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Research Paper

Cognitive empowerment of adolescent girls via millets and interpersonal communication

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ABSTRACT

Adolescence is a transitional phase in which a child becomes an adult. Globally, each year nearly 1.2 million adolescent deaths are on rise and many girls face serious mental health challenges, malnutrition & anemic. The study investigates 100 rural adolescent girls' unhealthy physical and mental challenges which affect their learning abilities and cognitive skills which interlinks with the global economy in a developing country like India. The aim of the study is to uplift them physically & mentally strong so that they would become healthy mothers of the nations. Through qualitative research, the information is collected by doing interviews and questionnaires with proper interpersonal communication. As breakfast is the most important meal of the day, the research provides millet breakfast to adolescent girls for three months continuously to avoid all nutrition-related health problems in the long-term. After the experiment time, again post-test on physical and mental health conditions are investigated and reliable data is gathered. The pretest and post-test results indicate improved health conditions in the experimental group, which contributes to their overall personality development and aligns with one of the sustainable development goals.

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1. INTRODUCTION

Adolescent girls face nutritional problems in low-economy regions which impact their physical and cognitive development. If these challenges are ignored, later it may lead to long-term consequences on their health, education, and socioeconomic empowerment. According to Cynthia Nixon "Women's health needs to be front and center - it often isn't, but it needs to be." [1] To overcome the challenge, the first step is to make adolescent girls healthy in all aspects by providing them with a balanced nutrient diet. By considering all diets, the researchers have decided to provide millet food which is nutritious and gives good results in a short duration. Furthermore, the research has focused on adolescent girls' optimal time to target health-related behaviors, and interventions as the impact is more on teenager's health, overall personality which aligns with one of the sustainable development goals. In recent years, the link between nutrition and cognitive development has gained significant attention especially in the context of adolescent health. Integrating millet-based meals into college hostel diets can serve as sustainable intervention for boosting cognitive health. Such dietary approaches align with multiple Sustainable Development Goals (SDGs), particularly focused on health, education, gender equality, and zero hunger. The study focuses on rural government hostels adolescent girls to address nutritional gaps. 'Good nutrition is the bedrock of child survival, health and development.'- UNICEF [2].

2. RELATED WORK

A comprehensive study of various research are noticed, that they do touch upon the adolescent girl's health and the utility of millet to different strata of the society taking a bird's eye-view of the user mix as distinct standalone works but the body of knowledge correlating adolescent health improved by staple diet of millet is not found. In a recent 2023 article "Health-Promoting Potential of Millet: A Review" mentions that millets' health benefits, such as anti-hyperglycemic and antioxidative properties, emphasize to improve physical and cognitive health. [3] A fairly long list of research works are seen, a few of whose titles are on Mid-day Meal on nutritional value to adolescent girls. In 2021 research, meta-analysis focused on the effects of millet consumption on metabolic health, underscoring its benefits in stabilizing energy levels that could support cognitive health. [4] The article 'Can feeding a millet-based diet improve the growth of children' provided scientific evidence supporting diversification of standard diets for children using millet as a solution to malnutrition. [5] It is inferred after a bit of determined effort and focused exploration that the use of millet-based diet to adolescent girls of the rural hinterland in a carefully controlled and well monitored environment to meet the intended objectives and the desired results.

2.1. Background Literature

The historical background of the research is focused on women's health concerns and the quality of health information available to women about health care. In 1946, the World Health Organization defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [6]. All over the world. Many government organizations are there which aligns with the present study, they are: WHO, Smart Food Initiative, International Crops Research Center for the Semi-Arid Tropics, Enabling Systems Transformation (EST), Institute for Food, Nutrition and Health, Food Science and Nutrition [7].

2.2. Problem Statement

The main problem is the lack of adequate nutrition among adolescent girls, especially in economically backward countries like India. Many suffer from health issues such as anemia, sickness, improper cognitive function, weakness and show less interest in studies. Among all the groups, adolescent girls are taken for the research as teenagers are tomorrow's citizens. When Adolescent girls feel weak and disturbed in life, they may focus little on their studies which leads to their inability to compete with their compatriots. Hence, millet food provides all essential nutrition to everyone.

