



Protein Energy Malnutrition: An Overview for Child Health

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Received: 06-02-2023; Revised: 25-04-2023; Accepted: 03-05-2023; Published on: 15-05-2023.

ABSTRACT

In this current scenario, modernization of world in all aspects is one of the tremendous pressure for influencing lifestyle of people which has led to an explosive increase on working for whole body protein. Various new diseases, disorders and syndromes are under research for the measures to overcome such medical conditions. Protein Energy Malnutrition is one of the medical condition affecting the growth and development of people's health at the most crucial period of life. WHO reports that every age group of human beings suffers from this health condition and even death ratios are also reported from the same. PEM is most commonly seen in infants, paediatrics and children under the age of 5 approximate 24.8% of population suffer from stunting, 2.21% by overweight and 6.41% by wasting and severe wasting by the survey reports of UNICEF, WHO, and World Bank. From the study it is reported that, besides of developing medical facilities there is still a need to promote the child health programs for the recovery from malnutrition in children.

Keywords: Protein Energy Malnutrition, WHO (World Health Organization), paediatric, health programs, under nutrition, stunted, wasted, obesity, UNICEF.

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DOI:
10.47583/ijpsrr.2023.v80i01.004



DOI link: <http://dx.doi.org/10.47583/ijpsrr.2023.v80i01.004>

INTRODUCTION

In recent years, Public health issues and improvements in people's health have received more attention. Children are an important segment of the present and future of the country. Therefore, one of the biggest deals in the global aspect is reducing child disease and death. It is a significant public health issue in India that primarily affects infants and young children (under the age of 6), with devastating effects on everything from physical development to cognitive growth to infection susceptibility.¹

What is protein energy malnutrition?

Protein-Energy Malnutrition, indicates a mismatch between the amount of protein and energy available and what the body needs to grow and function at its best. This imbalance encompasses both insufficient and excessive energy intake, the latter of which causes overweight and obesity while the former causes malnutrition in the form of wasting, stunting, and underweight.²

Intake, requirements, and expenditure of energy and/or specific nutrients are very rarely directly assessed. Instead, practise and research rely on anthropometric measurements compared to a control population. Wasting (thinness) is defined by (WHZ) weight for height/length

among children under 5 years old, and Body Mass Index (BMI) for age among 5 to 19 year olds. Stunting (linear growth impairment) is measured in terms of (HAZ) height (or length) for age.³

Need to study protein energy malnutrition:

Despite the fact that this population has not significantly improved, a sizable portion of children still suffer from nutritional inadequacies. Yet, due to worries about other infectious diseases, simple issues like PEM have gone unnoticed.⁴ Undernutrition is linked to decreased immunological responses, which increases susceptibility to infections, which worsen undernutrition. If this vicious cycle persists, the child may die. Complex relationships exist in pre-schoolers between dietary intake, nutritional status, and morbidity.⁵

Poor nutrition (poor diet quantity and/or quality resulting in over- or undernutrition) and lack of early learning opportunities contribute to the loss of growth and academic potential and result in lifelong health and economic disparities for learning. Learning has been linked to positive early child development (ECD) outcomes when it is supported by responsive caregiving behaviours that are prompt, contingent on children's actions, and developmentally appropriate and stimulating.²

One important measure of a community's nutritional quality and health is considered to be a child's growth. The World Health Organization estimates that approximately half of all child fatalities under the age of five are caused by undernutrition. According to the Joint Child Malnutrition Estimates, stunting and wasting affected 151 and 51 million under-5 children worldwide, respectively. One of the rare nations with a high frequency of both



stunting and wasting is India.⁶ Children's physical, mental, and social development is impacted by malnutrition. Early malnutrition detection is crucial to allow for the prompt implementation of necessary corrective measures.⁷

Nutrition is once again a topic of concern for the development and growth of children. The current study aims to draw attention to one of the issue of silent killer i.e. protein energy malnutrition and to develop new strategies to overcome this problem in upcoming years.⁸

