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Anthropological Perspectives on Goiter Awareness: Towards Inclusive Health Development for Middle-aged Women

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Abstract: Non-communicable diseases continue to pose a major global health challenge, particularly in low- and middle-income countries where access to health education remains uneven. Goiter, a thyroid disorder resulting from iodine deficiency and recognized by the World Health Organization as a non-communicable disease, disproportionately affects women over 40. Beyond its biomedical implications, Goiter reflects broader issues of gender vulnerability, social exclusion and unequal access to health information. This anthropological study examined knowledge, awareness and socio-cultural practices related to goiter among middle-aged women (35–55 years) in the Dediyawala Grama Niladhari Division, Kalutara District, Sri Lanka. Using purposive and random sampling, 100 women were selected, including 10% diagnosed with goiter and 90% community members without the condition. Primary data were gathered through structured interviews addressing health histories, awareness of goiter, iodine intake and preventive practices, while secondary sources included epidemiological reports and research literature. Findings revealed that 75% of non-patients lacked basic knowledge of goiter symptoms, risk factors and hormonal influences. Both patients and non-patients were unfamiliar with the role of the pituitary gland in metabolism. While 80% of participants recognized iodized salt, most did not understand its connection to thyroid health. Common cooking practices, adding salt at the start of cooking, contributed to iodine loss, with only 6% of patients modifying practices as medically advised. Socio-cultural resistance, particularly concerns about taste, hindered behavioral change. Delayed medical consultation led 6% of patients to face complications requiring surgery, often after relying on herbal or ritual practices. Gendered vulnerabilities were evident, with pregnancy and menopause increasing susceptibility. The study concludes that tackling goiter requires culturally sensitive, gender-responsive and inclusive health promotion strategies. Aligning education with socio-cultural practices and leveraging social media as a trusted communication channel can enhance women's health literacy and support sustainable development goals.

Key words: Anthropology, Cultural practices, Goiter awareness, Inclusive Health Development

Introduction

Goiter represents not only a clinical disorder but also a pressing public health concern, since its leading cause, iodine deficiency is largely preventable. The widespread use of iodized salt has dramatically reduced disease rates on a global scale, yet iodine deficiency disorders (IDDs) continue to pose major challenges in many low- and middle-income countries. From an anthropological standpoint, goiter is more than a thyroid condition, it is a biocultural phenomenon shaped by ecological availability of iodine, dietary and trade practices, traditional healing systems and the symbolic or social meanings attached to illness.

Iodine plays a vital role in human health as the elemental component of thyroid hormones. Because the body cannot synthesize iodine, its supply depends entirely on food and water sources, which in turn reflect the geochemistry of soil and water in a given region. Over millennia, geological processes such as glaciation, flooding and erosion have depleted iodine in inland environments, while oceans have retained most reserves. As a result, crops grown on deficient soils yield low-iodine diets, predisposing human and animal populations to deficiency. The adult requirement is estimated at 150 µg per day, although individual intake is highly variable [1, 2, 3]. The iodine content of local food sources is therefore the critical determinant of population sufficiency.

By 1980, the World Health Organization estimated that between one-fifth and more than half of the world's population lacked adequate iodine, with the heaviest burden in developing countries [4]. In response, prophylactic use of iodized salt was pioneered in Switzerland and the United States during the 1920s [5]. Despite nearly a century of such programs, IDDs still affect an estimated 2 billion people worldwide, equivalent to about one-third of the global population [4, 6, 7, 8]. These figures highlight the ongoing importance of systematic monitoring and the sustainability of prevention programs.

Patterns in South Asia illustrate the unevenness of goiter prevalence. Surveys report rates of 4.8% in Bangladesh (2005), 10.9% in Pakistan (2014) and a wide range in India from 4.8% in the northwest to more than 30% in the Himalayan foothills [9–12]. In Sri Lanka, Mahadeva and Shanmuganathan first mapped a goiter belt in 1967 [13], identifying endemicity in the wet zone and highland regions. Later studies revealed broader distribution, with high-prevalence pockets still evident despite the adoption of universal salt iodization in 1995 [14–16]. Follow-up research has documented both new endemic areas and rising autoimmune thyroiditis among schoolchildren in the post-iodization era [17–19]. Coastal regions such as Kalutara continue to show clusters of endemic goiter, likely linked to multiple nutritional and environmental stressors including trace element deficiencies and goitrogenic foods [1, 15, 20]. A later survey reported prevalence at 6.8%, with geographic variation differing from earlier observations [21].

While iodine deficiency is the primary factor, genetics also plays a role in determining susceptibility by influencing thyroid growth, hormone synthesis and immune regulation [22]. Still, biomedical mechanisms alone do not account for the observed distribution or the lived consequences of goiter. Anthropological insights show that cultural norms, gender roles and social inequalities shape health behaviors and exposure. Women, ten times more likely to develop goiter than men, often manage household cooking, making their food choices central to family iodine intake. Structural disadvantages such as exclusion from health education and unequal access to resources further increase their vulnerability.

In the broader context of non-communicable diseases, which remain a critical burden in low- and middle-income countries, an integrated perspective on goiter is vital. Beyond biomedical explanations, it must be seen as a condition embedded in cultural, social and environmental systems. Effective responses therefore require strategies that are not only medically sound but also culturally sensitive and context specific. From this perspective, goiter becomes a marker of nutritional gaps, social marginalization and gendered health risks, particularly in women between 40 and 65 years of age, a period marked by hormonal transitions and shifting social roles [23].

