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# Maternal Health and Food Security in India: A Focused Study on Palghar District

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**ABSTRACT**

Despite national and international efforts to achieve food security, hunger, malnutrition, and poverty remain significant challenges, particularly for pregnant and lactating women. This study examined the impact of the National Food Security Act, 2013 (NFSA), on 236 pregnant and lactating mothers in the tribal-dominated Palghar district of Maharashtra. Data were collected through surveys, interviews, and field visits to evaluate food and financial assistance under the NFSA, TPDS, ICDS, and PMMVY. Statistical analysis using one-sample t-tests and binomial tests revealed that most women reported poor food quality ($p < 0.05$), only 8% received financial aid, 70% were anaemic, and just 45% regularly took iron-folic acid tablets. Barriers included local practices, limited health facilities, and low awareness. The study concluded that while NFSA aims to improve nutrition, its grassroots implementation is weak, highlighting the need for stricter monitoring, food quality checks, local accountability, and awareness programs.

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## 1.0 INTRODUCTION: -

Many nations around the world have taken numerous actions to ensure food security; however, they have not been able to adequately address the issues of poverty, hunger, and malnutrition. According to the United Nations International Children's Emergency Fund (UNICEF), breastfeeding rates have improved by 48% in the Arab world by 2023, while 733 million people still experience poverty, malnutrition and food insecurity. For many nations around the world, meeting nutrition targets has proven to be a significant obstacle.[1] According to the Global Hunger Index Report 2023, undernourishment adversely affects the health of the unborn child due to malnutrition, anaemia, mental illness, haemoglobin deficiency, and low milk supply in lactating mothers among pregnant and lactating women.[2] According to the UN Food and Agriculture Organisation's 2023 report, pregnant and lactating women need access to adequate and assured diets. In this diet, you need to get iron, folic acid, calcium, and protein in the right amounts.[3] Pregnant women find it challenging to get proper nutrition due to the low availability of food during pregnancy. Low food availability causes pregnant women to be deficient in essential nutrients such as protein, iron, and folic acid, and this puts pregnant women at risk of miscarriage, preterm delivery, malnutrition, stillbirth, and low birth weight.[4] The main reason for this is that newly married women get less quality and nutritious food compared to other members. Married women are responsible for their families. Traditionally, food is served to family members. The newly married woman is then given food. Due to the large number of family members, newly married women do not get enough food as required. The same applies to pregnant women. Pregnant women need to eat nutritious food. This is because pregnant women require adequate nutrition for both physical and mental development, as well as a nutritious and balanced diet to support the growth of the infant during pregnancy. Suppose pregnant women do not get nutritious and adequate food. In that case, problems like low weight of pregnant women, low birth weight, miscarriage, low level of haemoglobin, death of pregnant mothers, increased

[1] UNICEF. (2024). The state of food security and nutrition in the world 2024: Financing to end hunger, food insecurity and malnutrition in all its forms. https://www.unicef.org
[2] Global Hunger Index. (2023). Global Hunger Index 2023: The Challenge of Hunger and Food Security. Concern Worldwide and Welthungerhilfe. https://www.globalhungerindex.org
[3] Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP), World Health Organization (WHO)(2022): The State of Food Security and Nutrition in the World 2024: Financing to end hunger, food insecurity and malnutrition in all its forms, ISBN: 978-92-5-138882-2, Page No. 202, URL: https://openknowledge.fao.org/handle/20.500.14283/cd1254en
[4] Bryson JM, Patterson K, Berrang-Ford L, Lwasa S, Namanya DB, Twesigomwe S, et al. (2021). Seasonality, climate change, and food security during pregnancy among Indigenous and non-Indigenous women in rural Uganda: Implications for maternal-infant health. PLoS ONE 16(3): e0247198. https://doi.org/10.1371/journal.pone.0247198

risk of malnutrition, etc., arise.[5] Women of high-income groups generally consume milk, paneer, vegetables, fruits, eggs, and non-vegetarian food during pregnancy in India. However, in India, the nutritional status among women in rural areas is generally poor. Pregnant women are advised not to consume foods that are low in iron, calcium, and protein. Anaemia is caused when a pregnant woman does not eat the right foods. The primary reason for this is that the lack of iron in the blood of pregnant women hinders the formation of haemoglobin in the body, which reduces the blood's ability to carry oxygen. Women in rural areas suffer from stress, fatigue, and physical and mental problems.[6] Rural women suffer from inequalities in economic status, social stereotypes, lack of educational level, family roles, social rights, cultural factors, etc. The impact of the factors is huge.[7]

