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DIETARY MYTHS AND MISCONCEPTIONS: IMPACT ON URBAN vs RURAL POPULATIONS AND THE NEED FOR NUTRITION EDUCATION

Nutritional Science

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ABSTRACT

This study examined dietary myths and misconceptions and their impact on nutrition and health behaviors among urban and rural populations. A total of 100 participants aged 14–52 years, with a majority from rural areas, were surveyed. Despite a high level of education among respondents, misconceptions persisted, including the avoidance of iron-rich foods during menstruation, skipping meals or fats for weight loss, and fearing fruits for causing acne or weight gain. Misbeliefs such as rice consumption leading to diabetes were also common. Social influences from family, peers, and social media significantly shaped dietary behaviors, with limited reliance on healthcare professionals. A significant relationship was observed between food avoidance during illness and perceptions of delayed recovery. Notably, both urban and rural participants expressed strong interest in nutrition education and supported integrating it into schools and communities. The findings highlight the urgent need for tailored, culturally sensitive nutrition education and social media interventions to correct misconceptions and improve dietary practices across both urban and rural settings.

KEYWORDS

Dietary Myths, Nutrition Misconceptions, Nutrition Education, Urban And Rural Populations, Health Beliefs, Social Media Influence, Traditional Food Believes, Dietary Practices, Public Health

INTRODUCTION:

The relationship between food and human life extends far beyond meeting physiological needs. Dietary practices are closely tied to cultural norms, social influences, and inherited beliefs that shape how individuals perceive and consume food. Over generations, many of these beliefs have been accepted as facts, even when they are not supported by scientific evidence. As a result, food choices are often guided not only by knowledge but also by assumptions that may not always promote health.

In recent years, the field of nutritional science has advanced significantly, providing clearer insights into the role of balanced diets in maintaining health and preventing disease. However, alongside this progress, a wide range of dietary myths continues to influence eating behaviour. These misconceptions may lead individuals to unnecessarily restrict certain foods, adopt unbalanced dietary patterns, or follow popular trends that lack scientific validity. Such practices can negatively affect nutritional status and may contribute to the development of various health concerns.

The extent and nature of these misconceptions often differ between urban and rural populations. Urban communities typically have greater access to education, healthcare systems, and diverse sources of information. Nevertheless, this increased exposure also brings a higher likelihood of encountering misleading or inaccurate dietary information, particularly through digital platforms and media-driven trends. On the other hand, rural populations are more likely to rely on traditional knowledge systems and community-based practices. Limited access to structured nutrition education in these areas can result in the continued acceptance of long-standing beliefs, regardless of their accuracy.

This contrast highlights an important issue: misinformation is present in both urban and rural contexts, but its origins and patterns vary. In urban settings, misconceptions are often shaped by rapidly changing information environments, while in rural settings, they are more deeply rooted in cultural continuity. Despite these differences, both forms of misinformation can influence dietary habits in ways that may compromise health outcomes.Addressing this challenge requires a strong emphasis on effective nutrition education. Providing clear, evidence-based information in a manner that is both accessible and culturally relevant is essential for correcting misunderstandings and encouraging healthier choices. Tailored educational approaches that consider the unique characteristics of urban and rural populations can play a key role in reducing the impact of dietary myths. Therefore, examining these misconceptions and their effects on different population groups is a necessary step toward improving nutritional awareness and promoting overall well-being.

MATERIALS AND METHODS

Study area

The study was conducted in selected urban and rural regions within [Hyderabad, Mumbai, Latur, Sanga Reddy, Bidar, Viqarabad, Secunderabad, Pune, Nagpur], representing a mix of socio-economic backgrounds and cultural practices related to food.

Study population

The target population included adults aged 18 years and above from both urban and rural communities, comprising both educated and uneducated individuals, across varying age groups and occupational backgrounds.

Sample Size

A total 100 participants were included in the study:

- Urban respondents: [e.g., 50]
- Rural respondents: [e.g., 50]

Sampling Technique

A stratified random sampling method was used to ensure representation across different genders, age groups, and educational backgrounds in both urban and rural areas. Within each stratum, simple random sampling was applied.

