SHORT REPORT

Increased prevalence of stunting in Pakistan: A comparative analysis of National Nutrition Surveys

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Abstract

Stunting continues to be a major public health concern worldwide and can have lifelong consequences for the affected individuals in terms of both physical and cognitive development. Among South Asian countries, Pakistan continues to experience consistently high rates of stunting, owing to a wide range of factors. National nutrition surveys and reports by various international organisations indicate that a significant reduction has not been observed in stunting rates over the last 3-4 decades and that the progress for mitigating the problem remains inadequate. The current report was planned to analyse nationally representative surveys done in 2001-02, 2011 and 2018 to ascertain the major determinants of stunting, their complex interplay, and the contribution of these determinants to the increased prevalence of stunting in Pakistan.

Keywords: Stunting, Malnutrition, Pakistan, National nutritional survey.

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Introduction

Stunting remains a significant health problem worldwide, affecting an estimated 22.3% of the global population of children aged <5 years, accounting for 148.1 million individuals.[1] Stunting results in potentially irreversible physical and neurocognitive impairment, and both immediate and long-term consequences for human development, such as increased risk of morbidity and mortality, increased susceptibility to infections and non-communicable diseases (NCDs), poor cognitive development, reduced learning abilities, energy deficit owing to low energy expenditure, decreased work capacity, impaired fat oxidation contributing to increased likelihood of the child becoming obese later in life, and adverse reproductive outcomes in adulthood.[2] Childhood stunting is a direct consequence of prolonged undernourishment, low socioeconomic status (SES), and adverse birth outcomes[3], and, if not curbed effectively, has the potential to perpetuate a vicious cycle of poverty, significant health risks, and prolonged underdevelopment.

National nutrition surveys (NNSs) and reports by various international organisations, like the United Nations Children's Fund (UNICEF)1, indicate that a significant reduction has not been observed in stunting rates over the last [3-4] decades in Pakistan, and that the progress for mitigating the problem remains inadequate.[4-6] The current report was planned to analyse nationally representative surveys done in 2001-02, 2011 and 2018[4-6] to ascertain the major determinants of stunting, their complex interplay, and the contribution of these determinants to the increased prevalence of stunting in Pakistan.

Methods and Results

Data comparison only a slight improvement in the prevalence of stunting in Pakistan since the start of the millennium; from 41.6% in 2001-02 to 40.2% in 2018.[4-6] However, the current national average of 40.2% continues to be significantly higher than the regional (31.7%)[7] and global (22.3%)[1] averages of stunting. Moreover, Pakistan significantly lags in terms of the global annual reduction target for stunting of 3.9%, with various reports demonstrating that Pakistan achieved only 0.5% reduction per annum.[8]

Discussion

Pakistan has been experiencing alarmingly higher rates of stunting (40.2%), relative to the rest of the South Asian region (31.7%).[7] The NNS 2018 of Pakistan reported similar findings, whereby approximately 12 million children, or every 4 out of 10 children aged <5 years, were stunted.[6] Stunting, therefore, can be viewed as a critical indicator of chronic malnutrition in Pakistan.

The statistics related to stunting from the past NNSs indicate a fluctuating pattern, with the national average at an all-time high of 48% in 1965 as per the National Survey on Women and Nutrition (NSWP)[6], 41.8% in NNS 1985-87[6], to an all-time low of 36.3% in NNS 1990-94[6], followed by an increase to 41.6% in NNS 2001-02[4], and

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43.7% in NNS 20115, and then a slight decline to 40.2% in NNS 2018.[6] World Bank reports, similarly, paint a grim picture, whereby contrary to the global targets of a 3.9% annual reduction in stunting rates, Pakistan has achieved a mere 0.5% per annum reduction since 2011.[8] The determination of the annual reduction rate involves calculating the average annual relative reduction rate (AARR) by taking into account the prevalence of stunting at the baseline, the target prevalence, and the number of years over which the reduction occurs. The factors underpinning the variations in the stunting rates between various NNS can be attributed to a highly complex relationship involving multiple aspects related to SES, environment and health. Moreover, progress in addressing the major determinants of stunting remains inadequate.