### 1.1 Pregnancy and lactation in India: -

In a developing country like India, problems such as poverty, malnutrition, and earthquakes have not yet been adequately addressed. According to the National Multidimensional Poverty Index 2023 released by the Government of India, 19.9% of the population is below the poverty line. Although poverty rates vary from state to state in India, states such as Bihar, Uttar Pradesh, Chhattisgarh and Madhya Pradesh have more than 30% of their population living in poverty. In states like Punjab, Maharashtra and Gujarat, the proportion of the poor population is between 10 and 15%. In India, 217 million people sleep on their stomachs.[8] It is 51% in urban areas and 77% in rural areas. According to the WHO report of 2022, the infant mortality rate in India is 39 per 1000.[9] This is much higher than the global average. There is a huge gap in food security for women in India. The main reason for this is that women face food insecurity due to the difference in food distribution between women and men. According to the NFHS-5 survey, while the health status of pregnant women in India has improved, 42.5 per cent of pregnant women in India are undernourished, and 22.8 per cent of pregnant women are iron-deficient. Iron deficiency in pregnant women causes symptoms such as low blood pressure, weakness, and anaemia. According to the NFHS-5 survey, 6.5 per cent of pregnant women report being underweight during pregnancy. A lack of nutrition is one of the primary reasons for low weight gain during

[5] Diamond-Smith, N., Shieh, J., Puri, M., & Weiser, S. (2020). Food insecurity and limited access to high-quality food among preconception women in Nepal: The importance of household relationships. Public Health Nutrition, 23(15), 2737–2745. doi: 10.1017/S1368980020000579.Link; http://surl.li/pnxqcu

[6] Mastiholi, S. C., Somannavar, M. S., Vernekar, S. S., Yogesh Kumar, S., Dhaded, S. M., Herekar, V. R., ... & Goudar, S. S. (2018). Food insecurity and nutritional status of preconception women in a rural population of North Karnataka, India. Reproductive Health, 15, 101–107. https://doi.org/10.1186/s12978-018-0535-2

[7] Ivers, L. C., & Cullen, K. A. (2011). Food Insecurity: Special Considerations for Women. The American journal of clinical nutrition, 94(6), 1740S-1744S. https://doi.org/10.3945/ajcn.111.012617

[8] NITI Aayog. (2023). National multidimensional poverty index 2023. NITI Aayog. https://niti.gov.in/sites/default/files/2023-11/NMPI_2023_Report.pdf

[9] World Health Organisation. (2023). Maternal health in India: A 2023 overview. World Health Organisation. https://www.who.int/india/maternal-health-2023-report

pregnancy. A lack of nutrition during pregnancy can lead to a decrease in the weight of the expectant mother. This leads to health problems like haemorrhage, high blood pressure, hypotensive shock, and pre-eclampsia in women during pregnancy. The significant causes of pre-eclampsia in pregnant women are malnutrition and iron and protein deficiency, which increase the risk of pre-eclampsia in pregnant women and thereby increase the chances of maternal death. According to the National Fetal Health Survey (NFHS-5), the maternal mortality rate (MMR) is defined as the number of maternal deaths per 1 lakh live births. According to the NFHS-5 survey, India's Maternal Mortality Ratio (MMR) has declined but remains below 128 per 100,000 pregnant women in rural areas and 108 per 100,000 pregnant women in urban areas.[10] The Government of India has set a Sustainable Development Goal of reducing the Maternal Mortality Rate to 70 per 100,000 live births by 2030. The National Health Policy 2017 had set a target of reducing the Maternal Mortality Ratio (MMR) to less than 100 per 100,000 live births by 2020. To reduce the maternal mortality rate, the Government of India has implemented the Maternal Health Scheme and other schemes under the Food Security Scheme.[11]

