

The Methods Used by Family Doctors to Check for Malnutrition in Children

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Abstract

Background: Malnutrition is a significant public health concern affecting both adults and children, with an estimated 6% to 18% prevalence among hospitalized children. Family physicians (GPs) play a key role in identifying malnutrition in children, but practices around its screening, particularly regarding the measurement of body mass index (BMI) and growth charts, remain inconsistent.

Methods: A study was conducted among 102 family physicians to assess their practices in screening for malnutrition in children. The survey included questions on the measurement of weight, height, BMI, and growth chart analysis, as well as the use of personal health books and training in paediatric malnutrition screening. Data were analyzed using Chi-square tests to compare practices between GPs who routinely measured BMI and those who did not.

Results: While 95% of GPs used BMI to assess malnutrition, only 33.3% consistently measured both height and BMI. Approximately 79.4% measured weight, and 79.2% recorded weight and height in health books. However, 25.7% of GPs did not routinely record these measurements due to reliance on software. Only 9.8% had received formal training in paediatric malnutrition screening, though 89% expressed a desire for further training. GPs who regularly measured BMI were more likely to review growth charts and prescribe dietary supplements for children.

Conclusion: Despite the availability of software tools, GPs do not consistently measure height and BMI, which may delay the diagnosis of malnutrition. Inadequate analysis of growth charts and incomplete data transmission through health books contribute to information gaps between healthcare providers. There is a need for increased training and awareness to improve nutritional monitoring and early malnutrition detection in children. Implementing standardized electronic health records and prompting regular measurements could improve the accuracy and consistency of malnutrition screening practices.

Introduction

Malnutrition continues to be a significant public health issue in developed nations, affecting not only elderly adults with chronic conditions but also children. The estimated prevalence of malnutrition among hospitalized children ranges from 6% to 18% (1, 2, 3). While numerous studies have focused on evaluating and promoting malnutrition screening in adults, particularly the elderly, there is limited data on the subject in paediatrics (4). Malnutrition in children can result from inadequate nutritional intake or may serve as an early indicator of an underlying chronic condition that requires further investigation. In many countries, children have a personal health book where healthcare providers document their growth metrics, including weight, height, and BMI. However, it has been observed that these records are not always kept up to date, and growth charts are frequently left incomplete (5). Family physicians (GPs) play a crucial role in identifying malnutrition in children, and this study aimed to assess their current practices in this area.

Materials and Methods

The study involved family physicians (GPs) from a mid-sized city. An anonymized questionnaire was distributed via email, with a follow-up reminder sent one month later, along with paper questionnaires. The questionnaire included 16 multiple-choice or single-answer questions and one open-ended question. Data on the GPs' sociodemographic characteristics (such as sex, age, and the proportion of child patients in their practice) were gathered. Four questions assessed their knowledge of paediatric malnutrition, covering clinical indicators, dietary recommendations, blood tests for evaluating nutritional status, and the use of dietary supplements. Other questions focused on their practices, including the measurement of weight, height, and BMI, recording these metrics in health books, reviewing growth charts, using BMI calculation tools, and creating growth charts. The final set of questions addressed their training needs. The study compared the characteristics of GPs who regularly measured BMI in children with those who measured it less frequently or not at all. Qualitative data were expressed as percentages and analyzed using the Chi-square test. Statistical significance was set at $p < 0.05$, with analysis performed using XlstatBiomed 19.5 2017.

Results

A total of 102 out of 174 family physicians (GPs) responded to the questionnaire, representing a response rate of 58.6%. The proportion of children among their patients varied: 55.9% of GPs had between 5% and 15% child patients, 31.4% had between 15% and 30%, 7.8% had fewer than 5%, and 4.9% had more than 30%. Regarding age distribution, 57.9% of GPs were over 50 years old, 28.4% were under 35, and 13.7% were aged between 35 and 50, with a male-to-female ratio of 1.17.

To assess malnutrition, GPs primarily relied on BMI (95.0%), clinical examinations (90.0%), and weight measurements (77.4%). Seventy-one percent of GPs reported being familiar with dietary guidelines, 31% with blood tests for assessing nutritional status, and 13.7% with prescribing dietary supplements.

