



IDENTIFYING MALNUTRITION RISKS IN VULNERABLE GROUPS IS KEY TO COMPLEMENTARY THERAPY IN HEALTH CRISES

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Abstract

Malnutrition poses a significant challenge globally, especially impacting children and the elderly in vulnerable communities. This study sought to uncover malnutrition risk factors within these populations and evaluate the role of complementary therapy in addressing health crises stemming from nutritional deficiencies. Through a detailed survey encompassing structured questionnaires, open-ended inquiries, and group discussions, data was collected from various at-risk communities. Results highlighted critical issues like food insecurity, limited healthcare access, poverty, lack of dietary variety, and micronutrient shortages as key contributors to malnutrition. Feedback on complementary therapies was generally favorable, pointing to their potential in nutritional support, with a strong emphasis on the necessity for community involvement and integration into existing health frameworks. The research underscores the need for well-informed, targeted actions to combat malnutrition and enhance the well-being of those most at risk, providing valuable insights for developing effective, sustainable interventions.

Introduction

Malnutrition continues to be a critical global health challenge, particularly among vulnerable populations, such as children and the elderly, in both developed and developing countries. The World Health Organization (WHO) estimates that malnutrition contributes to over one-third of all child deaths worldwide, making it a leading cause of mortality in children under the age of five (Hossain et al., 2017). Malnutrition can become a major concern, especially in the institutionalized elderly population, where the incidence of malnutrition ranges from 12% to 50% (Norman et al., 2021). Despite various efforts to combat this issue, malnutrition persists, and its complex interplay of factors in vulnerable groups necessitates further investigation.

The existing literature provides valuable

insights into malnutrition and its impact on vulnerable populations (Akhtar, 2016; Maestre et al., 2017). However, a significant gap in current research lies in the lack of comprehensive studies specifically focusing on identifying the risk factors associated with malnutrition within these at-risk groups (Alert et al., 2012; Olivares et al., 2014; Reber et al., 2019). While previous research has highlighted general risk factors for malnutrition, a more targeted examination of factors affecting vulnerable populations is essential to develop precise and tailored interventions (Munoz et al., 2022). Addressing this gap can help healthcare professionals and policymakers design more effective strategies to alleviate malnutrition in these specific populations and reduce associated morbidity and mortality rates.

The novelty of this research lies in its

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Table 1. Indicators and Questions of Important Risk Factors of Malnutrition

| Indicators | Sub Indicators | Items of Quantitative Question | Items of Qualitative Question |
|--|---------------------------------|--|---|
| F o o d Insecurity | Lack of Access to Food | How accessible is food with a balanced diet for your kids or the elderly, on a scale of 0 to 5? | Could you share your experiences with insufficient food quantity? What challenges have you faced regarding this issue? |
| | Insufficient Food Quantity | How would you grade (on a scale of 0 to 5) the likelihood that your children or elderly members suffer from inadequate food quantity when there isn't enough to eat? | Can you describe the impact of insufficient food quantity on your daily life, health, and well-being? |
| Limited Access to Healthcare | Distance to Healthcare Facility | On a scale of 0 to 5, how would you rank the difficulties you have getting your kids or the elderly to a medical facility? | Could you describe the challenges you encounter in reaching a healthcare facility? |
| | High Healthcare Costs | How would you rank, on a scale of 0 to 5, the impact that excessive healthcare prices have on your children's or the elderly's ability to get medical care? | How do high healthcare costs impact your ability to access medical care? Can you provide specific examples of how this has affected your children or elderly? |
| Low Socio-Economic Status | Unemployment or Underemployment | On a scale of 0 to 5, how would you rank the job prospects in your community? | Could you describe the employment opportunities available to your children or elderly? |
| | Low Household Income | How would you rank (on a scale of 0 to 5) the state of the economy as a whole, with a focus on low-income households? | In terms of household income, how would you assess the financial stability of your family or community? |
| Insufficient Dietary Diversity | Limited Availability of Foods | How varied do you think the food alternatives are in your location, on a scale of 0 to 5? Are there any particular foods that are frequently absent? | Can you provide examples of how inadequate availability of food choices and nutrition for your children or elderly? |
| | Inadequate Dietary Knowledge | On a scale of 0 to 5, how knowledgeable do you think your children or elderly are eating a varied and well-balanced diet? | Can you share examples of how limited dietary knowledge affects food choices and nutrition in your children or elderly? |
| Inadequate Micronutrient Intake | Mineral Deficiency Knowledge | How well-informed are your children or elderly on vitamin and mineral deficits, on a scale of 0 to 5? | Could you describe the most common misconceptions or beliefs related to mineral deficiencies in your children or elderly? |
| | Vitamin Deficiency Knowledge | How much do your children or the elderly know about the importance of vitamins and the risks associated with vitamin deficiencies, on a scale of 0 to 5? | What practices or beliefs influence the dietary choices that lead to vitamin deficiencies in your children or elderly? |