Poverty, and, as a consequence, reduced access to adequate, healthy and safe diet remains the prime driver of the prevalence of stunting in Pakistan. World Bank classifies an estimated 24.3% of the Pakistanis as living below the poverty line.[8] Poverty can manifest in repercussions, such as food insecurities, poor nutritional status, lack of access to healthcare facilities, increased vulnerability to various diseases, reduced productivity levels, and impaired physical and cognitive development outcomes.[9] This also includes deficiencies of both macronutrients, including energy nutrients and protein, and micronutrients, particularly iron, zinc, calcium, vitamin A, vitamin D, and B complex vitamins, such as vitamin B1, or thiamine, manifesting from low SES.[10] Poverty can also present challenges related to living conditions, and water supply, sanitation and hygiene (WASH), increasing the likelihood of children being affected by waterborne diseases, such as cholera, dysentery, dracunculiasis, typhoid and paratyphoid fever, thereby exacerbating the existing malnutrition situation, and contributing to stunting.[11]

Maternal health and nutrition are other major aspects in the context of the increased prevalence of stunting in Pakistan, as they are crucial to optimal foetal and child growth and development. A large proportion of the women of childbearing age (41.7%) in Pakistan are highly anaemic, malnourished and underweight, increasing the risk of low birth weight (LBW) babies, and stunting later in life[6]. In addition, the lack of maternal education related to exclusive breastfeeding (EBF) and supplemental feeding has been attributed to inappropriate feeding behaviours, further contributing to the burden of stunting in Pakistan.[12] Moreover, parental educational levels significantly impact nutrition and health outcomes for children.[13] Limited access or lack thereof of appropriate healthcare facilities, often at basic levels, adds to the stunting conundrum of Pakistan.

Environmental and natural disasters, disease outbreaks, and phenomena like locust attacks/infestations have also contributed to this grave scenario. For instance, the coronavirus disease-2019 (COVID-19) pandemic resulted in widespread food and nutrition insecurity, and healthcare disruptions in Pakistan, adversely affecting an estimated 40-60 million people[8], in particular, daily wagers (22%), low-income urban families, rural communities dependent on urban markets, and moderately to severely food insecure sections of the country's population, accounting for an estimated 35%, or 70 million individuals.[14] Frequent locust attacks during 2020 and 2021, and the devastating floods of 2022, particularly, in vulnerable provinces of Balochistan and Sindh, have contributed to an already alarming stunting situation in Pakistan, and have proven to be a serious setback for the country's efforts to reduce malnutrition and associated conditions.

Gender-associated inequalities have a global prevalence, but gender biases are much more deep-rooted in developing countries, such as Pakistan, and have the potential to impact the wellbeing of populations in these countries drastically. Female children, in general, are more likely to be affected by stunting owing to disproportionate access to household resources, including food and nutrition, education and healthcare.[15] This trend is particularly evident in some provinces of Pakistan, such as Punjab, which is Pakistan's largest province by population.[13] Women eating 'last and least', particularly women of childbearing age, become severely malnourished, and are more likely to give birth to underweight children, who are at greater risk of being stunted later in life.[16] Such biases and inequalities have also contributed significantly to the high prevalence of malnutrition in Pakistan, which, in turn, can also contribute to high stunting rates in the country. Pakistan also experiences one of the highest population growth rates in the world. Families with low SES and multiple children grapple with the task of providing all children with equitable access to resources, and with the resources spread thin, higher birth order presents an additional stunting risk.[7]