The International Year of Millets 2023 is celebrated across the globe in the month of March for promoting the millet diet to combat hunger and malnutrition. In 2000, Robert's idea on millet diet was "Healthy Millets, Healthy People." [8] The Latin term Milium, which gave origin to the English word "Millet", refers to a little seed. [8] If the research on millet diet in post-independence was taken, according to Macdonell and Keith (1958) define millets as plants in the Panacea family with smaller seeds compared to cereals. [9] Even the Prime Minister of India promoted millet food in the year 2023.

2.3. Research Gap

Owing to the keen observation of teenagers in the practical world and an inquisitive search for theoretical research papers on consuming a millet-based diet for improving the health benefits of rural teenage girls who are reasonably tough courses in the competitive landscape, the existing research isn't available, per se. What then is available and proven, hovered around the periphery of adolescent health and Millet-based diet as two distinct subjects each one linking to prove something else in various permutations and combinations but direct research-based evidence that millet-based diet improves the health of adolescent girls is found to be wanting. Hence, the researcher wants to contribute in this area.

2.4. Proposed Approach

The proposed research is based on the background study regarding many Standard Journals: WHO, International Crops Research Center for the Semi-Arid Tropics, Enabling Systems Transformation (EST), Institute for Food, Nutrition and Health, Avinashilingam Institute for Home Science and Higher Education for Women, (UNICEF). The conceptual framework is done including objectives, methodology and outcomes with a proper interpersonal communication. If their communication is appropriate and effective then the outcome comes accurately. According to Spitzberg (2013), "effective communication achieves goals. Effective communicators achieve their goals successfully and easily. Whether it is persuading someone, asking someone to do something, or asking someone not to do something, effective interpersonal communicators eventually achieve their goals" [10]. It aims to raise awareness and the importance of millet and health benefits. It maintains the potential health of future generations, to strengthen the economically backward adolescent girls to women empowerment and transforms into a better society. Due to improper diet, teenage girls are suffering with nutritional deficiencies, particularly micro nutrients.

2.5. New Value of Research

As there is a saying that 'Health is wealth' [11]. Good health is an essential aspect of human life. One should always prioritize his or her health. Uplifting the rural adolescent girl child, improving her economic condition, and empowering them psychologically and physically would become healthy mothers of the nations which in turn bolsters its productivity. Viewed from this lens, adolescence represents a critical window of opportunity for catching the group when they are young and reinvigorating them for more useful purposes.

To bring the solution to the existing problem into practice, an awareness of the nutritional value is needed to drive demand and investments in millet along the value chain, from fork to farm. Both the providers of millet diet and the teenage girls should have coordination then the experiment would be encouraging, and positively sensitizing. According to the 2022 article, it evaluates millet-based food products and their impact on adolescent nutrition, which gives positive outcomes on both physical and cognitive development. [12] Therefore, it is established in a way that the work undertaken by the researcher is very necessary against the intended objectives related to adolescent girls and millet-based diet improving their health in a controlled environment. The behavioral tendencies and the health of the adolescent rural and urban boys and girl's health is observed: they face physical and intellectual health disorders. Because of it, suicides are committed very often. To make them a stable mind, first physical health is important. However, the main focus is to empower women in low-economy countries like India. The fact is that girls markedly lagged behind the boys. At the same time, girls feel shy to express due to lack of interpersonal communication skills. By investigating adolescent health challenges, the proposed

research wants to fill the gap by taking their health as a policy priority. However, they pay little attention to their studies and careers due to ill health which impairs the Indian Economy in a developing country like India. Besides, the research wants to uplift the rural girl child into healthy adolescents' who would become healthy mothers of the nations.

2.6. Objectives of the Proposed Approach

1. To promote healthy eating habits among adolescent girls in the low-economy country India eventually to women's empowerment through proactive awareness of Nutricereals.
2. To perform an empirical study on a correlation between millet-based food and its impact on the health conditions of adolescent girl children.
3. To enhance cognitive and physical health to the rural low economic countries' adolescent girls.
4. To create an awareness among adolescent girls about their health, precautions of chronic diseases like diabetics, thyroid, heart problems, obesity, PCOD, cancer and mental illness.