Table 2. Indicators and Questions of Perspectives on Complementary Therapy

| Indicators | Sub Indicators | Items of Quantitative Question | Items of Qualitative Question |
|---|---|--|--|
| Potential Efficacy in Nutrition Support | Improvement of Nutritional Status | On a scale of 0 to 5, how effective has the implemented complementary therapy been in improving the nutritional status of the target group? | How have you observed the nutritional status of the children or the elderly improving since the introduction of Complementary Therapy? |
| | Prevention of Nutrient Deficiencies | Please rate, on a scale from 0 to 5, the extent to which the complementary therapy has succeeded in preventing nutrient deficiencies among the targeted population | In your experience, how effective has Complementary Therapy been in preventing nutrient deficiencies in the targeted group? |
| Importance of Community Engagement | Community Participation in Programs | To what degree, on a scale of 0 to 5, have community members actively participated in the malnutrition mitigation programs? | What level of participation and involvement have you noticed from the local community in Complementary Therapy programs for malnutrition mitigation? |
| | Empowerment of Local Health Practices | On a scale of 0 to 5, please evaluate the level of empowerment local health practices have achieved in the context of complementary therapy! | Can you describe any instances where Complementary Therapy has empowered local health practices or traditional healing methods in your community? |
| Integration with Existing Healthcare | Collaboration with Healthcare Providers | How well, on a scale from 0 to 5, did the complementary therapy foster collaboration between the community and healthcare providers? | How would you rate the collaboration between Complementary Therapy programs and established healthcare providers in the region? |
| | Coordinated Treatment Plans | Please rate, on a scale of 0 to 5, the effectiveness of the coordinated treatment plans in addressing malnutrition within the target population. | Have you observed well-coordinated treatment plans being implemented for children and the elderly as part of the Complementary Therapy approach? |

intention to conduct a comprehensive survey specifically targeting vulnerable groups at risk of malnutrition. This research adopts an inclusive approach to encompass not only the children but the elderly vulnerable populations also. By doing so, it seeks to explore and identify unique risk factors that might be overlooked in more generalized studies. Moreover, this research aims to explore the potential of complementary therapy as an innovative approach to mitigating health crises resulting from malnutrition in these vulnerable groups. Complementary

therapy offers a novel perspective on addressing malnutrition by integrating traditional and alternative healing practices, which may yield promising results in enhancing nutritional status and overall health outcomes among at-risk populations. The findings of this research can potentially inform evidence-based policies and interventions that specifically target these vulnerable groups, thus paving the way for more targeted, sustainable, and successful efforts in mitigating health crises caused by malnutrition. Ultimately, this research seeks to empower

healthcare professionals and policymakers with the knowledge and tools needed to make a substantial and lasting impact on the health and well-being of vulnerable populations around the world.

Methodology

The primary objectives of this research were twofold: firstly, to identify the risk factors associated with malnutrition in vulnerable groups, and secondly, to explore the potential of complementary therapy as an effective approach to mitigating health crises caused by malnutrition within these populations. To achieve these objectives, a comprehensive survey was designed and conducted, focusing on children and the elderly population. A comprehensive survey was employed as the primary method of data collection to gain insights into malnutrition and its risk factors in vulnerable communities. The survey aimed to encompass children (n=28) and the elderly (n=36) populations. By targeting those vulnerable groups, the research aimed to capture and generate findings that could be generalized to similar populations.

Purposive sampling approaches were employed to identify certain vulnerable communities and non-randomly chose participants from broader populations at Posyandu Purwomartani, Yogyakarta, to collect data. The objective of this methodology was to encompass persons from diverse socio-economic backgrounds and age groups, thereby offering a comprehensive picture of the issues associated with malnutrition in various disadvantaged areas. The survey was designed meticulously to address the research objectives effectively. Structured questionnaires were administered during face-to-face interviews to collect quantitative data related to several important risk factors, including inadequate dietary diversity, low socioeconomic status, restricted access to healthcare, and inadequate intake of micronutrients, which contributed to malnutrition (Table 1). Additionally, open-ended questions allowed participants to share their perspectives and experiences, enriching the data with qualitative insights (Table 2). Focus group discussions with health cadres of

Posyandu (n=21) were also conducted to gather qualitative information, fostering meaningful discussions on the potential of complementary therapy in mitigating health crises linked to malnutrition.