Geographical and demographic factors add a further dimension to the high prevalence of stunting in Pakistan. The extent of stunting varies greatly among provinces, as demonstrated by the NNS 2018, with the highest percentage (48.3%) reported for Khyber Pakhtunkhwa-Newly Merged Districts (KPK-NMD), followed by 46.6% in both Gilgit-Baltistan (GB) and Balochistan, with the lowest

reported for Islamabad Capital Territory (ICT).[6] These variations are reflective of the transitional nature of the demographic makeup of the Pakistani population in terms of gender, age, education, income and employment, and, hence, add a further layer to an already extremely complicated problem. Pakistan has also experienced a substantial surge in the youth demographics in recent years, with studies reporting 28% aged 15 -29 years, as well as a <5 component of 31 million children.[7] This, in the context of stunting, presents both challenges and opportunities.

The distribution of the Pakistani population across rural and urban localities is a significant determinant of stunting as well. As of 2023, an estimated 61%, or 149 million[5] of the Pakistani population, still resides in rural areas.[17] The NNS 2018[6], as well as other international reports from UNICEF[1] and the World Bank[8], indicate that children residing in rural areas are more prone to being stunted in comparison to their urban counterparts. This can be attributed to high birth rates, lack of employment opportunities, low SES, lack of maternal education, reduced healthcare access, inappropriate feeding practices, large households, and inadequate WASH tendencies.[7,13] The issue is further compounded by the increasing rate of informal urban settlements, often called slums or shantytowns, in and around major cities of Pakistan, which are widely regarded as a product of rapid urbanisation, various socioeconomic factors, and ineffective planning.[18] Similar to their rural peers, the dwellers of these settlements face a wide range of problems, such as inadequate service infrastructure (clean drinking water, hygiene, sanitation, waste disposal, etc.), environmental hazards, exclusion and marginalisation (economic and social), and multiple health risks[19] Rapid urbanisation coupled with increasing population growth has resulted in the children in urban areas becoming more susceptible to stunting as well.[20]

Conclusion

Past efforts to address stunting rates in Pakistan were centred around nutrition-specific interventions. However, owing to various recurring setbacks, the progress can be regarded as sedate at best. Given the increasing inflation rates, economic slowdown, high food commodity prices, widespread food and nutrition insecurity, rampant poverty, healthcare challenges, significant demographic and geographic disparities, and gender-associated inequalities, there is a considerable need to accelerate the reduction progress. Renewed multi-sectoral efforts and a two-pronged approach focussing on both the nutrition-specific interventions, like addressing the immediate causes of malnutrition, and nutrition-sensitive interventions, such as addressing those associated with WASH, agriculture and gender equality, are key to improving the progress against stunting and effectively mitigating the challenges that have hindered the progress in the past.