1. CAUSES:

Primary malnutrition, which accounts for the majority of malnutrition in underdeveloped countries, is caused by a lack of food and the interaction of diseases. Politics and social and gender inequality, particularly in regards to income and education, are the primary causes of malnutrition.⁹ Social injustice and civil unrest are significant antecedents. Secondary malnutrition is defined

as malnutrition that develops as a result of chronic conditions like chronic kidney, liver, or cardiac disease.¹⁰

Malnutrition can appear in many different ways, but the preventive process is essentially the same: proper nutrition of the mother before, during and after pregnancy; optimal care during the first two years of life; healthy, varied and safe foods for young children; and a healthy environment, including access to essential medical, water, sanitation and hygiene services, and opportunities for safe physical activity.¹¹

Malnutrition in children is the consequence of a variety of causes, typically including combinations of the following: poor food quality, inadequate food intake, severe and recurrent infectious infections. The general level of living and the ability of a population to meet fundamental requirements like access to food, housing, and healthcare are directly correlated with these circumstances.²

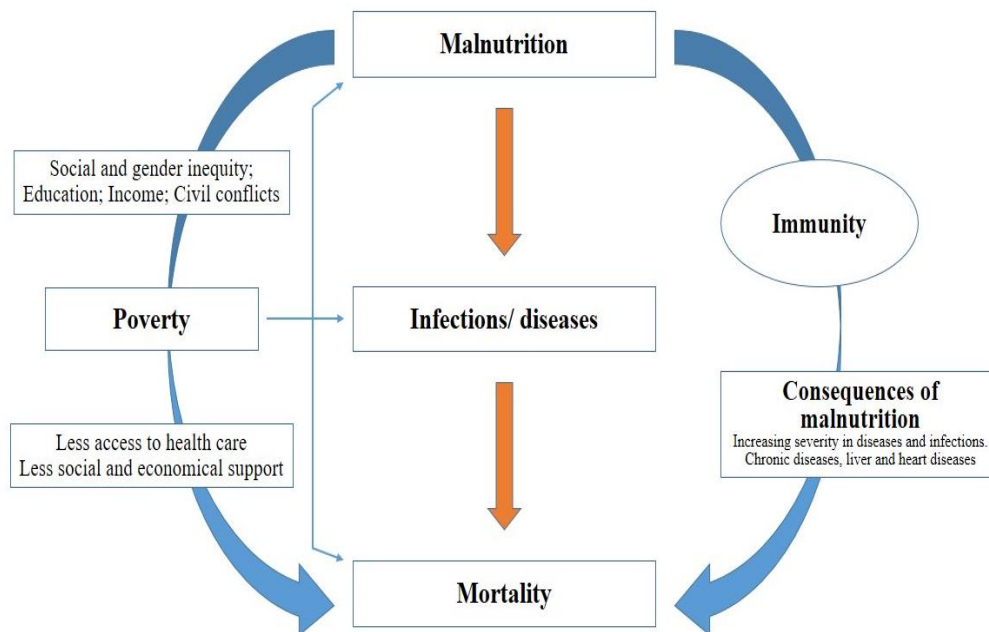


Figure 1. Causes of Malnutrition¹⁵

2. CLINICAL FEATURES:

Malnutrition refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients. The term malnutrition addresses 3 broad groups of conditions:

- undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age);
- micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and
- overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and some cancers).¹²

Undernutrition: when children don't eat or absorb enough nutrients to grow.

Hidden hunger: when children don't get enough essential vitamins and minerals

Overweight: when a child's weight is too high for his or her height.

Obesity: the most severe form of overweight.

Food systems: all the elements and activities involved in the production, processing, distribution, preparation and consumption of food.

Stunting: a form of undernutrition when population of children are too short for their age.

Wasting: an extreme form of undernutrition when a child is too thin for his or her height.¹³

3. PANDEMIC REPORT:

Method:

The study outlined below expands on past research reports analyses and results published by (World Health Organization) (World Bank Group)) (UNICEF) and literature reviews that confirmed that malnutrition has a multiplicative effect on child growth and development and can lead to other diseases and population-level death.