**Table:- 01**

**National Family Health Survey Maternal Mortality Rate in India (per 1,00,0000)**

| Year | NFHS Survey | Maternal Mortality Rate in India | Maternal Mortality Rate in Rural Areas | Maternal Mortality Rate in Urban Areas |
|---|---|---|---|---|
| **2011 to 2012** | NFHS-3 | 215 | 200 | 127 |
| **2015 to 2016** | NFHS-4 | 176 | 175 | 107 |
| **2019 to 2021** | NFHS-5 | 123 | 128 | 108 |

***Sources: -*** *National Family Health Survey (NFHS-3, NFHS-4, NFHS-5).*

**Table: - 02**

**MMR Ratio in India**

| Year | **MMR** Ratio |
|---|---|
| **2014–16** | 130 |
| **2015–17** | 122 |
| **2016–18** | 113 |
| **2017–19** | 103 |
| **2018–20** | 97 |
| **2019–21** | 93 |

***Source: -*** Special Bulletin on Maternal Mortality in India, 2019 -21, May 2025

[10] Ministry of Health and Family Welfare, Government of India. (2020). National Family Health Survey (NFHS-5), 2019-21: India Fact Sheet. https://mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf

[11] Ministry of Health and Family Welfare, Saving Mothers, Strengthening Futures, India's Success in Reducing Maternal Mortality, 21 MAR 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2113800#:~:text=On%20May%2015%2C%202015%2C%20World, are%20delivered%20in%20urban%20areas.

**Table: - 03**
**Maternal Mortality Rate and Lifetime Risk**

| India & Major States | MMR | 95% CI | Maternal Mortality Rate | Lifetime Risk |
|---|---|---|---|---|
| INDIA | 93 | (84 - 103) | 6 | 0.20% |
| Assam | 167 | (96, 238) | 10 | 0.35% |
| Bihar | 100 | (64, 137) | 9 | 0.33% |
| Jharkhand | 51 | (8, 95) | 4 | 0.13% |
| Madhya Pradesh | 173 | (128, 222) | 10 | 0.53% |
| Chhattisgarh | 132 | (51, 212) | 5 | 0.36% |
| Odisha | 135 | (83, 186) | 6 | 0.29% |
| Rajasthan | 102 | (62, 141) | 8 | 0.30% |
| Uttar Pradesh | 150 | (113, 190) | 13 | 0.45% |
| Uttarakhand | 100 | (50, 150) | 5 | 0.20% |
| SUBTOTAL | 131 | (114, 147) | 10 | 0.35% |

***Source: -*** : https://censusindia.gov.in

Although India's maternal mortality rate has declined, it is still higher in Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand, and Assam than in any other state.[12] The Government of India has formulated multifaceted schemes for the health of pregnant women, such as Pradhan Mantri Matru Vandana Yojana, Janani Suraksha Yojana, Pradhan Mantri Surakshit Matritva Abhiyan, Mission Poshan 2.0, Antyodaya Anna Yojana, Matru Suraksha Card, and Ayushman Bharat - Jan Arogya Yojana, to improve the condition of pregnant women. Under this scheme, the Government of India has implemented various initiatives to enhance the nutrition and health of women, as well as the care of pregnant women. Under the Pradhan Mantri Matru Vandana Yojana, the Government of India provides financial assistance of Rs 5,000 to women during their first pregnancy, along with an incentive for childbirth under the Janani Suraksha Yojana. Under the Pradhan Mantri Surakshit Matri Abhiyan, health check-ups of pregnant women are done on the 9th of every month. Mission Poshan 2.0 aims to create awareness about supplementary nutrition and education. The Government of India is attempting to implement these schemes more effectively. However, it is crucial to effectively implement food security and health services at the state and regional levels in rural areas across different states.[13]

[12] National Family Health Survey (NFHS-5), 2019-21: https://mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf

[13] https://pmmvy.wcd.gov.in/Content/assets/PDF/MissionShaktiGuidelines.pdf, https://nhm.gov.in/index.php?lang=2, https://pmsma.mohfw.gov.in/?lang=hi, https://wdcw.ap.gov.in/Schemes/Saksham