3. METHODOLOGY

3.1. Sample size of the Adolescent Age Group

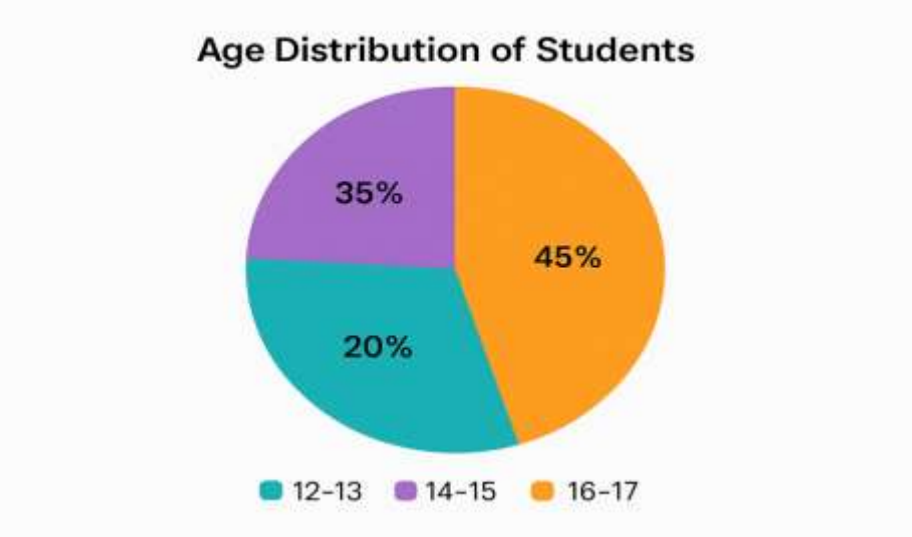

Figure 1. Pie Chart Showing Age Distribution of Adolescent Students

Figure 1, using a pie chart, the sample consists of rural girls grouped into three distinct age categories: majority of the students fall in the 16-17 age group, twenty percent belong to 12-13 years age group and 35 percent of the girls are in 14 - 15 age group. The sample size for survey and experiment is 100. As shown in the figure clearly for the proposed project.

3.2. Data Collection

Firstly, the survey is on selecting and identifying government adolescent girls hostels of rural areas of India. After that fixing it to 100 girls. Then the initial data is collected about their age, weight, height and health complications like acidity through face to face interviews and questionnaires. Then, an awareness program is conducted on physical and intellectual disorders. Again, millet food is provided in the breakfast as it is the most important meal of the day for three months continuously. With the habit of consuming a millet diet, their diet behavior can be changed at the early stage of their life, then nutrition-related health problems in the long term can be avoided. It is expected that millet food provides a healthy society, good behaviour, food habits and can empower the downtrodden adolescent girls of rural areas. A majority of the rural girls are anemic and have low energy levels.

3.3. Procedure

3.3.1. Milestone Set for each Month

Table 1. Monthly Timeline of Six-Month Millet-Based Intervention

Sr. No.	MONTH	MILESTONE
1	I Month	Questionnaire to assess the basic knowledge on millet food
2	II Month	Providing Millet Breakfast for a month
3	III Month month	Random Blood Test
4	IV Month	Feedback
5	V Month	Final workshop
6	VI Month	Investigation & Analysis of the collected data

Table 1, the monthly timeline of the six-month intervention of the whole process is structured carefully. In I Month, the questionnaire-based survey aimed at evaluating the rural girl's baseline awareness of nutrition, especially millet. This helped to assess prior knowledge and set a benchmark for later comparison.

Month II introduce the core component of the intervention: the daily provision of millet-based breakfast. The goal is to replace low-nutrition meals with high fiber, rich millet to enhance physical and cognitive health.

In Month III, a random blood test is conducted to know about hemoglobin levels and to monitor any initial physiological responses to the millet diet.