During consultations, 79.4% of GPs regularly measured weight, but only 33.3% consistently measured both height and BMI. Additionally, 43.6% regularly reviewed growth charts, and 79.2% consistently recorded weight and height in the health books. The most common reasons given for not recording measurements were parents forgetting the health book (88.5%), time constraints (31.4%), and measurements being already available in the GP's software (25.7%). Regarding tools, 98.6% of GPs had access to BMI calculation tools (94% used software, and 39.2% used a paper disk), while 100% had tools for constructing growth charts (77.5% used health book growth charts, 20.6% used software-based charts, and 1.9% used other paper charts). Six different brands of software were identified for constructing child growth charts.

Only 9.8% of GPs had attended training on paediatric malnutrition screening, and 89.0% expressed a desire for more training on the subject.

GPs who routinely measured BMI (33.3%) were significantly more likely to regularly review growth charts (67.6% vs. 31.3%, $p = 0.001$) and prescribe dietary supplements for children (26.5% vs. 7.3%, $p = 0.001$) compared to those who did not regularly measure BMI (Table 1).

Table 1 Sociodemographic data and practices of family physicians regarding measurement of body mass index (BMI+) or not (BMI−) at each medical consultation.

| | BMI+ (n = 34) | BMI− (n = 68) | Total (n = 102) | p |
|--|--------------------------|--------------------------|----------------------------|----------|
| Male gender | 58.8 | 51.4 | 53.9 | 0.48 |
| Age > 50 years | 64.7 | 54.4 | 57.8 | 0.32 |
| Paediatric population > 15% | 47.0 | 30.9 | 36.3 | 0.10 |
| Familiar with dietary recommendations | 76.5 | 67.2 | 70.3 | 0.33 |
| Familiar with nutritional blood tests analyse | 39.4 | 28.1 | 31.9 | 0.26 |
| Prescription of dietary supplements | 26.5 | 7.3 | 9.8 | 0.008 |
| Previous participation in training on child malnutrition | 14.7 | 7.3 | 10.4 | 0.24 |
| Request for training in child malnutrition | 85.3 | 90.9 | 89.0 | 0.39 |
| Review at growth charts | 67.6 | 31.3 | 43.5 | 0.001 |
| Recording of weight and height in child's personal healthcare book | 85.3 | 76.1 | 79.2 | 0.38 |

Discussion

The results of this survey indicate that most family physicians (GPs) use BMI as an indicator of malnutrition, but height measurements are not consistently taken, which limits the accurate calculation of BMI. This issue is not unique to the survey population; similar challenges are observed in hospital settings. In one hospital survey, height was measured in only 21% of children, BMI in 10%, and weight in 100% (unpublished data). Another study found that both weight and height were measured in just 43% of children (6). One possible explanation is that physicians prioritize weight for medication dosing, while height is not always considered essential in their practice. Additionally, the survey shows that growth charts are not regularly reviewed, and that some software programs do not generate precise growth charts. If GPs fail to analyze these charts, malnutrition may go undiagnosed. Delayed identification of malnutrition can have serious consequences, such as missing the early detection of underlying conditions like cancer, inflammatory bowel disease, eating disorders, or celiac disease. Malnutrition itself also increases the risk of infections and negatively affects the quality of life. According to pediatric guidelines for malnutrition screening, a child's BMI below the 2nd percentile should prompt GPs to consider the possibility of malnutrition before reviewing the growth chart (1, 7).

Regarding the use of health books, the survey reveals that many GPs routinely record weight and height, though 25.7% do not always do so because these measurements are already stored in their software. This suggests a lack of recognition of the health book's role in data transmission. Moreover, the issue of parents forgetting the health book is common, resulting in lost information. GPs recognize their significant role in primary prevention, but they tend to focus more on secondary prevention (8). The main obstacles they report are limited time, insufficient tools, and a lack of training (4, 9, 10). Previous studies have shown that while most GPs are willing and able to provide dietary guidance (9), as our study confirms, fewer have the capacity to conduct nutritional status assessments through blood tests or prescribe dietary supplements for children. However, the majority of GPs in this survey expressed a desire for additional training on these topics.

Conclusion

Despite the availability of software, GPs do not consistently measure height and BMI in children, which leads to missed opportunities for early malnutrition detection. Inadequate analysis and completion of growth charts can delay diagnosis and result in information gaps between healthcare providers. Public health authorities and pediatricians should increase efforts to raise GPs' awareness of nutrition and growth monitoring in children, possibly through training programs. The implementation of electronic health records could help standardize the collection of nutritional data and facilitate better information sharing among healthcare professionals. Additionally, software that prompts regular measurements of height and weight (e.g., two or four times per year) could encourage more consistent data collection. Finally, the increasing trend of GPs working in group practices may allow for additional support from assistants to help with taking these measurements.

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