### 1.2 Pregnant and lactating women in Maharashtra: -

According to a UNICEF report, high blood pressure, malnutrition, diabetes, and infections during pregnancy among pregnant women in the state of Maharashtra are seriously affecting the health of pregnant women. Pregnant women in the state of Maharashtra are increasingly becoming malnourished due to a lack of proper and nutritious food during pregnancy. Undernourishment in the womb leads to physical and mental decline in pregnant women, leading to problems like high blood pressure, miscarriage, early childbirth, and infant mortality.[14] According to the NFHS-5 survey, the nutritional status of pregnant women in Maharashtra is highly alarming. In Maharashtra, 54% of pregnant women suffer from anaemia. 24% of pregnant women are underweight, which increases the chances of maternal death and low birth weight. Although the maternal mortality rate in Maharashtra is 38%, it is higher in rural and tribal areas. The main reasons for this are bleeding in pregnant women in Maharashtra, high blood pressure, anaemia, underweight, iron and folic acid deficiency, inadequate nutrition, etc. There are problems.[15] A large tribal population lives in Nashik district and other parts of the state of Maharashtra. Due to cultural barriers and lack of awareness among the tribal community, many pregnant women do not register at the health center on time. As a result, pregnant women are more likely to give birth at home. This increases the risk of death during pregnancy. In the year 2021, the maternal mortality rate in the state of Maharashtra was 138 per 100,000 pregnant women. This number will be reduced to 111 in 2024. Several initiatives are being implemented under the Mother Safe Home initiative under the Maharashtra State Government as well as the WHO till 31st December 2024.[16]

**Table: - 04**

**Number of women suffering from anaemia in Maharashtra**

| The severity of anaemia | | |
|---|---|---|
| **Mild anemia** | **Moderate anemia** | **Acute anemia** |
| **24%** | **27%** | **3%** |

***Source:*** *International Institute for Population Sciences (IIPS) and ICF. 2021. National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra. Mumbai: IIPS. Page No. 33.*

The accompanying table shows the status of women suffering from anaemia in the state of Maharashtra. According to the National Family Health Survey-5, 8% of women in Maharashtra

[14]UNICEF. (2020). Maternal and child health in India: Progress and challenges in Maharashtra. UNICEF India.
[15] Government of Maharashtra, Health and Family Welfare Department. (2022). Maharashtra Health Report 2022. https://mohfw.gov.in/sites/default/files/FinalforNetEnglishMoHFW040222_1.pdf
[16] https://www.who.int/india/news-room/feature-stories/detail/prioritizing-women--newborn-and-child-health-in-maharashtra

aged 15-19 are currently pregnant. According to NFHS-4, 4% of pregnant women between the ages of 15 and 19 are 17 years old. According to the National Family Health Survey-5, Maharashtra has an infant mortality rate of 23 per 1,000 live births. The mortality rate among children under the age of five is 28 per 1,000 live births. The death rate among children under the age of five is nearly identical to that in NFHS-4. This suggests that there has not been a significant improvement in the infant mortality rate between less than one year and less than five years; in short, the Maharashtra state government has failed to enhance the health of pregnant women and reduce the infant mortality rate.[17]

**1.3 Pregnant and lactating women in Palghar district:-**

Palghar district, initially a small village in Mahim taluka of Thane, was established as the 36th district of Maharashtra on August 1, 2014. It is predominantly tribal, with communities facing high illiteracy, poverty, and traditional practices that limit social and economic development. Tribal women rely on agriculture, labour, daily wages, and domestic work, which often results in limited access to education, employment, and healthcare. Pregnancy is a critical stage for maternal and child health. However, in Palghar, 70% of tribal women suffer from malnutrition and anaemia due to poor nutrition, iron and folic acid deficiencies, and cultural practices that restrict supplement intake. Health infrastructure is weak, with 84% of villages lacking access to nearby health services and only 12% of households having access to toilets. Primary health centres are under-equipped, understaffed, and underfunded, while government development funds are often underutilised. These challenges contribute to high maternal and infant mortality in the district.