Data collection Tool

A structured and validated questionnaire was developed to collect data. The questionnaire was divided into the following sections:

- Demographic Information
- Beliefs and Misconceptions Related to Food and Health
- Sources of Nutrition Information
- Impact of Myths on Dietary Behaviour
- Willingness to Learn Through Nutrition Education Programs

The questionnaire included both closed-ended and multiple-choice questions.

Pre testing Validation

A pilot study was conducted with 30 participants (15 urban and 15 rural) to test the clarity, relevance, and reliability of the questionnaire. Necessary modifications were made before final data collection. Content validity was established through expert reviews from professionals in the fields of public health, dietetics, and sociology.

Data Collection Procedure

Data collection was done through:

- Face-to-face interviews in rural areas.
- Self-administered questionnaires in urban literate participants.

Consent was obtained from each participant prior to data collection. The study adhered to ethical research standards and confidentiality was maintained.

Data Analysis

Collected data were entered and analyzed using Microsoft Excel and SPSS. The following basic statistical tests were applied:

Descriptive Statistics:
Used to summarize demographic variables and frequency of dietary myths.
- Frequencies
- Percentages
- Mean and Standard Deviation (for continuous variables like age)
- Chi-Square Test of Independence (χ^2):

Used to examine the association between categorical variables like location (urban/rural) and belief in specific dietary myths.

- T-test (if applicable):

Applied to compare mean awareness scores between urban and rural groups.

Level of significance was set at $p < 0.05$.

Ethical Consideration
- Ethical approval was obtained from the Institutional Ethics Committee.
- Written informed consent was collected from all participants.
- Participants had the right to withdraw at any time.
- Data confidentiality and anonymity were strictly maintained.

RESULTS

The study surveyed 102–103 participants, with an age range of 14 to 52 years (mean = 28.37 years). The age distribution was skewed toward younger adults, with 57% aged 20–29, and the most frequently reported age being 23 years. Gender representation was nearly balanced (51.5% female, 48.5% male), ensuring equitable insights across genders. The majority of respondents (57.3%) resided in rural areas, while 42.7% were from urban regions.

In terms of occupational status, students formed the largest group (38.24%), followed by self-employed individuals, homemakers, teachers/principals, engineers/software professionals, government employees, and healthcare workers. Less than 3% of participants were from various other professions, indicating a diverse but student-dominated sample. Educational attainment was notably high, with 57.84% graduates and 24.51% postgraduates; only 1.96% had education limited to primary school.

Regarding health, 68% reported at least one comorbidity. Obesity (8.7%), thyroid disorders (6.8%), and anemia (6.8%) were common, alongside overlaps like obesity with gastrointestinal issues (3.9%) and PCOS/PCOD with anemia (3.9%).

Dietary patterns showed that 68% took meals regularly, yet a significant minority (32%) did not. Meal skipping was prevalent, particularly lunch and breakfast, influenced by lifestyle factors or misconceptions about weight loss. About 84% believed or were unsure about myths such as avoiding papaya during pregnancy, and over 70% subscribed to the belief that curd or banana should be avoided during respiratory illness. The milk and fish combination myth was believed by 62.1%.

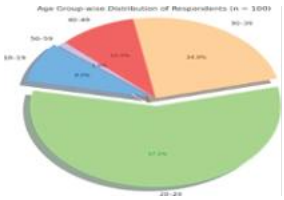
Notably, 43% believed that daily rice consumption causes diabetes, highlighting a prevalent misconception about staple foods. Additionally, nearly three-quarters of respondents believed or were uncertain about avoiding iron-rich foods during menstruation—a harmful practice that could exacerbate anemia.

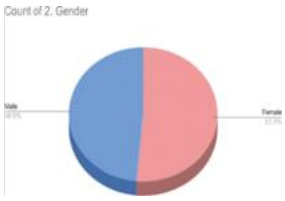
In dietary behavior during illness, 78.6% avoided eggs, meat, or pulses either always or sometimes. Elderly family members and peers were the main sources of dietary information, with little reliance on healthcare professionals.