This research adhered to research ethics principles, despite not undergoing formal ethical commission approval. Informed consent was obtained from all participants, ensuring their voluntary involvement. Anonymity was maintained in data reporting to protect participants' privacy. Data handling and analysis followed strict confidentiality procedures. The study prioritized the welfare and dignity of the vulnerable groups studied. Researchers maintained transparency and communicated the objectives and potential benefits of the study. While not subject to an ethical commission, ethical research principles were upheld to safeguard the rights and well-being of all participants.

Result and Discussion

The comprehensive survey conducted in this research yielded valuable data on the risk factors associated with malnutrition in diverse vulnerable communities. The study included participants from different age groups, such as children and the elderly. Here, we present the key findings from the survey, which shed light on the challenges faced by vulnerable populations and the potential role of complementary therapy in health crisis mitigation.

Table 2 provides a more detailed breakdown of the prevalence of malnutrition risk factors, exploring sub-indicators within each indicator. For food insecurity, lack of access to food was reported by 0.8 of the average score from participants, while 1.4 faced insufficient food quantity. Limited access to healthcare was influenced by distance to healthcare facilities (3.3) and high healthcare costs (3.6). Low socio-economic status was characterized by unemployment or underemployment (4.2) and low household income (3.5). For insufficient dietary diversity, a 3.2 average score faced limited availability of foods and 4.6 experienced inadequate dietary knowledge. In terms of inadequate micronutrient knowledge,

Table 3. Prevalence of Malnutrition Risk Factors in Vulnerable Communities

| Indicators | Sub Indicators | Average Score (0-5) |
|---------------------------------|---------------------------------|---------------------|
| Food Insecurity | Lack of Access to Food | 0.8 |
| | Insufficient Food Quantity | 1.4 |
| Limited Access to Healthcare | Distance to Healthcare Facility | 3.3 |
| | High Healthcare Costs | 3.6 |
| Low Socio-Economic Status | Unemployment or Underemployment | 4.2 |
| | Low Household Income | 3.5 |
| Insufficient Dietary Diversity | Limited Availability of Foods | 3.2 |
| | Inadequate Dietary Knowledge | 4.6 |
| Inadequate Micronutrient Intake | Mineral Deficiency Knowledge | 4.7 |
| | Vitamin Deficiency Knowledge | 4.5 |

4.7 average scores suffered from mineral deficiency, and 4.5 experienced vitamin deficiency knowledge.

Table 3 delves into the perspectives on complementary therapy for health crisis mitigation, exploring sub-indicators within each indicator. Regarding the potential efficacy of nutrition support, 3.2 average scores of participants believed complementary therapy could improve nutritional status while 3.1 saw it as a preventive measure for nutrient deficiencies. The importance of community engagement was indicated by 4.3 average scores of participants who favored community participation in programs and 4.8 who valued the empowerment of local health practices. Integration with existing healthcare involves collaboration with healthcare providers (3.5) and coordinated treatment plans (3.2). The need for training and education highlighted health practitioners' competence (3.1) and the

understanding of complementary therapy (3.2). The detailed data offers deeper insights into the perceptions of vulnerable communities, providing a foundation for designing targeted and culturally sensitive interventions for health crisis mitigation.

Food Insecurity: Interviews with participants revealed that the quantitative data on food insecurity only scratched the surface. Participants shared that the lack of access to food was not merely a matter of physical distance but often a result of factors like food deserts, limited transportation options, and cultural barriers. For example, reported a lack of local markets offering fresh produce, making it challenging to access nutritious food. Participants mentioned the high cost of transportation as a barrier to reaching affordable food sources. Additionally, interviews highlighted that the cultural context and traditional dietary practices influenced the perception of food quantity, indicating that

Table 4. Perspectives on Complementary Therapy for Health Crisis Mitigation

| Indicators | Sub Indicators | Average Score (0-5) |
|---|---|---------------------|
| Potential Efficacy in Nutrition Support | Improvement of Nutritional Status | 3.2 |
| | Prevention of Nutrient Deficiencies | 3.1 |
| Importance of Community Engagement | Community Participation in Programs | 4.3 |
| | Empowerment of Local Health Practices | 4.8 |
| Integration with Existing Healthcare | Collaboration with Healthcare Providers | 3.5 |
| | Coordinated Treatment Plans | 3.2 |
| Need for Training and Education | Health Practitioners' Competence | 3.1 |
| | Understanding of Complementary Therapy | 3.2 |

quantitative measures alone could not capture the complexity of this issue.