Month IV is dedicated to feedback collection, participants are invited to share their experience which is related to inter personal communication. They can share on new dietary inclusion and physical changes.

Month V focuses on final workshop that reinforced awareness about the benefits of millets. This interactive session includes activities on nutrition, interpersonal communication, and health literacy. It aims to deepen understanding, encourage acceptance, and motivate sustained millet consumption.

Finally, in Month VI, the program moves into the evaluation and data analysis phase. Post-intervention tests - both cognitive and physiological are conducted. The data collected are compared to baseline scores to measure the effectiveness of the intervention in enhancing cognitive behaviour and health outcomes. The health condition of the specific parameters of the pre-test and post-test are analyzed.

4. RESULT AND DISCUSSION

The result outcome of the millet-based nutrition for adolescent girls in rural areas across India on health and cognitive assessments of pre and posttests intervention to measure improvements in key metrics aligned in the study's objectives. Enhancing physical health, promoting cognitive performance to encourage healthy dietary behavior is the main aim of the research.

4.1. Evaluation Metrics

The test outcome is analyzed by using Key Metrics in a low-economy region with 100 adolescent girls in each region. Results are summarized in below Table 2 and illustrated in Figure 2 which show how each metric reflects the research's effectiveness.

Table 2. Comparative Evaluation of Health, Cognitive, and Nutritional Metrics Before and After Intervention

Metric Category	Paramétré	Pre-Intervention	Post-Intervention	Evaluation Metric
Health Improvement	Hemoglobin Level (g/dl)	9.2	11.5	Accuracy 90%

	BMI	16.8 (underweight)	18.5 (Normal)	Error Rate (5%)
Cognitive Behaviour	Cognitive Test Accuracy	65%	80%	Recall Improvement: +5%
	Memory Recall (%)	60%	75%	Precision: 92%
Nutritional Awareness	Dietary Knowledge (%)	35%	80%	Retention Rate: 87 %
Error Analysis	Dropout Rate (%)	-	7%	Data Discrepancy :<3%

Table 2 shows the detailed Analysis of Evaluation Metrics. The evaluation metrics presented for India highlight the impact of a millet-based dietary intervention on 100 rural adolescence girls.The analysis:

1. Health Improvement

Hemoglobin Levels

A significant increase from 9.2 g/dL to 11.5 g/dL reflects the effectiveness of millet consumption in addressing anemia, a prevalent issue among adolescent girls in rural India. The 90% accuracy rate indicates that the most participants demonstrated improved hemoglobin levels, with minimal variability.

BMI

The improvement from an underweight BMI of 16.8 to a normal range of 18.5 showcases the positive nutritional outcomes of the program. The metric demonstrates the role of millet in combating malnutrition aligning with the objectives of promoting physical health.

2. Cognitive Behaviour

Cognitive Test Accuracy: The improvement from 65% to 80% suggests a direct link between improved nutrition and cognitive function. This supports the hypothesis that a balanced millet- based diet provides sustained energy and micro nutrients essential for brain development.

Memory Recall: A 15% increase in memory recall further emphasizes enhanced cognitive performance likely driven by better hemoglobin levels and overall health.

3. Nutritional Awareness

The leap in dietary knowledge from 35% to 85% indicates the success of the awareness programs conducted alongside dietary interventions. This demonstrates the importance of pairing nutritional interventions with education to achieve sustainable behavioral change.

4. Error Analysis

The dropout rate of 7 % suggests minor program attrition due to external factors which is expected in rural interventions.

The data discrepancy rate (<3%) highlights the reliability of the results, reinforcing the credibility of the study's findings.

5. Holistic Model Effectiveness

The evaluation metrics collectively demonstrate the program's effectiveness in achieving its objectives. Improvements in health cognition and awareness in metrics highlight the potential scalability of such interventions.