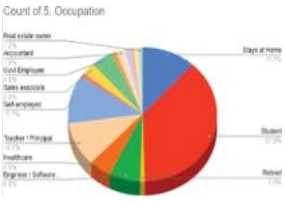
Nearly half (48.8%) had tried diet trends from social media, indicating the digital influence on nutrition choices. However, there was no statistically significant link between altering food choices based on family/friends' advice and actual dietary behavior ($p = 0.843$). Similarly, the avoidance of nutritious food due to traditional beliefs was not statistically significant.

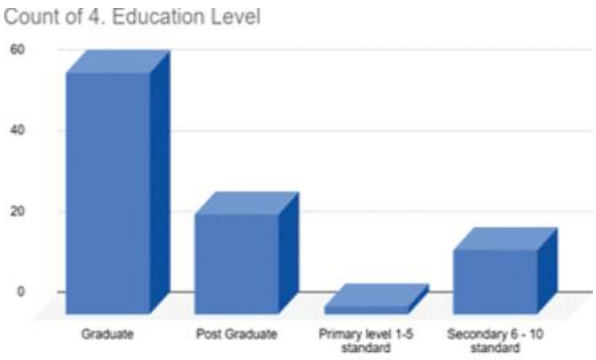
Importantly, respondents agreed that food avoidance during illness could delay recovery (statistically significant, $p < 0.05$). Other findings include:

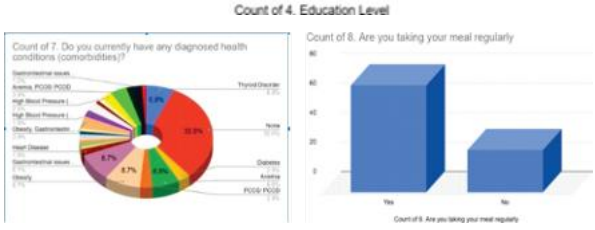
- 53.4% believed skipping meals or fats leads to faster weight loss.
- 63.1% avoided fruits or vegetables fearing acne or weight gain.
- 43.7% considered detox teas/fruit juices as meal substitutes.
- 54.4% were aware that spinach and curd are good iron and calcium sources.
- 75.7% were unaware that discarding colostrum is harmful.
- 73.8% expressed interest in community health sessions.
- Around 70% strongly supported more nutrition education in schools and communities.









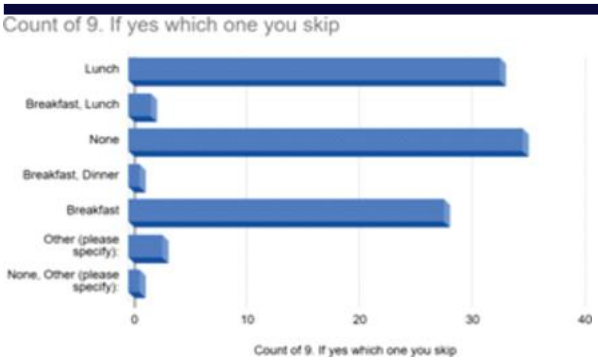


Health Condition	Percentage (%)
None	32.0%
Thyroid Disorder	6.8%
Anemia	6.8%
Obesity	8.7%
PCOS / PCOD	2.9%
Diabetes	2.9%
High Blood Pressure (Hypertension)	2.9%
Anemia, PCOS / PCOD	3.9%
Obesity, Gastrointestinal issues	3.9%
High Blood Pressure, Heart Disease	2.9%

The chart shows that a majority of respondents (approximately 68%) reported taking their meals regularly, while the remaining 32% admitted that they do not take meals regularly.

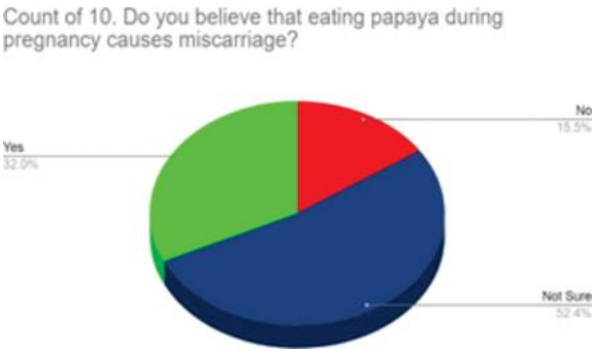
This finding suggests that while most participants maintain a consistent eating schedule, a significant portion still exhibits irregular eating patterns, which may be influenced by lifestyle, occupation, or misinformation regarding meal skipping. Irregular meals can contribute to nutritional deficiencies, metabolic disturbances, or reinforce dietary myths such as skipping meals for weight loss.