Limited Access to Healthcare: Field observations conducted unveiled the harsh realities of limited access to healthcare facilities. While quantitative data suggested that high healthcare costs were a significant barrier, qualitative insights indicated that the actual costs extended beyond monetary expenses. Participants in these communities expressed concerns about the time and labor required to reach the nearest healthcare center, often taking a full day of travel, resulting in lost wages and missed work. These observations underscore the multifaceted nature of healthcare access challenges that quantitative metrics might not fully capture.

Low Socio-Economic Status: Qualitative data enriched the understanding of low socio-economic status. Participants shared their experiences of underemployment, explaining how inconsistent work opportunities, such as seasonal agriculture work, led to periods of low income. Moreover, interviews highlighted that unemployment was linked to a lack of vocational skills and education, which were not adequately captured by quantitative indicators. This nuanced perspective revealed the need for comprehensive livelihood support programs to address the root causes of low socio-economic status.

Insufficient Dietary Diversity: Qualitative data elaborated on the factors contributing to insufficient dietary diversity. Field observations revealed that the limited availability of foods in certain areas was not solely due to geographic location but often tied to infrastructure challenges. For instance, participants described how roads blocked during the rainy season disrupted the supply chain of perishable goods. In contrast, field observations indicated that dietary knowledge deficits were partly due to a lack of awareness about the nutritional value of local foods. This nuanced information could guide community-specific interventions to improve dietary diversity.

Inadequate Micronutrient Intake: The qualitative insights into inadequate micronutrient intake uncovered the cultural and behavioral aspects influencing this issue. Participants explained how their dietary

practices were rooted in traditional beliefs, often leading to a reluctance to adopt new dietary habits. Additionally, field observations highlighted the role of convenience and affordability in determining food choices, which were not entirely captured by quantitative data. Qualitative findings emphasized the importance of culturally sensitive nutritional interventions to address micronutrient deficiencies effectively.

Complementary Therapy Perspectives: Interviews uncovered the nuanced perspectives of participants regarding complementary therapy. While quantitative data indicated general agreement, interviews highlighted the concerns and expectations of vulnerable communities. For example, participants expressed that the success of complementary therapy hinged on the recognition of traditional healing practices and the active involvement of community members in the design and implementation of such programs. Qualitative data underscored the need for training and education to ensure that healthcare providers were culturally competent, an aspect not entirely captured by quantitative scores.

The resulting data provides crucial insights into the risk factors contributing to malnutrition in diverse vulnerable communities. Food insecurity, limited access to healthcare, low socio-economic status, insufficient dietary diversity, and inadequate micronutrient intake were identified as key challenges. Additionally, the survey highlighted the potential of complementary therapy in health crisis mitigation, emphasizing the importance of community engagement and integration with existing healthcare systems. These findings can serve as a foundation for evidence-based interventions and policies aimed at improving the health and well-being of vulnerable populations. Overall, the qualitative insights added depth and context to the quantitative data, offering a more comprehensive understanding of the challenges and potential solutions related to malnutrition in vulnerable communities. These findings could guide the development of more effective and culturally sensitive interventions to mitigate health crises associated with malnutrition.

Potential Efficacy in Nutrition Support:

Through in-depth interviews, participants expressed optimism about the potential efficacy of the implemented Complementary Therapy in providing valuable nutritional support. Caregivers noted improvements in the overall well-being of the targeted group, including increased energy levels and a visible enhancement in their physical health. Participants, consisting of caregivers and those directly impacted by Complementary Therapy, shared a collective sense of optimism. Their voices echoed the transformative impact on the well-being of the targeted group. Caregivers, in particular, became storytellers of improvement, narrating tales of increased energy levels and visible enhancements in physical health. It was not merely about the nutrients provided; it was about the restoration of vitality and the promise of a healthier future.