4. PREVENTIVE MEASURE:

Food System: Increase the availability and affordability of nutrient-dense foods (including fruits, vegetables, eggs, fish, meat and fortified foods) by promoting their production, distribution and retail sales. National standards and legislation must be implemented to protect young

children from unhealthy processed and ultra-processed food and beverages and harmful marketing practices aimed at children and families. Use multiple communication channels, including digital media, to reach caregivers with factual information and advice about infant nutrition and increase appetite for nutritious and safe foods.¹⁴

Health System: By investing in the hiring, training, oversight, and encouragement of community-based counsellors and workers, we can increase carer access to high-quality counselling and support on feeding young children. To young children at risk of micronutrient deficiencies, anaemia, and poor growth and development, administer nutritional supplements, homemade fortifiers, and fortified supplementary meals.¹⁴

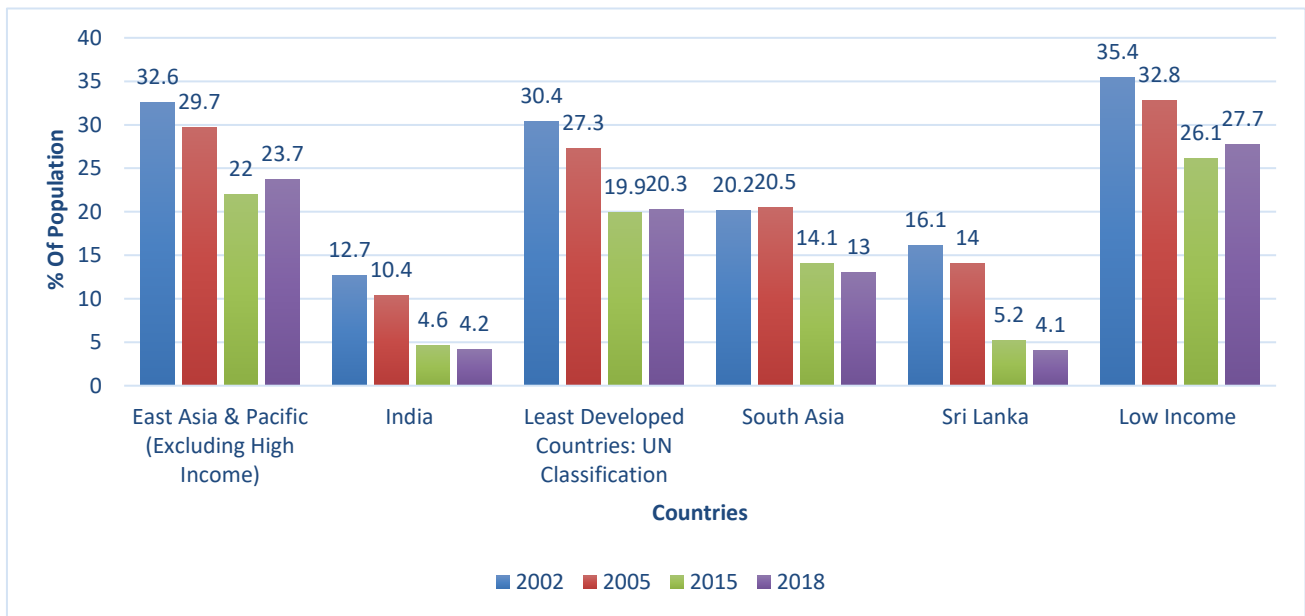


Figure 2. Prevalence of undernourishment (World Bank Data)¹³

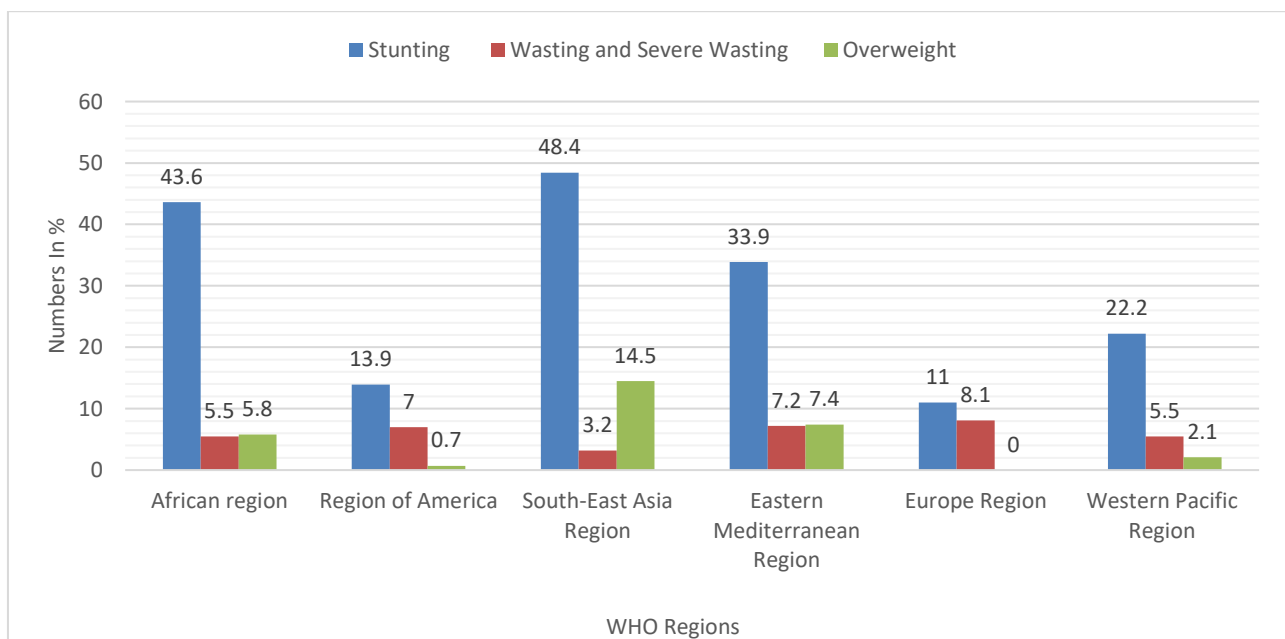


Figure 3. Prevalence estimate of year 2000¹¹



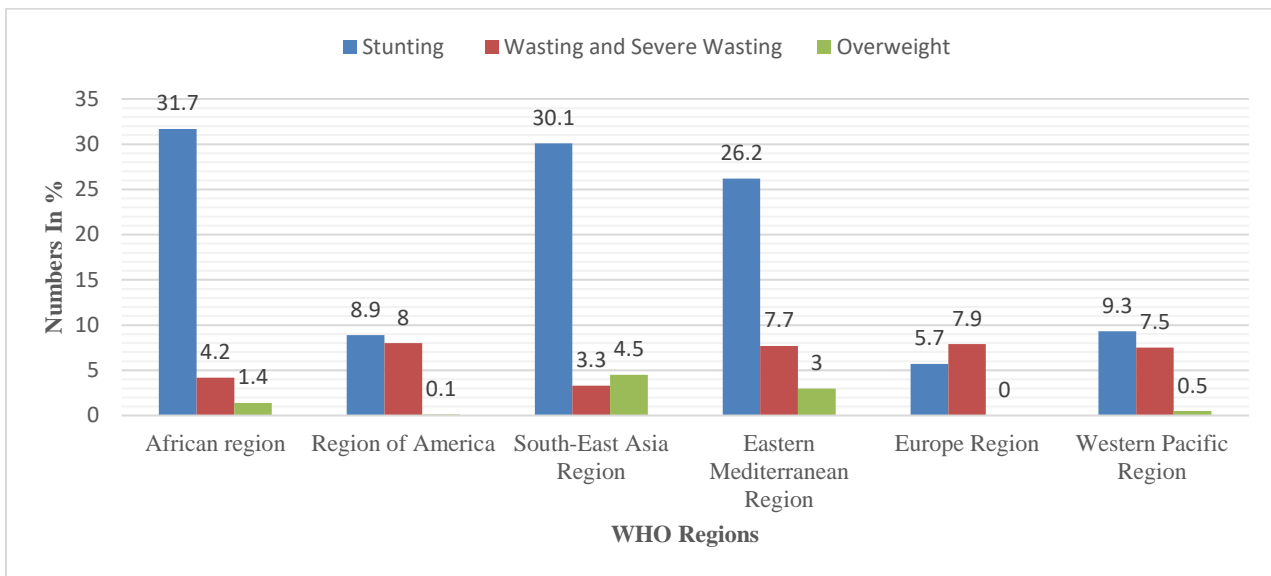


Figure 4. Prevalence estimate of year 2020¹¹

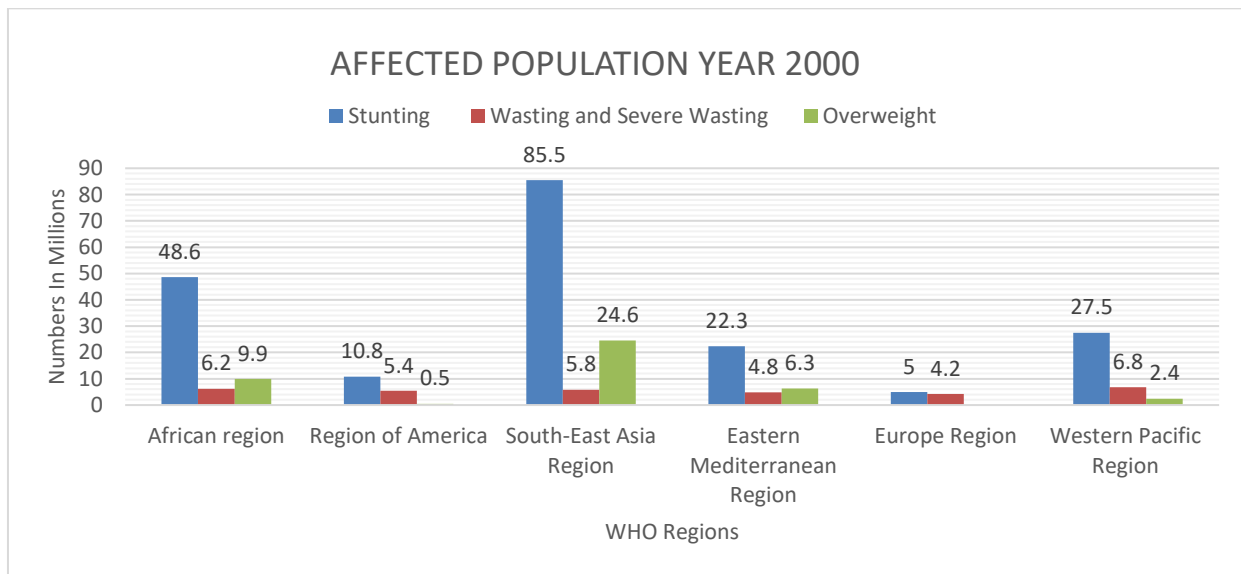


Figure 5. Affected population year 2000¹¹