**Table:-05**

**Health condition of pregnant women in Palghar district**

| Indicators | Statistics (%) |
|---|---|
| Prevalence of Anaemia | 70% |
| Minimum Dietary Intake | 43.5% of women |
| ANC (Antenatal Care) Registration of Pregnant Women | 75% registered late |
| Regular Intake of Folic Acid Tablets | 45% of pregnant women take them regularly |
| Nutritional Diet | 40% of pregnant women receive it |

***Source: -*** *Field Surveys*

In the tribal, rural, and remote areas of Palghar district, from November to May, local citizens have to migrate their entire families or the head of the family for work. This includes the elderly,

[17] International Institute for Population Sciences (IIPS) and ICF. 2021. National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra. Mumbai: IIPS. Page No. 33.

pregnant women, the sick, and children. There is no one to take care of them. Difficult conditions often work to the disadvantage of the head of the household, who is frequently exploited to a great extent in the workplace. Due to exploitation, these persons fall ill, and after falling ill, they return to their hometown. Due to returning to the village, pregnant women, children, and mothers and fathers of our house cannot be adequately nourished. Due to unemployment, children and women in the household are unable to access education, healthcare, or proper nutrition. The Government of Maharashtra is committed to enhancing the quality of healthcare for pregnant women. For this, it is necessary to implement appropriate policies that take into account local-level issues.[18]

## 2. LITERATURE REVIEW: -

- **Bryson et al. (2021)** investigated the impact of seasonality and climate change on food security among Indigenous and non-Indigenous women in rural Uganda. The study revealed that limited access to diverse and nutritious food during pregnancy heightened risks for both maternal and infant health outcomes. Seasonal food shortages have been found to exacerbate existing inequalities, particularly in resource-poor settings.[19]
- **Chokhandre et al. (2024)** examined anaemia among Scheduled Tribe pregnant women from the Scheduled Tribe in India, identifying a high prevalence influenced by poverty, limited access to healthcare, and poor diet quality. The study emphasised that anaemia remains a leading cause of maternal morbidity and adverse pregnancy outcomes. Nutritional and social determinants were key factors in the problem.[20]
- **Debata (2024)** examined nutritional challenges faced by women in rural Odisha, with a particular focus on pregnant and lactating mothers. The research found that poverty, illiteracy, migration, and sanitation problems were the main contributors to malnutrition. These factors also increased the risks of anaemia and other pregnancy complications. Community-level empowerment of health workers and inclusion of nutrition services in Gram Sabhas were recommended[21].

[18] https://www.mldcommunitycare.org/projects/anemia/

[19] Bryson, J. M., Patterson, K., Berrang-Ford, L., Lwasa, S., Namanya, D. B., Twesigomwe, S., et al. (2021). Seasonality, climate change, and food security during pregnancy among Indigenous and non-Indigenous women in rural Uganda: Implications for maternal-infant health. PLoS ONE, 16(3), e0247198.

[20] Chokhandre, P. K., Vatavati, S. R., Golandaj, J. A., & Hallad, J. S. (2024). Burden of anaemia and its potential predictors among Scheduled Tribe pregnant women in India. Social Science Spectrum, 9(1), 23–34.

[21] Debata, S. (2024). Factors Influencing Nutritional Status among Pregnant Women and Lactating Mothers in Rural Community Settings in Odisha State, India. International Journal of Science and Research (IJSR). Diamond-Smith, N., Shieh, J., Puri, M., & Weiser, S. (2020). Food insecurity and low access to high-quality food for preconception women in Nepal: The importance of household relationships. Public Health Nutrition, 23(15), 2737–2745.

- **Diamond-Smith et al. (2020)** studied food insecurity among preconception women in Nepal, revealing that limited access to high-quality food was linked to gendered household relationships. Women often had little control over food distribution, which affected their diet diversity. Food insecurity was particularly severe in marginalised households. Findings suggest that addressing gender roles and decision-making power is vital.[22]
- **FAO, IFAD, UNICEF, WFP, and WHO (2022)** reported global trends in food insecurity and malnutrition, stressing the need for innovative financing solutions. Despite progress in some regions, hunger remains a significant challenge, especially in vulnerable populations. The report highlighted maternal and child nutrition as key areas requiring urgent action. Structural inequalities continue to limit access to safe and nutritious food.[23]
- **The Global Hunger Index (2023)** highlighted the global challenge of hunger, ranking countries based on indicators of undernourishment and child health. India's position highlighted continuing concerns about food insecurity and malnutrition. The report emphasised that poverty, inequality, and inadequate health systems contribute to high hunger levels. It also underscored maternal and child health vulnerabilities in low-income areas. Addressing hunger requires both immediate relief and long-term structural reform.[24]
- **The Government of Maharashtra (2022)** presented health outcomes and nutrition indicators in the state. The report highlighted persistent maternal and child malnutrition despite ongoing welfare programs. Challenges included anaemia, low dietary diversity, and uneven access to health services. While institutional delivery rates improved, nutrition outcomes lagged. Strengthening the implementation of existing schemes and improving monitoring were recommended.[25]
- **Hankare (2022)** examined the vegetable consumption patterns of tribal farmers in Palghar district. The study found low vegetable intake, which contributed to poor dietary diversity. This dietary gap worsened nutritional deficiencies in already vulnerable populations. The research suggested that promoting local vegetable cultivation and

