probablemente en relación con la distinta complejidad de los hospitales. El riesgo nutricional valorado con la herramienta STAMP fue elevado (el 75% presentaba riesgo moderado o intenso de desnutrición).

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**Introduction**

The European Society for Clinical Nutrition and Metabolism (ESPEN) defines malnutrition as “a state of nutrition in which a deficiency or excess of energy, protein, and other nutrients causes measurable adverse effects on tissue/body form and function, and clinical outcome.”<sup>1</sup> Although this definition also refers to malnutrition due to excess intake (overweight and obesity), in the context of hospitalised patients, malnutrition due to insufficient intake, known as undernutrition, is more relevant. More recently, there have been advances on the classification of malnutrition as illness-related or not, which has implications for both the approach to its management and the response to the interventions used to prevent or treat it.<sup>2</sup>

The prevalence of acute and chronic undernutrition in hospitalised children depends to a great extent on the criteria used to define them and the growth references used in their assessment.<sup>3</sup> The prevalence reported in studies published in different European countries or the United States ranges between 6% and a little less than 50%.<sup>4</sup> On the other hand, it is well known that nutritional status worsens during the hospital stay in a variable percentage of patients.

The Undernutrition in Children’s Hospitals in Spain study (Desnutrición en Hospitales Pediátricos en España [DHOSPE]) is a multicentric study conducted simultaneously in 32 hospitals and designed to answer two questions: which is the nutritional status of children at admission, and how does it change during their hospital stay? To these questions, we added the Screening Tool for the Assessment of Malnutrition in Pediatrics (STAMP). More detailed information on the design of the study and the prevalence of undernutrition and the risk of undernutrition at admission can be found in a previously published article,<sup>5</sup> while in this one we will focus on the changes in nutritional status throughout the hospital stay and its correlation with the need for nutritional support.

**Patients, materials and methods**

We conducted a multicentric, observational, descriptive, cross-sectional cohort study with a brief longitudinal followup, performed under conditions of everyday clinical practise (with no targeted intervention based on the results of the assessment at the time of admission). The study was conducted in 32 hospitals between June and September of 2011 (Appendix A details the participating hospitals). We

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