Importance of Community Engagement: Observations in the field emphasized the significant role of community engagement. The community actively participated in program activities, demonstrating a strong sense of ownership. This engagement was found to be crucial for the success and sustainability of Complementary Therapy initiatives. The community's active participation in program activities was not a passive involvement but a vibrant display of ownership. This engagement, as evidenced by the palpable sense of belonging, emerged as a linchpin for the success and sustainability of Complementary Therapy initiatives. The program wasn't just an intervention; it was a shared endeavor, a communal commitment to better health.

Integration with Existing Healthcare: The qualitative data shed light on the dynamics of integrating Complementary Therapy with existing healthcare structures. While collaboration with healthcare providers received positive feedback, challenges in coordinating treatment plans were identified. Further exploration revealed the need for improved communication channels and shared protocols. While collaboration with healthcare providers received a commendation, it wasn't immune to challenges. Coordinating treatment plans emerged as a focal point, revealing intricate dynamics. The need for enhanced communication channels and shared

protocols became apparent, underlining that for Complementary Therapy to reach its full potential, it must harmonize with existing healthcare systems seamlessly.

Need for Training and Education: Interviews and field observations underscored the importance of training and education. Respondents stressed the necessity for enhancing health practitioners' competence in understanding and delivering Complementary Therapy. Limited awareness among practitioners and the community highlighted a crucial area for intervention. The narrative illuminated a deficiency in health practitioners' competence regarding Complementary Therapy. Respondents emphasized the necessity for a comprehensive understanding among practitioners, echoing a sentiment that this form of therapy requires more than technical skills; it demands a deep appreciation of its principles and applications. Simultaneously, the limited awareness among practitioners and the community emerged as a red flag, indicating a critical area for intervention. The potential for positive impact could only be fully realized when both the providers and recipients were well-informed.

Qualitative findings complementary therapy stands at the intersection of promise and pragmatism. It holds the promise of transforming nutritional landscapes and fostering community well-being, but to realize this promise, pragmatic solutions are required — from refining healthcare collaborations to investing in comprehensive education. The story is not only about what has been achieved but about what can be achieved with a deeper understanding, a more engaged community, and a healthcare system that seamlessly incorporates the principles of Complementary Therapy into its framework. The qualitative narrative becomes a guide, illuminating the path forward toward a healthier, more resilient community.

The findings from the comprehensive survey conducted in this research provide valuable insights into the risk factors associated with malnutrition in vulnerable communities. These results align with existing theories and data from previously published studies on malnutrition and its impact on at-risk

populations. The prevalence of food insecurity reported in this study is consistent with the global trend of insufficient access to nutritious food among vulnerable groups (World Health Organization, 2020). The high percentage of individuals facing limited access to healthcare echoes previous research, which highlights the challenges faced by marginalized communities in obtaining adequate medical services (Bonevski et al., 2014).

The analysis of the findings from the comprehensive survey on malnutrition risk factors in vulnerable communities highlights several crucial aspects that contribute to our understanding of this pressing global health issue. Firstly, the prevalence of food insecurity among the surveyed individuals underscores the urgent need for targeted interventions to ensure access to sufficient and nutritious food for vulnerable populations. Addressing food insecurity requires comprehensive strategies that consider not only immediate food assistance but also long-term solutions such as agricultural development, income support, and social safety nets (Smith & Glauber, 2020). Additionally, empowering vulnerable communities to participate in decision-making processes related to food security can enhance the effectiveness and sustainability of interventions (Johnson et al., 2018; Hantrais et al., 2020).

The study's finding on limited access to healthcare further emphasizes the importance of improving healthcare infrastructure and services in marginalized communities. Enhancing access to healthcare not only involves increasing the availability of medical facilities but also addressing socio-economic barriers, transportation challenges, and cultural factors that may deter individuals from seeking healthcare services (Ahmed et al., 2016; Agyemang-Duah et al., 2019). Integrating nutrition counseling and malnutrition screening into existing healthcare systems can improve early detection and management of malnutrition-related conditions (Malone & Hamilton, 2013; Silver et al., 2018).

The link between low socioeconomic status and malnutrition has been extensively documented in numerous studies (Tette et al., 2015; Husseini et al., 2018). The present

research corroborates these findings, indicating that socioeconomic factors play a crucial role in shaping nutritional outcomes among vulnerable populations. The prevalence of insufficient dietary diversity aligns with previous research highlighting the importance of a balanced diet in preventing malnutrition and promoting overall health (Kumar et al., 2015; Olatunji et al., 2021). Additionally, the high percentage of participants reporting inadequate micronutrient intake is consistent with data demonstrating widespread nutrient deficiencies in vulnerable communities (Hwalla et al., 2017; Puwanant et al., 2022).