[22] Diamond-Smith, N., Shieh, J., Puri, M., & Weiser, S. (2020). Food insecurity and low access to high-quality food for preconception women in Nepal: The importance of household relationships. Public Health Nutrition, 23(15), 2737–2745.
[23] Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP), and World Health Organization. .(WHO). (2022). The state of food security and nutrition in the world 2024: Financing to end hunger, food insecurity and malnutrition in all its forms (p. 202).
[24] Global Hunger Index. (2023). Global Hunger Index 2023: The challenge of hunger and food security. Concern Worldwide and Wel thungerhilfe.
[25] Government of Maharashtra, Health and Family Welfare Department. (2022). Maharashtra Health Report 2022.

awareness programs could improve nutrition. Linking agricultural practices with food security was emphasised as a sustainable solution.[26]

- **Hothur & Patruni (2020)** assessed the nutritional status of pregnant and lactating women in Telangana slums. Findings showed high rates of malnutrition and anaemia due to poor dietary intake and socioeconomic conditions. Pregnancy and breastfeeding further increased nutritional vulnerabilities. The study emphasised the cultural and social influences on women's dietary practices. Public health interventions must be context-specific and inclusive of local cultural norms and values.[27]
- **IIPS & ICF (2021)** provided comprehensive data on maternal and child health in NFHS-5 for Maharashtra. The survey revealed widespread anaemia among women and inadequate dietary diversity. Despite improved antenatal care and institutional deliveries, nutritional outcomes remained poor. The report stressed the importance of maternal dietary diversity in improving health outcomes. Data provided an evidence base for regional policy interventions.[28]
- **Ivers & Cullen (2011)** reviewed food insecurity and its gendered impacts. The study emphasised that women face unique biological and social risks that worsen nutritional deficits. Limited access to food disproportionately harms maternal and child health outcomes. The paper highlighted the interplay between poverty, discrimination, and health. Addressing women's food insecurity requires multi-sectoral solutions.[29]
- **Kadu (2022)** investigated malnutrition in the tribal talukas of Palghar district. Findings showed that poverty, limited education, and weak food distribution systems perpetuated maternal and child malnutrition. Tribal populations were particularly vulnerable due to structural inequalities. The study recommended targeted nutrition programs in tribal areas. Long-term solutions must address both economic empowerment and service delivery.[30]
- **Ministry of Health and Family Welfare (2020)** reported national NFHS-5 data, offering insights into maternal and child nutrition. The findings highlighted persistent anaemia, undernutrition, and gaps in healthcare coverage. Despite progress in some indicators, women's nutritional health remained poor. The data underscored the scale of India's

[26] Hankare, M. P. S. (2022). Vegetable consumption pattern of tribal farmers in Palghar District (Doctoral dissertation, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth).
[27] Hothur, R., & Patruni, M. (2020). Nutritional assessment of pregnant and lactating women in an urban slum of Siddipet District, Telangana, India. International Journal of Community Medicine and Public Health, 7, 1043.
[28] 10. International Institute for Population Sciences (IIPS) & ICF. (2021). National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra. Mumbai: IIPS.
[29] Ivers, L. C., & Cullen, K. A. (2011). Food Insecurity: Special Considerations for Women. Women. The American Journal of Clinical Nutrition, 94(6), 1740S–1744S.
[30] Kadu, D. J. (2022). Study the problem of malnutrition in tribal talukas of Palghar district [Ph.D. thesis, University of Mumbai].

maternal health challenges. Strengthening maternal nutrition programs was seen as urgent.[31]

