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Double Burden Of Malnutrition: A Critical Issue

¹Mansi Mehta and ¹Shonima Venugopal

¹Temporary Assistant Professor

¹Department of Foods and Nutrition, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India

Abstract: One of the most important global health concerns is ameliorating malnutrition in all its forms. The double burden of malnutrition (DBM), which has been exacerbated by rapid changes in food systems and increasing urbanization, comprises of undernutrition including micronutrient deficiencies, as well as overweight, obesity, and diet related noncommunicable diseases. DBM may manifest at different stages of life, as well as at the individual, household, or population level. The DBM in lower and middle income countries continues to remain high. In India, undernourished children and overweight or obese mothers coexist in the same household. In Indian mother-child dyads, DBM has been reported to be significantly associated with the mother's age, educational attainment, household wealth status, breastfeeding practices, and place of residence. This coexistence of different forms of malnutrition necessitates immediate attention and calls for innovative approaches like double duty action strategies to nutrition policy and programming.

Keywords: Malnutrition, double burden, household, mother, child

I. INTRODUCTION

Malnutrition can be described as an imbalance of vital nutrients, a deficit or surplus of nutrient intake, or poor utilization of nutrients. It covers three major categories of conditions viz:

- Undernutrition, encompassing stunting (lesser height according to age), underweight (lesser weight according to age), and wasting (lesser weight according to height);
- Micronutrients-associated malnutrition encompassing surplus of micronutrients or deficiencies (dearth of essential vitamins and minerals); and
- Overweight, obesity, and noncommunicable diseases (NCDs) linked to diet, including diabetes, heart disease, stroke, and some types of cancer.

The double burden of malnutrition (DBM) encompasses undernutrition (which also includes micronutrient deficiencies), and overweight, obesity, along with NCDs associated with diet. Globally, in the year 2022, around 390 million adults aged 18 and over were underweight, compared to 2.5 billion who were overweight, including 890 million who were obese. In case of children and adolescents belonging to the age group of 5 to 19 years, 390 million of them were overweight, with 160 million of them suffering from obesity. While, 190 million were thin (having a lower BMI according to age). According to estimates, among children less than 5 years of age, 37 million suffered from overweight or obesity, whereas 149 million were stunted. Also, undernutrition has been implicated in around half of the fatalities in children under the age of 5. The majority of these take place in nations with poor and moderate incomes (World Health Organization, 2024).

Malnutrition in one form or more than one form, affects each and every nation, and hence, one of the biggest issues pertaining to global health is contending malnutrition in all its manifestations. This worldwide burden of malnutrition has severe and lifelong effects with regard to health, financial, societal and developmental aspects of life, on people, their families, as well as on communities and nations. And, in individuals, families / homes and populations at large, as well as across the life cycle, if there is coexistence of undernutrition (including micronutrient deficiencies) with overweight and obesity or NCDs caused due to poor nutrition, it is characteristically referred to as the DBM.

There are three levels and two temporal dimensions at which DBM might appear. The first way it manifests itself is at the individual level, when two or more forms of malnutrition develop at the same time, such as obesity and nutritional anemia or deficiencies of any vitamin or mineral. It can also arise at different times in life, due to opposing nutritional situations brought on by changes in economic conditions or other situations. For instance, an individual, previously suffering from stunting due to chronic undernutrition in childhood, may be overweight as an adult. The second possibility is that households may experience this twofold burden. An illustration would be that of a household having a mother who suffers from nutritional anemia, and also having a child or grandparent suffering from overweight or type 2 diabetes. Lastly, this twofold burden can also be noticed at the population level, since undernutrition, and overweight or obesity, or noncommunicable diseases are widespread in the same community, region, or country (World Health Organization, 2017).

II. CAUSATIVE FACTORS

The majority of low- and middle-income countries (LMICs) are impacted by DBM. According to a Lancet paper explaining the dynamic forces leading to DBM in LMICs and the way it varies as per the socioeconomic strata, LMICs still have an increased rate of DBM, though the incomes of the countries with an increased rate of DBM are lower than those of the initial period of 1990s. The high DBM is likely caused by the sharp rise in overweight and obesity prevalence in these lesser-income nations, which are simultaneously witnessing a slower drop in undernutrition prevalence, according to an examination of the dynamic trends of undernutrition and obesity. It was seen that compared to the 1990s, a higher proportion of new nations with an increased rate of DBM were in the LMICs' lowermost GDP per capita quartile. This demonstrates how significant and swift changes in the food system are the driving force behind this novel nutrition scenario (Popkin et al., 2020).