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References

1. UNICEF. Child malnutrition. United Nations Children's Fund. [Online] [Cited 2024 August 29]. Available from: URL: https://data.unicef.org/topic/nutrition/malnutrition/
2. Soliman A, De Sanctis V, Alaaraj N, Ahmed S, Alyafei F, Hamed N, et al. Early and long-term consequences of nutritional stunting: From childhood to adulthood. Acta Biomed. 2021; 92:e2021168. doi: 10.23750/abm.v92i1.11346.
3. Leroy JL, Frongillo EA. Perspective: what does stunting really mean? A critical review of the evidence. Adv Nutr. 2019; 10:196-204. doi: 10.1093/advances/nmy101.
4. PIDE. National Nutrition Survey 2001-02. Pakistan Institute of Development Economics. [Online] [Cited 2024 August 15]. Available from: URL: https://file.pide.org.pk/pdf/19th_RP.pdf
5. Bhutta Z, Soofi S, Zaidi S, Habib A, Hussain I. Pakistan National Nutrition Survey, 2011. [Online] [Cited 2024 January 30]. Available from: URL: https://ecommons.aku.edu/pakistan_fhs_mc_women_childhealth_paediatr/262.
6. UNICEF Pakistan. National Nutrition Survey, Key Findings Report. [Online] [Cited 2024 January 28]. Available from: URL: https://www.unicef.org/pakistan/national-nutrition-survey-2018
7. Soofi SB, Khan A, Kureishy S, Hussain I, Habib MA, Umer M, et al. Determinants of stunting among children under five in Pakistan. Nutrients. 2023; 15:3480. doi: 10.3390/nu15153480.
8. World Bank. Stunting in Pakistan - A Challenge Undermining the Country's Human Development Potential: A Policy Note. World Bank. August 21, 2022. [Online] [Cited 2024 August 19]. Available from: URL: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099720208312259816/p1785540749b7103209bda0082a94af52f4
9. Siddiqui F, Salam RA, Lassi ZS, Das JK. The intertwined relationship between malnutrition and poverty. Front Public Health. 2020; 8:453. doi: 10.3389/fpubh.2020.00453.
10. Ernawati F, Syauqy A, Arifin AY, Soekatri MYE, Sandjaja S. Micronutrient deficiencies and stunting were associated with socioeconomic status in Indonesian children aged 6-59 months. Nutrients. 2021; 13:1802. doi: 10.3390/nu13061802.
11. Qamar K, Nchasi G, Mirha HT, Siddiqui JA, Jahangir K, Shaeen SK, et al. Water sanitation problem in Pakistan: A review on disease prevalence, strategies for treatment and prevention. Ann Med Surg. 2022; 82:104709. doi: 10.1016/j.amsu.2022.104709
12. Siddiqa M, Zubair A, Kamal A, Ijaz M, Abushal T. Prevalence and associated factors of stunting, wasting and underweight of children below five using quintile regression analysis (PDHS 2017–2018). Sci Rep. 2022; 12:20326. doi: 10.1038/s41598-022-24063-2.
13. Mahmood T, Abbas F, Kumar R, Somrongthong R. Why under five children are stunted in Pakistan? A multilevel analysis of Punjab Multiple Indicator Cluster Survey (MICS-2014). BMC Public Health. 2020; 20:952. doi: 10.1186/s12889-020-09110-9.
14. Ubaid-ur-Rahman H, Asghar W, Khalid N. Food security challenges for Pakistan during the COVID-19 pandemic. Asia Pac J Public

Health. 2021; 33:1-2. doi: 10.1177/10105395211031359.
15. Lwamba E, Shisler S, Ridlehoover W, Kupfer M, Tshabalala N, Nduku P, et al. Strengthening women's empowerment and gender equality in fragile contexts towards peaceful and inclusive societies: A systematic review and meta-analysis. Campbell Syst Rev. 2022; 18:e1214. doi: 10.1002/cl2.1214.
16. Govender I, Rangiah S, Kaswa R, Nzaumvila D. Malnutrition in children under the age of 5 years in a primary health care setting. S Afr Fam Pract (2004). 2021; 63:e1-e6.doi: 10.4102/safp.v63i1.5337.
17. UNICEF. Country Office Annual Report (COAR) 2023. United Nations Children's Fund. December 2023. [Online] [Cited 2024 August 20]. https://www.unicef.org/media/152706/file/Pakistan-2023-COAR.pdf
18. Arif MM, Ahsan M, Devisch O, Schoonjans Y. Integrated approach to explore multidimensional urban morphology of informal settlements: The case studies of Lahore, Pakistan. Sustainability. 2022; 14:7788. DOI:10.3390/su14137788
19. Nuhu S, Munuo N, Mngumi L. Governance challenges of regularisation of informal settlements in peri-urban Tanzania: perspectives from local stakeholders. Int J Urban Sustain Develop. 2023; 15:35-47. doi.org/10.1080/19463138.2023.2167821
20. Khan S, Zaheer S, Safdar NF. Determinants of stunting, underweight and wasting among children < 5 years of age: Evidence from 2012–2013 Pakistan Demographic and Health Survey. BMC Public Health. 2019; 19:358. doi: 10.1186/s12889-019-6688-2.

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