- **NITI Aayog (2023)** released the National Multidimensional Poverty Index, showing high levels of deprivation in nutrition, health, and education. The findings underscored how poverty directly affects maternal and child health outcomes. Vulnerable regions had disproportionately high levels of maternal undernutrition. The report stressed the need for integrated poverty and nutrition policies.[32]
- **Rajpal et al. (2021)** studied lactating mothers in Palghar district, revealing low dietary diversity dominated by cereals and pulses. Consumption of animal foods, dairy, and fruits was minimal. This limited diet increased the risk of micronutrient deficiencies. The study recommended improved nutrition education and increased access to balanced diets. Improving maternal dietary diversity was emphasised as essential for infant health.[33]
- **Ravula et al. (2024)** examined nutrition knowledge and practices among pregnant women in India. The study revealed that nearly half of the participants lacked adequate micronutrient intake, including iron, iodine, and vitamin A. A lack of nutrition literacy exacerbated the problem. Findings suggested the importance of education and awareness programs. Addressing both knowledge and accessibility is critical for sustainable solutions.[34]
- **Srivastava (2020)** investigated the effect of nutrition education and counselling on maternal health. Results showed that awareness programs significantly improved women's diets and health status. Better nutritional knowledge translates into healthier practices during pregnancy. The study emphasised the role of education in combating malnutrition. Counselling was recommended as a vital component of maternal health programs.[35]
- **Suri et al. (2025)** assessed the PMMVY scheme and its effects on maternal nutrition and health. While antenatal visits and IFA tablet usage increased, no improvements were observed in haemoglobin or weight gain. Implementation challenges, such as delays and documentation issues, reduced effectiveness. The women's lack of decision-making power

[31] Ministry of Health and Family Welfare, Government of India. (2020). National Family Health Survey (NFHS-5), 2019–21: India fact sheet.
[32] NITI Aayog. (2023). National multidimensional poverty index 2023.
[33] Rajpal, S., Kumar, A., Alambusha, R., Sharma, S., & Joe, W. (2021). Maternal dietary diversity during lactation and associated factors in Palghar district, Maharashtra, India. PLoS ONE, 16(12), e0261700.
[34] Ravula, P., Kasala, K., & Das, A. (2024). Knowledge, attitudes, and practices of vulnerable populations for achieving sustainable dietary practices in India. SAGE Open, 14.
[35]Srivastava, P. (2020). Nutritional awareness and health status of pregnant women as influenced by nutritional education and counselling [Ph.D. thesis, Sam Higginbottom Institute of Agriculture, Technology and Sciences.

also limited their impact. The study recommended structural reforms for better outcomes.[36]

- **UNICEF (2020)** reported on maternal and child health in Maharashtra, noting progress in healthcare access but persistent nutritional challenges. Anaemia and low dietary diversity remained significant problems. The report highlighted the importance of community-level interventions. It stressed that service delivery must be strengthened to reach marginalised populations. Maternal nutrition remains a critical concern.[37]
- **WHO (2023)** reviewed maternal health in India, pointing to high maternal mortality risks linked to anaemia, malnutrition, and limited healthcare. The report acknowledged progress in healthcare delivery but emphasised persistent gaps. Addressing nutrition was highlighted as central to reducing risks. The findings emphasised the importance of comprehensive maternal health strategies. Integration of nutrition and healthcare is key.[38]

## 3. RESEARCH GAP:-

The above research indicates that pregnant and lactating women in India lack knowledge about nutritious food and nutrition; however, there is a lack of in-depth studies on the actual impact of informing pregnant women about proper diet and nutrition during pregnancy. Despite the benefits of schemes under the Food Security Scheme of the Government of India, problems like anaemia, haemoglobin level, and newborn weight are increasing day by day in pregnant women. This has limited the study of barriers to food security planning, cultural practices in local areas, family influences, food chain availability, and long-term effects, underscoring the need for further research in this area.

## 4. OBJECTIVES OF THE STUDY -

1. To explore the food and nutrition situation of pregnant and lactating women in Palghar district.
2. To suggest some ways to improve maternal health by promoting balanced diets and better food security.

## 5. HYPOTHESIS:

1. There is no significant problem in the food and nutrition situation of pregnant and lactating women in Palghar district.

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[37] UNICEF. (2020). Maternal and child health in India: Progress and challenges in Maharashtra. UNICEF India.
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2. Promoting balanced diets and better food security has no significant effect on improving maternal health in Palghar district.