Obesity has long been linked to excessive consumption of food and a sedentary lifestyle, whereas undernutrition has been linked to poverty and food insecurity (Guevara-Romero et al., 2022). A world where several types of malnutrition, from wasting and deficiencies of micronutrients to obesity and diet related NCDs, coexist in individuals, populations, and households has been brought about by swift changes to food systems and rising urbanization. Three DBM definition dimensions have been identified by the authors of a systematic review: target population; assessment level (individual, dyad, household, or population); and types of malnutrition measured (obesity/overweight, stunting, underweight/wasting/thinness, micronutrient deficiencies, and anaemia) (Davis et al., 2020).

III. DOUBLE BURDEN HOUSEHOLDS

Biswas et al. (2021) evaluated DBM and the primary determinants of DBM in South and Southeast Asia at the household level. According to the definition the authors employed, DBM existed when in the same household, there was a co-occurrence of a mother who is overweight or obese and at least one under-five child who is undernourished. The study used cross-sectional population representative data for eight South and Southeast Asian nations (India, Maldives, Nepal, Bangladesh, Pakistan, Cambodia, Myanmar and Timor) from the Demographic and Health Survey. The study reported a pooled prevalence for overweight or obesity in the mother (OBM) and wasting in the child as 7.0%, OBM and stunting in the child as 10% and OBM and underweight in the child as 7%. In all the households, for any of the DBM co-occurrences, the prevalence was 12.0%. Significant positive associations were observed for these co-occurrences, and households with more than four people, mothers with lesser education, wealthiest quintile of households, and mothers who were older. Instead of focusing on undernutrition or overnutrition as separate issues, to address the DBM, the authors emphasized the need for double duty action strategies. Additionally, they suggested that promoting women's education could help address the DBM at the household level.

Global disparities in DBM at the household level and its relationship to social, political, and economic globalization across household wealth and country income were examined in a multilevel analysis of Demographic and Health Surveys from fifty-five LMICs (1992–2018). After relevant covariates were adjusted, the within-country chance of DBM increased over time by 1.04 times annually, with 6% of the sample children being stunted and having an overweight mother across all country-years. Compared to children without DBM, those children had greater chances of being male, older, having a higher household wealth index, residing in an urban location, and had mothers who were older, more educated and less likely to be breastfeeding. In richer LMICs, households that were poorer and in poorer LMICs, households that were richer had a higher chance of developing DBM. Higher DBM was linked to increased social and economic

globalization, even though the economic globalization impacts were mostly realized by the poorest people in the world (Seferidi et al., 2022).

IV. DOUBLE BURDEN AMONG MOTHER-CHILD PAIRS

The prevalence of stunted child and overweight/obese mother pairs in Kerala households from India was 10.7% as per secondary analysis done on India Human Development Survey-II data that included 344 mother-child (below five years of age) pairs (Jayalakshmi & Kannan, 2019). In a study that compared the double burden of malnutrition at the household level among 295 randomly chosen mother-child pairs in urban, rural and tribal settings in Maharashtra, overall DBM prevalence was reported to be 19.7%. Urban households had the highest DBM (46%), followed by rural households (17%) and tribal households (5.7%) (Jeyakumar et al., 2024).

The coexistence of over and under-nutrition in 225 mother-child (ages 3-5) dyads in an urban impoverished setting in Delhi, India, was investigated in a study. One-third of overweight (33%) and obese mothers (30%) had underweight, stunted, or wasted children. Of the children who were overweight or obese, 22% had parents who were overweight or obese, and 12% had parents who were underweight. The mother's and child's nutritional status was found to be correlated in all DBM households (Malik et al., 2018). In India, a systematic review found that mothers who are overweight or obese and children who are undernourished coexist in the same household. Among mother-child dyads in India, DBM was significantly correlated with the age of the mother, level of education of the mother, wealth status of the household, place of residence, and the baby's size at birth. Mother-child dyads from wealthy households were more likely to have DBM than those from impoverished households. Additionally, research has shown greater likelihood of DBM in low birth weight children, mothers who were short in stature, and those who neglected to breastfeed (Paul & Chakrabarty, 2021).

Results from a study that focussed on mother child dyads with children under three years using data from the National Family and Health Survey -5 showed that households with wealth, C-section births, advanced age of the mother, current breastfeeding practices, and bigger household sizes had a higher risk of DBM. Furthermore, homes with women who were abdominally obese were identified as hotspots for increased risk of DBM (Singh et al., 2023).

A secondary analysis done using National Family Health Survey-5 data for India found the prevalence of DBM in mothers and under-five children pairs to be 7.7%. DBM was found to be associated with age of the child, birth weight, gender, twin birth, age of the mother, age at first birth, educational attainment, breastfeeding practices, delivery method, residence, geographical area, religion and caste, and wealth index (Ramasubramani et al., 2024).

