Study of Malnutrition in Children

NU 302
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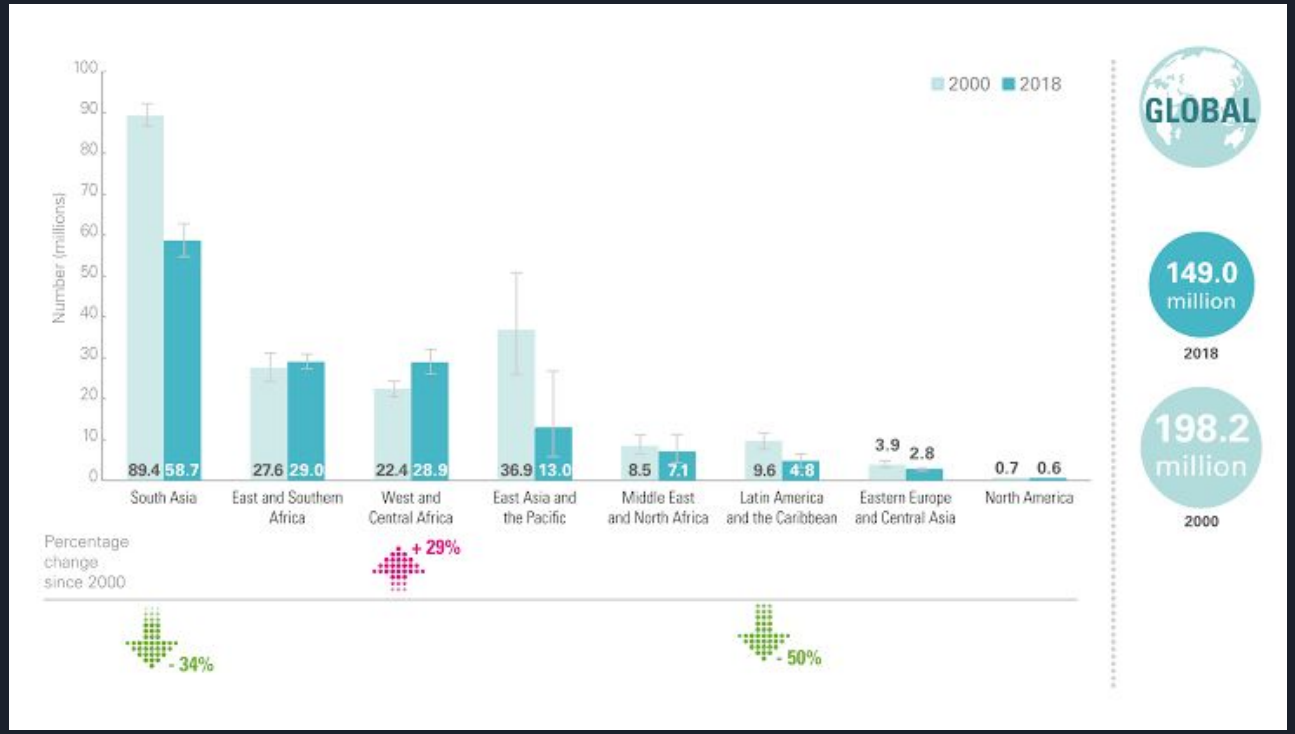
Topic

- What is Malnutrition?
- How important is it to find a solution?

According to WHO, MaInutrition can be defined as the cellular imbalance between supply of nutrients, energy and body's demand to ensure growth, maintenance and specific function.

Over Nutrition

Being overweight, obesity and diet-related noncommunicable diseases such as heart disease, stroke, diabetes and some cancers.



Malnutrition in Children - UNICEF DATA

https://data.unicef.org/topic/nutrition/malnutrition/

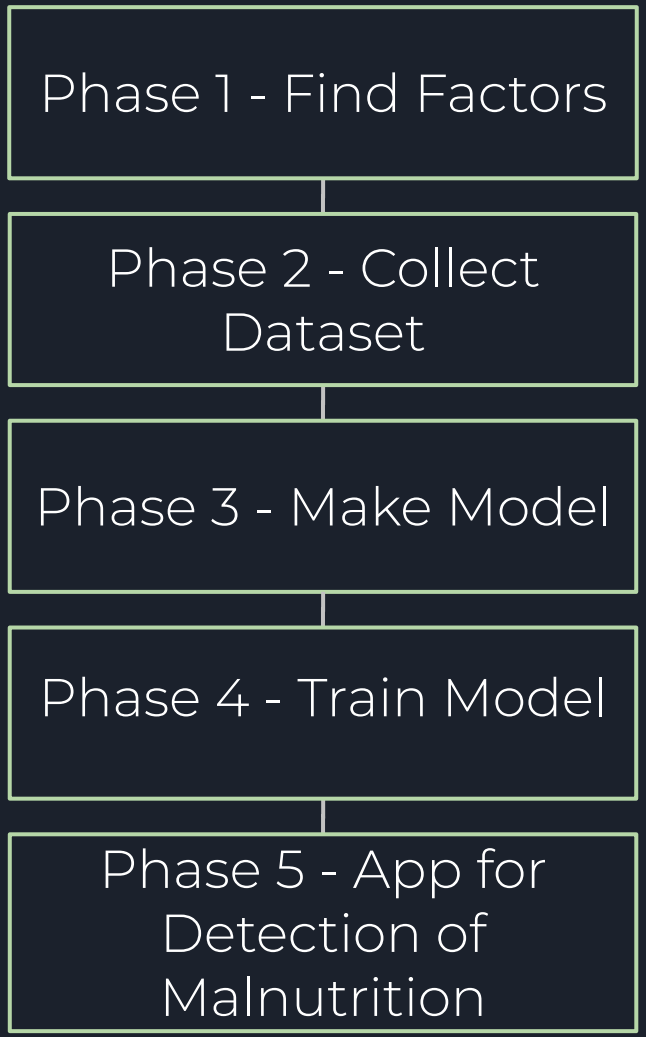
According to the World Bank, Reducing malnutrition is central to reducing poverty.