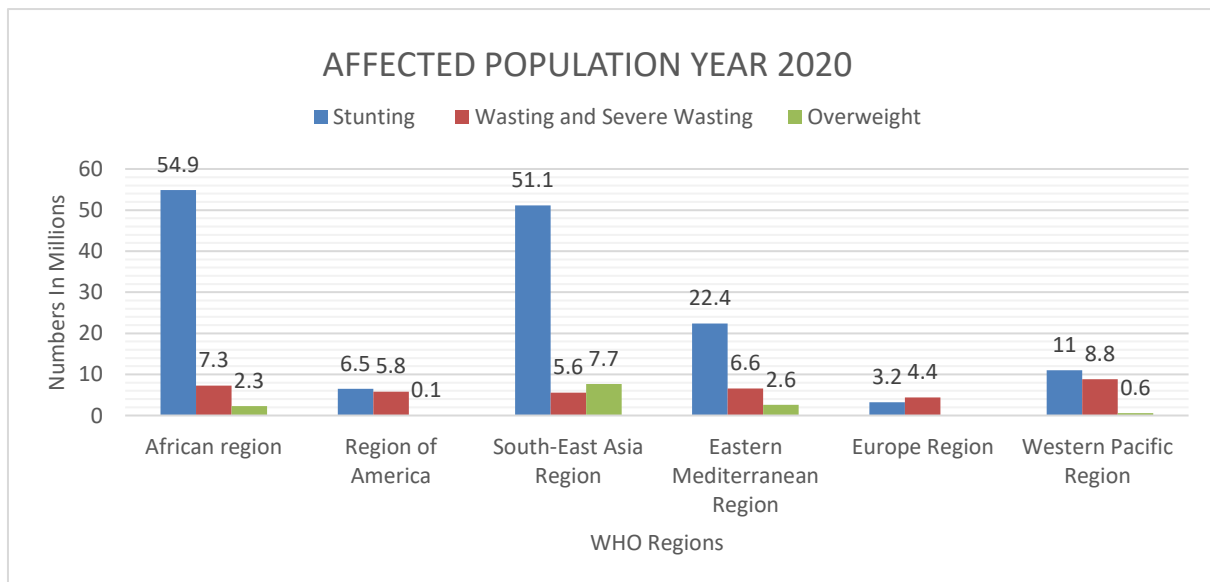


Figure 6. Affected population of year 2020¹¹

Social Protection System: Provide social transfers (cash, food, and/or vouchers) that promote wholesome eating habits in young children, even in vulnerable environments and in response to humanitarian disasters, rather than undermining them. Use social protection programmes to educate carers about how to feed young children, offer counselling and education, and promote the use of health and nutrition services.¹⁴

Multi-system governance: Establish the right of early children to healthy diets as a top priority in the national development agenda and make sure that laws and policies are consistent across all systems and sectors. Set goals and monitor progress using sector-specific monitoring systems and household surveys to increase public accountability for young children's diets. Study the availability, cost, and acceptability of context-specific barriers, enablers, and paths to enhancing the quality of young children's nutrition, as well as other factors.¹⁴

DISCUSSION

Prevalence estimates for stunting and overweight throughout the course of a year, are comparatively stable. So, it is possible to monitor the evolution of these two criteria on a global and regional scale. In the course of a year, acute illnesses like wasting and severe wasting can change frequently and quickly. As a result, it is challenging to produce trustworthy long-term trends using the current input data, and as such, this report provides only most recent global and regional estimates.