Moreover, the association between low socio-economic status and malnutrition reaffirms the urgent need for poverty alleviation measures to uplift vulnerable populations. Efforts to address malnutrition must go hand in hand with poverty reduction strategies, which may involve income support programs, livelihood development, and improved educational opportunities (Opoku et al., 2019; Singh & Chudasama, 2020). Targeted interventions that focus on enhancing the economic well-being of vulnerable communities can have far-reaching impacts on their nutritional status and overall health outcomes.

The data indicating insufficient dietary diversity and inadequate micronutrient intake emphasize the importance of nutrition education and behavior change interventions. Promoting diverse and nutritious diets requires raising awareness about the value of balanced nutrition and the selection of locally available foods rich in essential nutrients (De Castro, 2013; Bvenura & Sivakumar, 2017). Nutrition education programs can empower individuals to make informed dietary choices, leading to improved dietary diversity and better nutritional outcomes.

Regarding the potential of complementary therapy in health crisis mitigation, the survey results are in line with existing literature on the role of traditional and alternative healing practices in addressing malnutrition (Girard et al., 2021). The study's participants acknowledged the potential efficacy of complementary therapy in nutrition support, reflecting the growing interest in incorporating such interventions in healthcare practices. The

emphasis on community engagement resonates with research emphasizing the importance of involving local communities in designing and implementing nutrition interventions to ensure their relevance and sustainability (Domingo et al., 2021). Integrating traditional and alternative healing practices with conventional healthcare can offer holistic and patient-centered approaches to address malnutrition-related health crises (Davison & Jassal, 2016; Pemunta & Tabenyang, 2021). However, it is essential to approach complementary therapy with caution, ensuring evidence-based practices and safety standards are followed (Lindquist et al., 2018). Rigorous research and evaluation of complementary therapy interventions are needed to assess their effectiveness and long-term impact on vulnerable communities.

Moreover, the call for integration with existing healthcare systems aligns with the principles of holistic healthcare, where traditional and modern medicine are seen as complementary rather than exclusive approaches (Pemunta & Tabenyang, 2021). The need for training and education to ensure the safe and effective application of complementary therapies is consistent with research emphasizing the importance of evidence-based practices and professional competence (Kretchy et al., 2016; Lindquist et al., 2018). Overall, the findings from this research contribute to the body of knowledge on malnutrition in vulnerable communities and the potential of complementary therapy in health crisis mitigation. The alignment between the study's results and existing theories and data provides further credibility to the research's conclusions. By building upon the existing evidence base, the study reinforces the importance of targeted interventions and policies to address malnutrition and improve the health outcomes of vulnerable populations. Future research may focus on evaluating the effectiveness of specific complementary therapy interventions and exploring the long-term impact of comprehensive nutrition support programs on at-risk communities.

Conclusion

The comprehensive survey on malnutrition risk factors in vulnerable

communities has provided valuable insights into the challenges faced by at-risk populations. The study revealed that food insecurity, limited access to healthcare, low socio-economic status, insufficient dietary diversity, and inadequate micronutrient intake are significant contributors to malnutrition. These findings align with existing research, emphasizing the need for targeted interventions and policies to address the complex interplay of factors influencing malnutrition in vulnerable groups. Additionally, the research explored the potential of complementary therapy as an innovative approach to health crisis mitigation. The study's participants acknowledged the potential efficacy of complementary therapy in nutrition support, highlighting the importance of community engagement and integration with existing healthcare systems. By building upon the existing evidence base, this research contributes to a better understanding of malnutrition among vulnerable communities and paves the way for evidence-based strategies aimed at improving the health and well-being of at-risk individuals worldwide. Further research on the effectiveness of specific complementary therapy interventions and the long-term impact of comprehensive nutrition support programs is recommended to guide future efforts in mitigating health crises related to malnutrition.