4.2. Summary of the Result

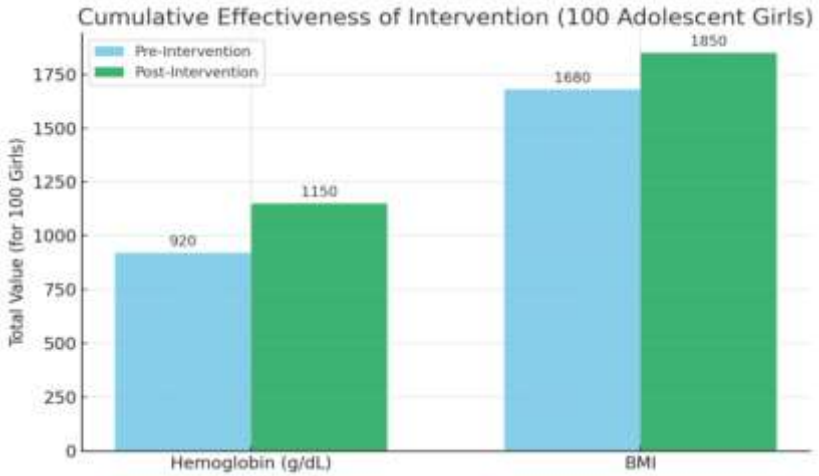

Figure 2. Cumulative Effectiveness of Intervention among 100 Adolescent Girls

Figure 2, the main summary of the result i.e., cumulative effectiveness of intervention of the total girls taken for the study. The results of the health report before and after the intervention improve their overall health i.e, Hemoglobin, Cognitive, Nutritional value. The analysis of the Figure 2 provides a clear picture of how the millet-based dietary intervention gives positive result. When the analysis is done after the health checkup, improves hemoglobin levels and complete blood test. It measures the red blood cells, white blood cells and Hemoglobin percentage. The sample size is apt so that the result can be evaluated easily.

Millet food inculcates good dietary behaviour to adolescent girls and then nutrition-related health problems can be avoided in the long-term. Then post-test result show the outcome is very effective and the adolescent girl's mental and physical health will improve. The primary concern of adolescent girls is their overall health of the low economy country. These findings align with the study's objectives, and show that the millet-based nutrition influence positively on adolescent girls' physical and cognitive well-being.

4.3. Discussion

The findings of the study clearly demonstrate the positive impact of millet-based dietary intervention on the health of adolescent girls in low income settings. The cumulative improvements in hemoglobin levels and BMI indicate nutritional improvement which contributes to adolescent well-being. The notable increase in the above parameters suggest better iron intake and improved red blood cells. The outcome aligns with the studies that millet-based diets to be effective in enhancing both physical and cognitive development. The data suggests that incorporating traditional, nutrient millet diet into daily meals can play a key role and fills the nutritional gap faced by rural girls in underprivileged communities.

The proposed research is also relevant to policy making as it helps the government hostel rural adolescent girl students. The main health issue of adolescent girls of government hostels of low economy countries of rural regions are taken into consideration and to make them overcome physical and intellectual disorders with a little change in their diet. To empower women in different health perspectives, the research has come forward with an idea of promoting healthy food through Millets. Hence, the study fulfills these requirements: awareness of nutrient-cereals benefits for maintaining their potential health in the long-term and transforms into better society by strengthening the low economy countries of adolescent girls which ultimately leads to growth of the nations.

The millet diet is a good contribution to malnourished also who belong to poor population and helps them for their better livelihood and food security. This has also recognized by UN Food and Agriculture Organization (FAO) has declared 2023 as the "International year of Millets." [13] Whatever may be millets make a powerful comeback are called 'multi-omics" resource generation [14].

4.4. Path-breaking Aspects

The research target is to empower girls in the low-economy region and the goal is to create awareness to adolescent girls and make them adopt a millet diet for their healthy future is the challenge and change that is expected. If the target number eventually adopts a millet diet, then the researchers achieve their goals. Awareness and the benefits of consuming a millet diet is given. After convincing them, then the choice is left on the experiment group to start the millet diet or not. Interpersonal communication is important between the children and the researchers. As Brian H. Spitzberg, an eminent interpersonal communication researcher in 2013 states that interpersonal communication among human beings should be characterized by appropriateness and ethics.