As long as malnutrition persists, development goals for the coming decade will not be reached

Problem Statement

Finding an intelligent way of determining if a child is malnourished or not so that correct measures could be taken at the right time.

PHASES


Phase 1 - Find Factors
Phase 2 - Collect Dataset
Phase 3 - Make Model
Phase 4 - Train Model
Phase 5 - App for Detection of Malnutrition

Literature Review

The main aim of the research till now has been to find out the parameters which indicate malnutrition.

Anthropometry is the measurement of the proportions of the human body.

Anthropometric indices can be used to determine an individual's nutritional status compared with a reference mean.

Final Factors

1) Age
2) Sex
3) Length
4) Height
5) Weight
6) Oedema
7) MUAC

According to WFP

According to WHO

Measuring MUAC(mid-upper-arm circumference).

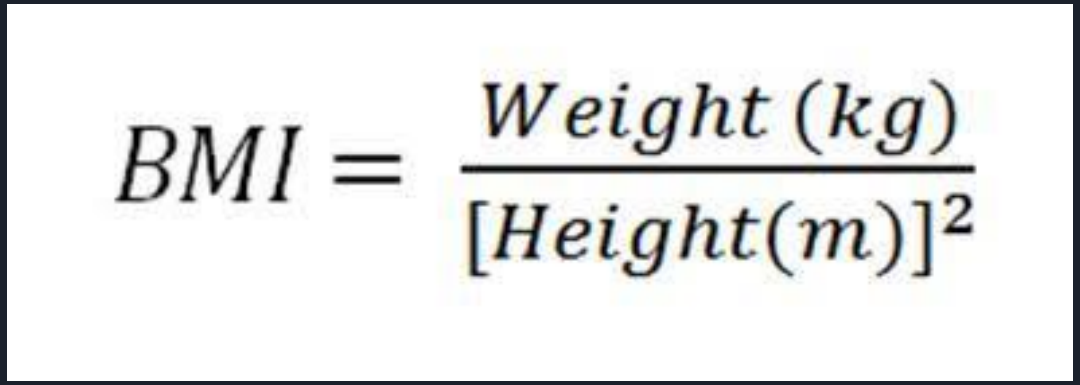
https://www.afro.who.int/news/who-supports-one-million-malnourished-children-north-east-nigeria

Measuring Oedema(excess of fluid collecting in tissues of the body) in Children.

http://www.ihatepsm.com/blog/dietary-counselling-under-5-children-guide-health-workers

Important Terms

- wasting (low weight-for-height)
- stunting (low height-for-age)
- underweight (low weight-for-age)



Formula to calculate BMI (Body Mass Index).

https://psa.gov.ph/content/body-mass-index-bmi-0

Expression of Anthropometric Indices

$$\text{Z-SCORE} = \frac{\text{measured value} - \text{median of reference population}}{\text{standard deviation of the reference population}}$$

$$\text{PERCENTAGE OF THE MEDIAN} = \frac{\text{measured weight of the child}}{\text{median weight of the reference population}} \times 100$$

Provided by WFP

Another reason

Micronutrient deficiencies:

- Iron
- Vitamin A
- Iodine

Exception:

When oedema is present in both feet, a child is considered severely malnourished, regardless of his/her weight-for-height Z-score.

References

1. **CDC**(Centers for disease control and prevention) ,**WFP**(World Food Programme)
   Available Online: https://www.unhcr.org/45f6abc92.pdf
2. **Journal of Public Health and Epidemiology**, Available Online:http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.985.1492&rep=rep1&type=pdf
3. **WHO**(World Health Organization), **UNICEF**(United Nations International Children's Emergency Fund), Available Online: https://apps.who.int/iris/bitstream/handle/10665/44129/9789241598163_eng.pdf?ua=1