This data point underlines the importance of educating both urban and rural populations about the health implications of regular and balanced meal patterns.



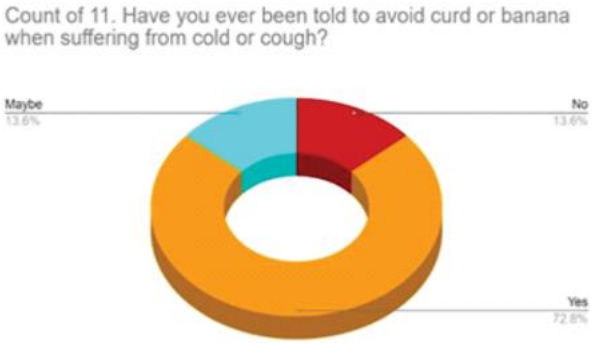
This data highlights that breakfast and lunch are the most frequently skipped meals, reflecting possible lifestyle pressures, myths about weight loss, or lack of awareness about balanced nutrition. It also shows that a significant portion of the population does not skip meals, which may reflect positive dietary behavior.

These insights stress the need for nutrition education programs, especially addressing the importance of not skipping meals and the metabolic consequences of irregular eating.



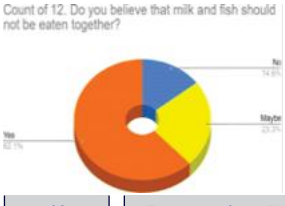
The results suggest widespread misinformation or confusion about papaya consumption during pregnancy, with over 84% of respondents either believing the myth or being unsure. this highlights a critical gap in reproductive nutrition education and the strong influence of traditional beliefs or unverified sources of information.

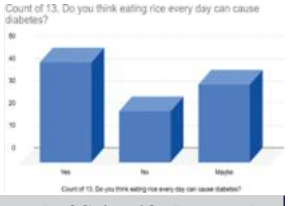
This data supports the need for targeted educational programs to dispel dietary myths related to pregnancy and improve maternal health awareness.

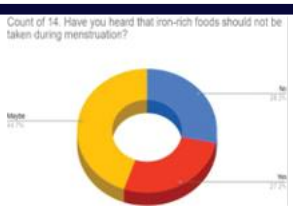


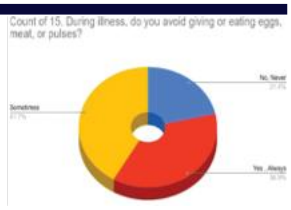
The data reveals that this widely held dietary myth about avoiding curd or banana during respiratory illness is highly prevalent, affecting more than 7 out of 10 people. Despite limited scientific evidence, the belief continues to influence dietary behavior during illness.

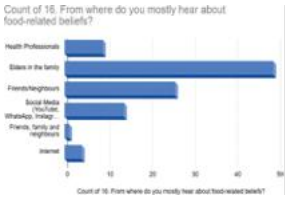
This underscores the importance of educational outreach to clarify food myths, particularly around commonly consumed fruits and fermented foods during illness.

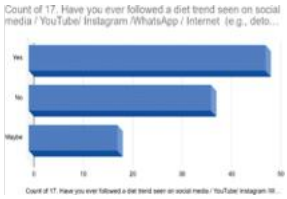


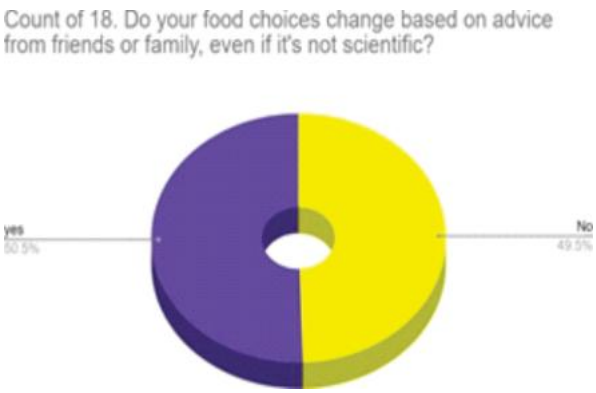












OPTION	COUNT
NO	50
YES	52
TOTAL	102
p-value	0.843

A Chi-Square Goodness-of-Fit test was performed to determine whether the difference between the observed frequencies of responses ("Yes" = 52; "No" = 50) and the expected frequencies is statistically significant.