[15] Besides that, in 2011, other two researchers Spitzberg and William Cupach state that to provide respect to people irrespective of station or stereotype is a critical marker in the landscape of interpersonal communication. [16] When new ideas germinate, inevitably some are innovative and path-breaking in the long run. The main idea of the project is to uplift the rural girls and empower women in the low economic countries like India.

5. CONCLUSION

The proposed research would achieve remarkable success in empowering adolescent girls in low economy countries. The research is relevant and apt to the present society as women are subjected to inequality & discrimination in every corner of the world.Though the circumstances and consequences vary from place to place, culture to culture, women are badly affected in all spheres of life. Unequal treatment, unfairness in rearing children, giving special privileges to boys, and denial of the basic human rights to women undermines the well-being of society. Though most women still fight for the right to live and suffer with health problems compared to men. Overall personality development, physical and mental health conditions play a major role as girls suicide deaths are increasing due to mental disorders. Out of many issues, the research wants to focus only on one factor of providing a healthy millet diet to reduce physical and mental disorders.

According to the Government Census Bureau “While women in India face many serious health concerns, this profile focuses on only five key issues: reproductive health, violence against women, nutritional status, and unequal treatment of girls”. [17] Hence, the need of the hour is to focus on the empowerment of women by uplifting them is the most important concept of gaining Health through Millet-food.

The findings of the research hold a substantial significance for public health in low-economy settings. It confirms that promoting millet-based diet gives a positive correlation and improves physical and mental health. Empirical data show that improvement not only in nutritional awareness but also from preventing diseases to adolescent girls by consuming a good diet.

The research explores the effectiveness of integrating nutri-cereal millet into the diets of adolescent girls in low-economy countries with an interpersonal communication approach to empower cognitive and behavioral outcomes and objectives are promoting millet-based diet to enhance physical and mental health, thereby fostering women’s empowerment and increasing awareness of nutritious diet. [18] Furthermore, accepting and accelerating the use of millet and millet-based food items like chapatis, idlis, chilla, sweets, and many other recipes [19] would help in achieving stupendous health benefits [20].

The empirical study reveals a strong positive correlation between the consumption of millet-based foods to improve both physical and cognitive health among teenage girls. The result shows the improvement in physical well-being and intellectual capacities as diet benefits every person to retain good health. The research advances the field of nutritional science and public health by providing empirical evidence on the benefits of millet consumption among adolescent girls, a demographic often vulnerable to nutritional deficiencies. Additionally, it underscores the importance of communication strategies in health interventions, offering a blueprint for future research aiming to empower young women through education and improve health practices.

The research validates the hypothesis that millet-based diet with effective interpersonal communication. It leads to significant improvement in both physical and intellectual health of adolescent girls. The goals and objectives meet with a successful outcome of the research study. It suggests that similar approaches can be adapted to other low-economy regions in different demographic groups. In the future, the research should explore the long-term impacts of such interventions and investigate the potential for integrating nutritional foods to increase health benefits. The study provides a strong foundation for the development of future health initiatives that prioritize culturally relevant and accessible nutrition combined with effective communication techniques.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Dr. Waheed Shafiah	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓		
Dr. T. Sunand Emmanuel		✓				✓		✓	✓	✓				
Dr. G. Raja Kumar		✓	✓	✓							✓	✓		

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

All three Authors declare that there is no conflict of interest related to this research.

Informed Consent

Not applicable. No personal or sensitive data were collected from participants.

Ethical Approval

The research does not require formal ethical approval as it involved no invasive procedures or sensitive data.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

[1] C. Nixon, "A state of complete physical, mental and social well-being...," *BrainyQuote*. [Online]. Available: https://www.brainyquote.com/quotes/cynthia_nixon_438394

[2] Google Search, "A state of complete physical, mental and social well-being...," [Online]. Available: https://www.google.com/search?q=%E2%80%9Ca+state+of+complete+physical…

[3] A. A. Sabuz et al., 'Health-promoting potential of millet: A review', Separations, vol. 10, no. 2, p. 80, Jan. 2023. doi.org/10.3390/separations10020080