Reference

- Agyemang-Duah, W., Pehrah, C., & Pehrah, P., 2019. Barriers to Formal Healthcare Utilisation Among Poor Older People Under the Livelihood Empowerment Against Poverty Programme in the Atwima Nwabiagya District of Ghana. *BMC Public Health*, 19(1), pp.1185.
- Ahmed, S., Shommu, N.S., Rumana, N., Barron, G.R.S., Wicklum, S., & Turin, T.C., 2016. Barriers to Access of Primary Healthcare by Immigrant Populations in Canada: A Literature Review. *Journal of Immigrant and Minority Health*, 18(6), pp.1522–1540.
- Akhtar, S., 2016. Malnutrition in South Asia—A Critical Reappraisal. *Critical Reviews in Food Science and Nutrition*, 56(14), pp.2320–2330.
- Alert, P.D., Villarroel, R.M., Formiga, F., Casas, N.V., & Farré, C.V., 2012. Assessing Risk Screening Methods of Malnutrition in Geriatric Patients; Mini Nutritional Assessment (MNA) versus Geriatric Nutritional Risk

- Index (GNRI). *Nutricion Hospitalaria*, 2, pp.590–598.
- Bonevski, B., Randell, M., Paul, C., Chapman, K., Twyman, L., Bryant, J., Brozek, I., & Hughes, C., 2014. Reaching the Hard-to-Reach: A Systematic Review of Strategies for Improving Health and Medical Research with Socially Disadvantaged Groups. *BMC Medical Research Methodology*, 14(1), pp.42.
- Bvenura, C., & Sivakumar, D., 2017. The Role of Wild Fruits and Vegetables in Delivering a Balanced and Healthy Diet. *Food Research International*, 99, pp.15–30.
- Davison, S.N., & Jassal, S.V., 2016. Supportive Care: Integration of Patient-Centered Kidney Care to Manage Symptoms and Geriatric Syndromes. *Clinical Journal of the American Society of Nephrology*, 11(10), pp.1882–1891.
- De Castro, P., 2013. *The Politics of Land and Food Scarcity*. Routledge.
- Domingo, A., Charles, K.-A., Jacobs, M., Brooker, D., & Hanning, R.M., 2021. Indigenous Community Perspectives of Food Security, Sustainable Food Systems and Strategies to Enhance Access to Local and Traditional Healthy Food for Partnering Williams Treaties First Nations (Ontario, Canada). *International Journal of Environmental Research and Public Health*, 18(9), pp.4404.
- Girard, A.W., Brouwer, A., Faerber, E., Grant, F.K., & Low, J.W., 2021. Orange-Fleshed Sweetpotato: Strategies and Lessons Learned for Achieving Food Security and Health at Scale in Sub-Saharan Africa. *Open Agriculture*, 6(1), pp.511–536.
- Hantrais, L., Kattumuri, R., & Lenihan, A.T., 2020. *Sustaining Natural Resources in a Changing Environment*. Routledge.
- Hossain, M., Chisti, M.J., Hossain, M.I., Mahfuz, M., Islam, M.M., & Ahmed, T., 2017. Efficacy of World Health Organization Guideline in Facility-Based Reduction of Mortality in Severely Malnourished Children from Low and Middle Income Countries: A Systematic Review and Meta-Analysis. *Journal of Paediatrics and Child Health*, 53(5), pp.474–479.
- Husseini, M., Darboe, M.K., Moore, S.E., Nabwera, H.M., & Prentice, A.M., 2018. Thresholds of Socio-Economic and Environmental Conditions Necessary to Escape from Childhood Malnutrition: A Natural Experiment in Rural Gambia. *BMC Medicine*, 16(1), pp.199.
- Hwalla, N., Al Dhaheri, A., Radwan, H., Alfawaz, H., Fouda, M., Al-Daghri, N., Zaghoul, S., & Blumberg, J., 2017. The Prevalence of Micronutrient Deficiencies and Inadequacies in the Middle East and Approaches to Interventions. *Nutrients*, 9(3), pp.229.
- Johnson, N., Balagamwala, M., Pinkstaff, C., Theis, S., Meinsen-Dick, R., Agnes, Q., Johnson, N., Balagamwala, M., Pinkstaff, C., Theis, S., Meinsen-Dick, R., & Agnes, Q., 2018. *How do Agricultural Development Projects Empower Women? Linking Strategies with Expected Outcomes*.
- Kretchy, I.A., Okere, H.A., Osafo, J., Afrane, B., Sarkodie, J., & Debrah, P., 2016. Perceptions of Traditional, Complementary and Alternative Medicine Among Conventional Healthcare Practitioners in Accra, Ghana: Implications for Integrative Healthcare. *Journal of Integrative Medicine*, 14(5), pp.380–388.
- Kumar, N., Harris, J., & Rawat, R., 2015. If They Grow It, Will They Eat and Grow? Evidence from Zambia on Agricultural Diversity and Child Undernutrition. *The Journal of Development Studies*, 51(8), pp.1060–1077.
- Lindquist, R., Tracy, M.F., & Snyder, M., 2018. *Complementary and Alternative Therapies in Nursing* (Eighth edition). Springer Publishing Company.
- Maestre, M., Poole, N., & Henson, S., 2017. Assessing Food Value Chain Pathways, Linkages and Impacts for Better Nutrition of Vulnerable Groups. *Food Policy*, 68, pp.31–39.
- Malone, A., & Hamilton, C., 2013. The Academy of Nutrition and Dietetics/The American Society for Parenteral and Enteral Nutrition Consensus Malnutrition Characteristics: Application in Practice. *Nutrition in Clinical Practice*, 28(6), pp.639–650.
- Munoz, N., Litchford, M., Cox, J., Nelson, J.L., Nie, A.M., & Delmore, B., 2022. Malnutrition and Pressure Injury Risk in Vulnerable Populations: Application of the 2019 International Clinical Practice Guideline. *Advances in Skin & Wound Care*, 35(3), pp.156–165.
- Norman, K., Haß, U., & Pirlich, M., 2021. Malnutrition in Older Adults—Recent Advances and Remaining Challenges. *Nutrients*, 13(8), pp.2764.
- Olatunji, E., Obonyo, C., Wadende, P., Were, V., Musuva, R., Lwanga, C., Turner-Moss, E., Pearce, M., Mogo, E.R.I., Francis, O., & Foley, L., 2021. Cross-Sectional Association of Food Source with Food Insecurity, Dietary Diversity and Body Mass Index in Western Kenya. *Nutrients*, 14(1), pp.121.
- Olivares, J., Ayala, L., Salas-Salvado, J., Muniz,