The total number of responses was 102, and the expected frequency for each category under the assumption of equal distribution was: Expected frequency (E) = $102 \div 2 = 51$

Calculation:

Using the formula:

$\chi^2 = \Sigma[(O - E)^2 / E]$

We calculate:

- For "Yes": $(52 - 51)^2 \div 51 = 1 \div 51 \approx 0.0196$
- For "No": $(50 - 51)^2 \div 51 = 1 \div 51 \approx 0.0196$

Total $\chi^2 \approx 0.0196 + 0.0196 = 0.0392$

Degrees of freedom (df) = 1 p-value = 0.843

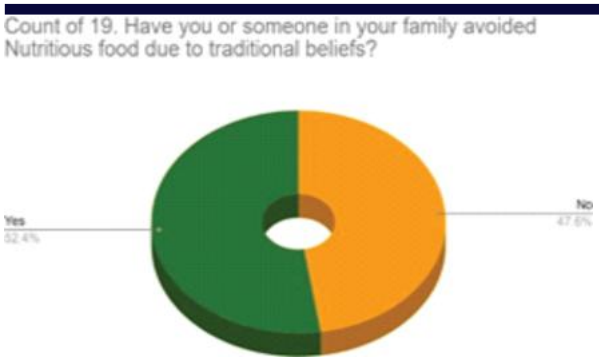
Interpretation:

Since the p-value (0.843) is much greater than 0.05, the result is not statistically significant. This means there is no meaningful difference between the number of "Yes" and "No" responses.

The small variation (50 vs 52) is likely due to random chance and not an actual pattern.

There is no significant difference between the observed and expected responses. The responses are approximately equally distributed, and the data does not support any strong preference between "Yes" and "No

OPTION	COUNT
NO	48
YES	54
TOTAL	102
p-value	0.553



A Chi-Square Goodness-of-Fit test was applied to examine whether the difference in frequency between the two response categories ("Yes" = 54; "No" = 48) was statistically significant or due to chance.

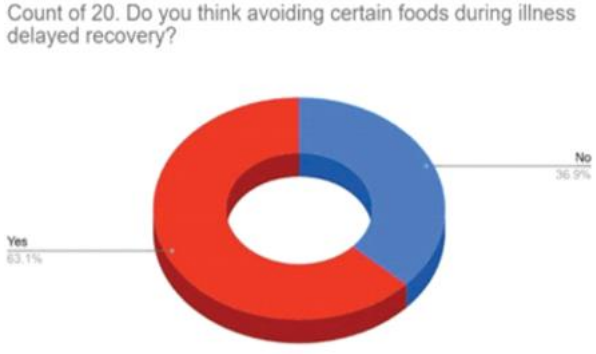
The total number of responses was 102. Assuming an equal distribution, the expected frequency for each category was:

Expected frequency (E) = 102 ÷ 2 = 51 Using the Chi-Square

Formula: Chi-Square (χ^2) = $\Sigma[(O - E)^2 / E]$
- Where: O = Observed frequency; E = Expected frequency

Substituting Values:
$\chi^2 = (54 - 51)^2 / 51 + (48 - 51)^2 / 51$
$\chi^2 = (3^2 / 51) + (-3)^2 / 51$
$\chi^2 = (9 / 51) + (9 / 51) = 18 / 51 \approx 0.353$
Degrees of freedom (df) = number of categories - 1 = 2 - 1 = 1 The resulting p-value is approximately 0.553.

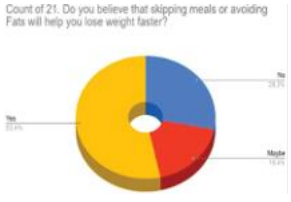
Interpretation:
Since the p-value is greater than the significance level of 0.05, the result is not statistically significant. Therefore, the difference between the observed frequencies is likely due to random chance. This suggests that there is no meaningful difference between the number of "Yes" and "No" responses, and the distribution of responses is considered balanced.