Data collected from world bank group shows prevalence of undernourishment of year 2002, 2005, 2015 and 2018 in some of countries selected where East Asia and Pacific (excluding high income) shows (32.6, 29.7, 22, 23.7), India shows (12.7, 10.4, 4.6,4.2), Least developed countries classification: UN classification shows (30.4, 27.3, 19.9, 20.3), South Asia shows (20.2, 20.5, 14.1, 13) Sri Lanka shows (16.1, 14, 5.2, 4.1) and Low Income countries shows (35.4, 32.8, 26.1, 27.7) % of population respectively.¹⁵

'Levels and trends in child malnutrition' UNICEF/ WHO/ World bank group joint child malnutrition key findings 2021 edition reports the estimate comparison of prevalence and affected % population in millions of stunting, wasting and severe wasting, overweight in global WHO regions (African Region, Region of the Americas, South-East Asia Region, Eastern Mediterranean Region, Europe Region, Western Pacific Region) of year 2000 and 2020.¹³

These estimates shows significant decrease in undernutrition but it's still prevailing globally and not completely eradicated besides the development in designing nutritional supplements (nutraceutical), pharmaceutical formulation, therapeutic products etc. and approximately 24.8% of population in millions suffer from stunting, 2.21% by overweight and 6.41% by wasting and severe wasting by the survey reports.¹³

CONCLUSION

Very poor children are more likely to be underfed and malnourished, especially in rural parts of low-income nations. They are least likely to have access to clean water, proper hygienic practises, and medical treatment. Due to their hardship, they are less likely to complete their education, are more likely to fall ill, and are ultimately more likely to stay in poverty.

Malnutrition still hinders children's growth and development, and it can also result in other infectious disorders. Thus, it is necessary to implement fresh approaches and methods to address these societal issues that have gone unresolved. In order to combat this issue of protein energy deficiency, medical facilities must also be built.

- Empower families, children and young people to demand nutritious food.
- Drive food suppliers to do the right thing for children.
- Build healthy food environments for all children.
- Mobilize supportive systems to scale up nutrition results for every child.
- Collect, analyse and use good-quality data and evidence regularly to guide action and track progress.

ACKNOWLEDGEMENT: The author is thankful to all the contributors in compiling and preparing manuscript for this article.

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Source of Support: The author(s) received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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