- M.J., Gamundi, A., Martinez-Indart, L., & Masmiquel, L.L., 2014. Assessment of Risk Factors and Test Performance on Malnutrition Prevalence at Admission Using Four Different Screening Tools. *Nutricion Hospitalaria*, 29(3), pp.674–680.
- Opoku, M.P., J-F, Swabey, K., Pullen, D., & Dowden, T., 2019. Poverty Alleviation Among Persons with Disabilities via United Nations' Sustainable Development Goals in Ghana: Voices of Stakeholders with Disabilities. *Sustainable Development*, 27(1), pp.175–182.
- Pemunta, N.V., & Tabenyang, T.C.-J., 2021. *Biomedical Hegemony and Democracy in South Africa*. BRILL.
- Puwanant, M., Boonrusmee, S., Jaruratanasirikul, S., Chimrung, K., & Sriplung, H., 2022. Dietary Diversity and Micronutrient Adequacy Among Women of Reproductive Age: A Cross-Sectional Study in Southern Thailand. *BMC Nutrition*, 8(1), pp.127.
- Reber, E., Gomes, F., Vasiloglou, M.F., Schuetz, P., & Stanga, Z., 2019. Nutritional Risk Screening and Assessment. *Journal of Clinical Medicine*, 8(7), pp.1065.
- Silver, H.J., Pratt, K.J., Bruno, M., Lynch, J., Mitchell, K., & McCauley, S.M., 2018. Effectiveness of the Malnutrition Quality Improvement Initiative on Practitioner Malnutrition Knowledge and Screening, Diagnosis, and Timeliness of Malnutrition-Related Care Provided to Older Adults Admitted to a Tertiary Care Facility: A Pilot Study. *Journal of the Academy of Nutrition and Dietetics*, 118(1), pp.101–109.
- Singh, P.K., & Chudasama, H., 2020. Evaluating Poverty Alleviation Strategies in a Developing Country. *Plos One*, 15(1), pp.e0227176.
- Smith, V.H., & Glauber, J.W., 2020. Trade, Policy, and Food Security. *Agricultural Economics*, 51(1), pp.159–171.
- Tette, E.M.A., Sifah, E.K., & Nartey, E.T., 2015. Factors Affecting Malnutrition in Children and the Uptake of Interventions to Prevent the Condition. *BMC Pediatrics*, 15(1), pp.189.
- World Health Organization., 2020. *The State of Food Security and Nutrition in the World 2020: Transforming Food Systems for Affordable Healthy Diets*. FAO.