V. CONCLUSION

All the different manifestations of malnutrition have a severe negative impact on our communities and populations in terms of their health, welfare and the ability to develop sustainably. The complexity of the problem is compounded by the fact that several nations currently face a dual burden of malnutrition, that includes overweight, obesity and NCDs linked to diet, as well as undernutrition, which also includes deficiencies of micronutrients. Amongst the several nations, most of the LMICs are affected by this dual burden. The rapidly changing lifestyles, demographic and socio-economic situation, leading to a significant shift in dietary patterns, have been strongly associated with the prevalence of DBM globally and also at the household level. The double burden households characterised by the presence of atleast one child below the age of five years, who suffers from malnourishment, along with the mother who suffers from overweight or obesity, are on the rise in India. Among the mother-child pairs in India, DBM has been found to be substantially correlated with the age of the mother, level of education, household affluence, area of residence, and breastfeeding practices. And hence could be addressed at the household level by encouraging the education and empowerment of women. Also, rather than treating undernutrition and overnutrition as distinct problems, double duty action plans need to be adopted to address the DBM, as this simultaneous existence of numerous forms of malnutrition is being increasingly recognized as a pressing issue that calls for innovative approaches to nutrition related policies and programs.

REFERENCES

- [1] Biswas, T., Townsend, N., Magalhaes, R. J. S., Hasan, M., & Mamun, A. (2021). Patterns and determinants of the double burden of malnutrition at the household level in South and Southeast Asia. *European Journal of Clinical Nutrition*, 75(2), 385–391. <https://doi.org/10.1038/s41430-020-00726-z>
- [2] Davis, J. N., Oaks, B. M., & Engle-Stone, R. (2020). The Double Burden of Malnutrition: A Systematic Review of Operational Definitions. *Current Developments in Nutrition*, 4(9), nzaa127. <https://doi.org/10.1093/cdn/nzaa127>
- [3] Guevara-Romero, E., Flórez-García, V., Egede, L. E., & Yan, A. (2022). Factors associated with the double burden of malnutrition at the household level: A scoping review. *Critical Reviews in Food Science and Nutrition*, 62(25), 6961–6972. <https://doi.org/10.1080/10408398.2021.1908954>
- [4] Jayalakshmi, R., & Kannan, S. (2019). The double burden of malnutrition: an assessment of ‘stunted child and overweight/obese mother (SCOWT) pairs’ in Kerala households. *Journal of Public Health Policy*, 40(3), 342–350. <https://doi.org/10.1057/s41271-019-00172-7>
- [5] Jeyakumar, A., Godbharle, S., Kesa, H., Shambharkar, P., Bhalekar, P., Chawadi, S., & George, R. (2024). Comparison of household double burden of malnutrition among mother-child dyads in different settings in Maharashtra. *Cities & Health*, 8(6), 1031–1039. <https://doi.org/10.1080/23748834.2024.2333128>
- [6] Malik, R., Puri, S., & Tulsi, A. (2018). Double burden of malnutrition among mother-child DYADS in urban poor settings in India. *Indian J Community Health*, 30(2), 139–144.
- [7] Paul, P., & Chakrabarty, S. (2021). Double Burden of Malnutrition in the form of Undernutrition among children - Overweight/Obesity among mothers within Households in India: A Systematic Review. *JOCAS Journal of Commerce, Arts and Science*, 4(1), 80–92.
- [8] Popkin, B. M., Corvalan, C., & Grummer-Strawn, L. M. (2020). Dynamics of the double burden of malnutrition and the changing nutrition reality. *The Lancet*, 395(10217), 65–74. [https://doi.org/10.1016/S0140-6736\(19\)32497-3](https://doi.org/10.1016/S0140-6736(19)32497-3)
- [9] Ramasubramani, P., Krishnamoorthy, Y., & Rajaa, S. (2024). Prevalence and socio-demographic factors associated with double and triple burden of malnutrition among mother-child pairs in India: Findings from a nationally representative survey (NFHS-5). *Heliyon*, 10(18), e37794. <https://doi.org/10.1016/j.heliyon.2024.e37794>
- [10] Seferidi, P., Hone, T., Duran, A. C., Bernabe-Ortiz, A., & Millett, C. (2022). Global inequalities in the double burden of malnutrition and associations with globalisation: a multilevel analysis of Demographic and Health Surveys from 55 low-income and middle-income countries, 1992–2018. *The Lancet Global Health*, 10(4), e482–e490. [https://doi.org/10.1016/S2214-109X\(21\)00594-5](https://doi.org/10.1016/S2214-109X(21)00594-5)
- [11] Singh, S., Shri, N., & Singh, A. (2023). Inequalities in the prevalence of double burden of malnutrition among mother-child dyads in India. *Scientific Reports*, 13(1), 16923. <https://doi.org/10.1038/s41598-023-43993-z>
- [12] World Health Organization. (2017). *The double burden of malnutrition [Policy brief]*. <https://iris.who.int/bitstream/handle/10665/255413/WHO-NMH-NHD-17.3-eng.pdf?sequence=1>
- [13] World Health Organization. (2024). *Malnutrition [Fact sheet]*. <https://www.who.int/news-room/fact-sheets/detail/malnutrition>