[4] S. Anitha et al., 'A systematic review and meta-analysis of the potential of millets for managing and reducing the risk of developing diabetes mellitus', Front. Nutr., vol. 8, p. 687428, Jul. 2021. doi.org/10.3389/fnut.2021.687428

[5] S. Anitha et al., 'Can feeding a millet-based diet improve the growth of children?-A systematic review and meta-analysis', Nutrients, vol. 14, no. 1, p. 225, Jan. 2022. doi.org/10.3390/nu14010225

[6] World Health Organization, "Constitution of the World Health Organization," 1946. [Online]. Available: https://www.who.int/about/governance/constitution. [Accessed: Jul. 29, 2025.

[7] World Health Organization, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and Enabling Systems Transformation (EST), Smart Food Initiative. [Online]. Available: https://www.icrisat.org/smart-food/. Accessed: Jul. 29, 2025.

[8] F. Robert, the Words of Medicine. Springfield, USA: C Thomas Publisher Ltd, 2000.

[9] A. A. Macdonell and A. B. Keith, Vedic Index of Names and Subjects. Delhi, India: Motilal Banarsidass, 1958.

[10] B. H. Spitzberg, '"(Re) introducing communication competence to the health professions', J. Public Health Res, vol. 2, 2013. doi.org/10.4081/jphr.2013.e23

[11] "Health is wealth," *Proverbs and Sayings*, [Online]. Available: https://www.example.com/health-is-wealth. [Accessed: Jul. 29, 2025].

[12] S. Anitha et al., 'Can feeding a millet-based diet improve the growth of children?-A systematic review and meta-analysis', Nutrients, vol. 14, no. 1, p. 225, Jan. 2022. doi.org/10.3390/nu14010225

[13] M. V. Jali, M. Y. Kamatar, S. M. Jali, M. B. Hiremath, and R. K. Naik, 'Efficacy of Value Added Foxtail MilletTherapeutic Food in the Management of Diabetes and Dyslipidamea in Type 2 Diabetic Patients', Recent Res. Sci.Technol, vol. 4, pp. 3-04, 2012.

[14] C. Habiyaremye et al., 'Proso millet (Panicum miliaceum L.) and its potential for cultivation in the Pacific Northwest, U.s.: A review', Front. Plant Sci., vol. 7, p. 1961, 2016. doi.org/10.3389/fpls.2016.01961

[15] B. H. Spitzberg, '(Re)Introducing communication competence to the health professions', J. Public Health Res., vol. 2, no. 3, p. e23, Dec. 2013. doi.org/10.4081/jphr.2013.e23

[16] B. H. Spitzberg and W. R. Cupach, 'Interpersonal skills', in Handbook of Interpersonal Communication, M. L. Knapp and J. A. Daly, Eds. Newbury Park, CA: Sage, 2011.

[17] Government of India, Census Bureau, Women and Men in India – *2021*. New Delhi, India: Ministry of Statistics and Programme Implementation, 2021. [Online]. Available: https://censusindia.gov.in. [Accessed: Jul. 29, 2025.

[18] Y. Zhu, F. Xie, J. Ren, F. Jiang, N. Zhao, and S.-K. Du, 'Structural analysis, nutritional evaluation, and flavor characterization of parched rice made from proso millet', Food Chem. X, vol. 19, no. 100784, p. 100784, Oct. 2023. doi.org/10.1016/j.fochx.2023.100784

[19] S. S. Dharshini and M. Meera, 'Effect of popping and milling on physical, chemical, structural, thermal properties and angle of repose of amaranth seed (Amaranthus cruentus L.) and finger millet (Eleusine coracana L. Gaertn) from Udhagamandalam', Appl. Food Res., vol. 3, no. 2, p. 100306, Dec. 2023. doi.org/10.1016/j.afres.2023.100306

[20] Sachdev, N.; Goomer, S.; Singh, L. R.; Pathak, V. M.; Aggarwal, D.; Chowhan, R. K. Current Status of Millet SeedProteins and Its Applications: A Comprehensive Review. Appl Food Res. 2023, 3(1), 100288. doi.org/10.1016/j.afres.2023.100288

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