## 6. RESEARCH METHODOLOGY: -

This study investigates the effect of food security policies on the health of pregnant and lactating women in Palghar District, Maharashtra, employing a mixed-methods approach. A survey of 236 women across eight taluks assessed quantitative indicators, including BMI, haemoglobin levels, pregnancy outcomes, and infant nutrition, among beneficiaries of TPDS, ICDS, and PMMVY. Qualitative data were collected through interviews and discussions with mothers, Anganwadi workers, and PDS shopkeepers to capture ground realities, constraints, and experiences with these schemes. The findings will inform policy recommendations tailored to the district's tribal social and cultural context, highlighting both the strengths and limitations of existing food security interventions.

## 7. DATA ANALYSIS SUMMARY:

| Aspect Studied | Findings | Statistical Test & Result | Conclusion |
|---|---|---|---|
| **Quality of food provided under the Food Security Policy 2013** | Food given (Energy-Dense Mung Dal Khichdi Premix, Multi-Mix cereals & proteins) was judged as poor quality by respondents | One-sample t-test: p = .000/.004 (< 0.05), T-value = 86.359, mean diff. = 2.832 | Null hypothesis rejected → Food provided is of poor quality |
| **Financial assistance under the Food Security Act 2013** | Only 8% of women received financial help (much lower than the expected 50%) | Binomial test: p = .000 (< 0.05) | Null hypothesis rejected → Financial aid not reaching most beneficiaries |
| **Type of respondents** | 64% pregnant women, 36% lactating mothers | Significant difference in proportion | The majority are pregnant women |
| **Overall implication** | Both food quality and financial assistance under the Food Security Policy 2013 are inadequate in Palghar district. | — | There is a need for improved implementation, system accountability, and awareness among beneficiaries. |

## 8. Findings: -

1. **Status of food quality:** According to the findings of the one-sample t-test, pregnant women and lactating mothers in Palghar district are clearly of the opinion that the food provided to them under the Food Security Act, 2013, is of poor quality. The p-value (.000 or more than .004) is significantly less than 0.05, so the null hypothesis is rejected. This

supports the alternative hypothesis that women's diets are of a lower quality than expected.

2. **Lack of financial support:** Binomial (nonparametric) testing revealed that the proportion of pregnant and lactating mothers receiving financial assistance under the Food Security Act is only 8%, with a significant difference (p-value = 0.000). The majority of women do not get benefits under the Food Security Act.
3. **Imbalance in the proportion of beneficiaries:** According to the survey, the proportion of pregnant women is 64%, and that of lactating women is 36%. This divide is also statistically significant and needs to be taken into account when implementing policy plans.
4. **Lack of implementation:** The findings from both hypothesis tests indicate that the nutrition and financial assistance provided under the Food Security Act 2013 are not being effectively reached by the beneficiaries. Therefore, it is necessary to increase awareness among beneficiaries by making the systems' responsibilities more straightforward.

## 9. RECOMMENDATIONS: -

1. Food quality should be improved to reduce excess salt and turmeric in premix foods, making them more edible and nutritious.
2. Hot meals should be enhanced to meet better nutritional needs and provide a good balance of calories.
3. Food should be diversified, containing dishes such as khichdi, pulao, Usal, and daal, to ensure good nutrition.
4. To ensure a direct monetary benefit, bank accounts should be opened for all women by relaunching the Jan Dhan Yojana Campaign in Palghar District.
5. Digital literacy should be promoted to the benefit of the beneficiaries by linking their Aadhaar to banks and providing volunteer support to help them handle transactions.

## 10. LIMITATION OF THE STUDY:

1. This study is limited to only the Palghar District tribal Women.
2. The study focuses on the Maternal health of the tribal women.

## 11. CONCLUSION:

A study conducted among pregnant and lactating women in the Palghar district has revealed that the nutritional support provided under the Food Security Act, 2013, is failing to meet the

expectations of the beneficiaries. Additionally, only 8% of women appear to be receiving financial support, which falls far short of the policy's objectives. This shows that the law is not being implemented effectively. Therefore, to ensure that the benefits of these schemes reach an increasing number of women, it is imperative to increase awareness about the schemes by addressing the implementation loopholes.

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