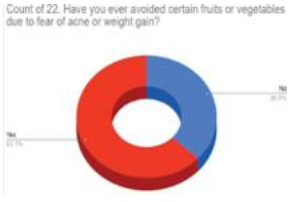


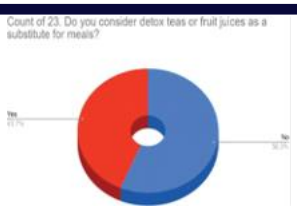
OPTIONS	COUNT
NO	37
YES	65
TOTAL	102
p-value	0.0056

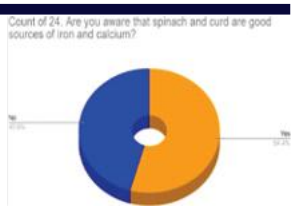
Degrees of freedom = 1 p-value ≈ 0.0056

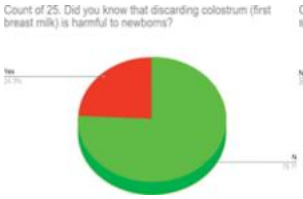
CONCLUSION:
Since the p-value is less than 0.05, the result is statistically significant. This indicates a meaningful difference in the distribution of responses — more respondents chose "Yes" than would be expected by chance.

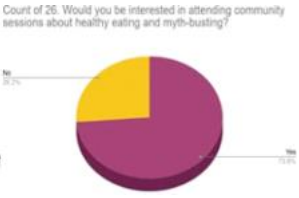


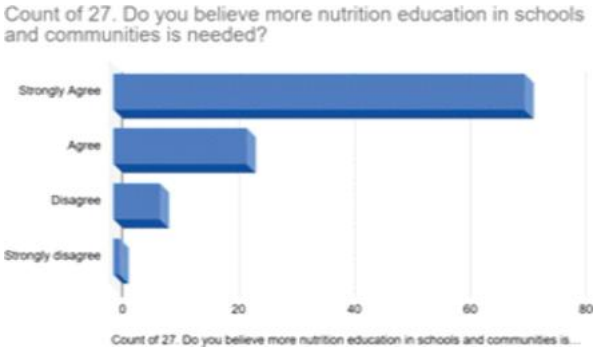












DISCUSSION:
The findings illustrate a population with relatively high educational attainment yet persistent adherence to dietary myths and misconceptions. The dominance of younger adults and students suggests an opportunity for targeted interventions through educational institutions and digital platforms.

The high prevalence of health conditions such as obesity, thyroid disorders, and anaemia underscores the need for tailored nutrition education that addresses both chronic diseases and comorbidities.

Misconceptions about food during illness, menstruation, and pregnancy highlight deeply ingrained traditional beliefs that persist despite higher education levels. For instance, the widespread belief against eating iron-rich foods during menstruation directly risks exacerbating iron deficiency anaemia, particularly in females.

Social influence plays a crucial role, as evidenced by reliance on family, friends, and social media rather than health professionals. This reliance leads to practices such as meal skipping, avoidance of nutrient- dense foods, and engagement with unproven diet trends.

The statistically significant association between food avoidance during illness and perceptions of delayed recovery validates concerns that traditional practices can negatively affect health outcomes. Similarly, the myth linking rice consumption to diabetes reflects a superficial understanding of nutrition and metabolic health, necessitating community-level education.

Encouragingly, a substantial proportion of participants expressed interest in attending community nutrition sessions and overwhelmingly supported enhanced nutrition education in schools. This suggests that while myths are prevalent, there is an openness to learning and correcting misconceptions.

Future interventions should prioritize:
- Community-based nutrition education programs focused on demystifying common dietary myths.
- School curricula enhancements to in still nutritional literacy early.
- Health professional engagement to bridge gaps in reliable dietary information.
- Social media campaigns to counter misinformation with evidence-based guidance.

Overall, these findings highlight a critical need for culturally sensitive, accessible, and scientifically backed nutrition education to address the

knowledge gaps and improve dietary practices in both rural and urban populations.

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