The conceptual foundation of this research lies in the biocultural model of health, which emphasizes how biological processes interact with cultural practices and ecological settings. Within this framework, goiter is interpreted as the product of iodine deficiency and genetic predisposition, but equally as an outcome shaped by dietary traditions, environmental conditions and social meanings. Gender and health theories further clarify how midlife women face dual vulnerabilities: biological changes such as menopause and structural inequalities like limited health information or healthcare access. Taken together, these perspectives underline the importance of moving beyond purely biomedical approaches to interventions that integrate cultural and social determinants of health [24, 25].

Accordingly, this study sets out two main objectives: first, to evaluate awareness of goiter's risk factors, symptoms and prevention among middle-aged women and second, to investigate how socio-cultural practices influence their health-related behaviors. Through this lens, the research aims to generate new insights into how biomedical knowledge, cultural practices and gendered vulnerabilities intersect to shape health outcomes.

Methodology

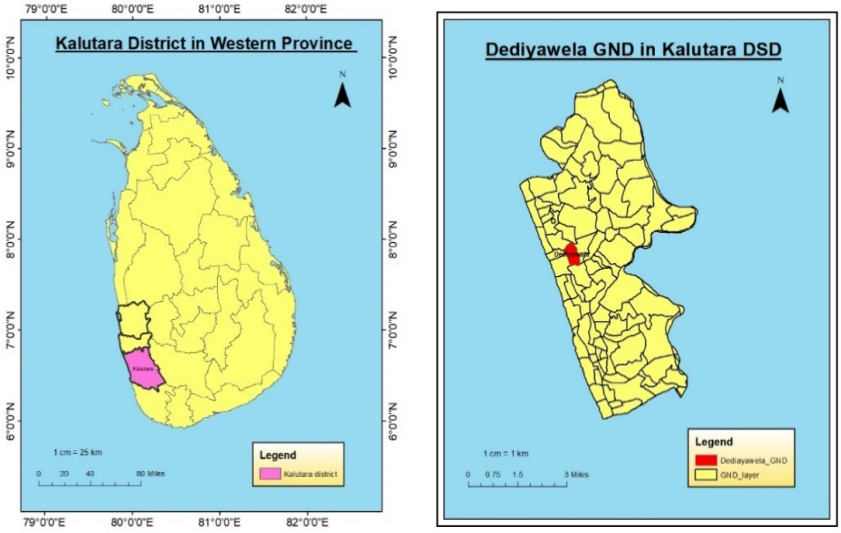
Study Design

The study was structured as a descriptive anthropological investigation, integrating both quantitative and qualitative tools to examine awareness, knowledge and socio-cultural practices concerning goiter among middle-aged women.

Study Area

The research was carried out in the Kalutara District, located in the Western Province of Sri Lanka. The district covers 1,598 km², including 22 km² of inland water bodies and is divided into 14 administrative secretariats. Kalutara lies within the country's wet climatic zone, with its main river systems being the Kalu Ganga and Bentara Ganga [26–28]. The study was conducted in Dediyawala Grama Niladhari Division (GND), which is located in the Kalutara District of Sri Lanka (Figure 1). Kalutara District consists of 14 Divisional Secretariat Divisions and 762 GNDs, with Dediyawala representing one of these divisions. This area was selected due to its known goiter history, mixed rural-urban population and the continued presence of iodine deficiency-related health challenges despite universal salt iodization programs.

Figure 1: Study area of the research (Left: Kalutara district highlighted in the map of Sri Lanka, Right: Dediyawala Grama Niladhari Division is highlighted among the 14 Divisional Secretariat Divisions in Kalutara district)



Source: Created using 1:50,000 digital data, Survey Department of Sri Lanka

Study Population

The study population consisted of women between 35 and 55 years of age. This life stage was selected because it represents a transitional period marked by biological, social and cultural changes, during which women are at heightened risk of thyroid-related disorders. Women in this age group are also central to household dietary practices, which influence iodine intake. The total population of the Dediyawala GND was 2,714 individuals at the time of study [29].

Sample and Sampling Procedure

A total sample of 100 women was included in the study. Of these, 10% (n = 10) were women clinically diagnosed with goiter, selected purposively to ensure representation of affected individuals. The remaining 90% (n = 90) were women without a goiter diagnosis, randomly selected from the same community to provide a comparative perspective on awareness and practices. The combination of purposive and random sampling methods allowed for both targeted insights and broader community representation.

Data Collection Methods

Primary data was collected through unstructured face-to-face interviews conducted with participants. The interview schedule included sections on socio-demographic characteristics, personal and family health histories, awareness of goiter and iodine intake, preventive and treatment-seeking behaviors and socio-cultural practices related to diet and health. In addition to primary data, secondary sources such as epidemiological reports, government health surveys and published research papers were reviewed to provide contextual background and triangulate findings.

Data Analysis

Data were categorized, coded, and summarized using descriptive statistics to present levels of awareness, demographic profiles, and practices. Comparisons between diagnosed individuals and other participants were carried out to identify differences in behavior and knowledge. Qualitative information was examined thematically to highlight cultural norms and perceptions influencing health practices. The combination of both approaches provided a comprehensive anthropological interpretation of the findings.

Ethical Considerations

Participation was strictly voluntary. Written informed consent was secured before interviews and participants who declined were excluded. To protect privacy, responses were anonymized through coding and no personal identifiers were used in reporting. The study adhered to nationally recognized ethical standards for social science and health-related research in Sri Lanka.

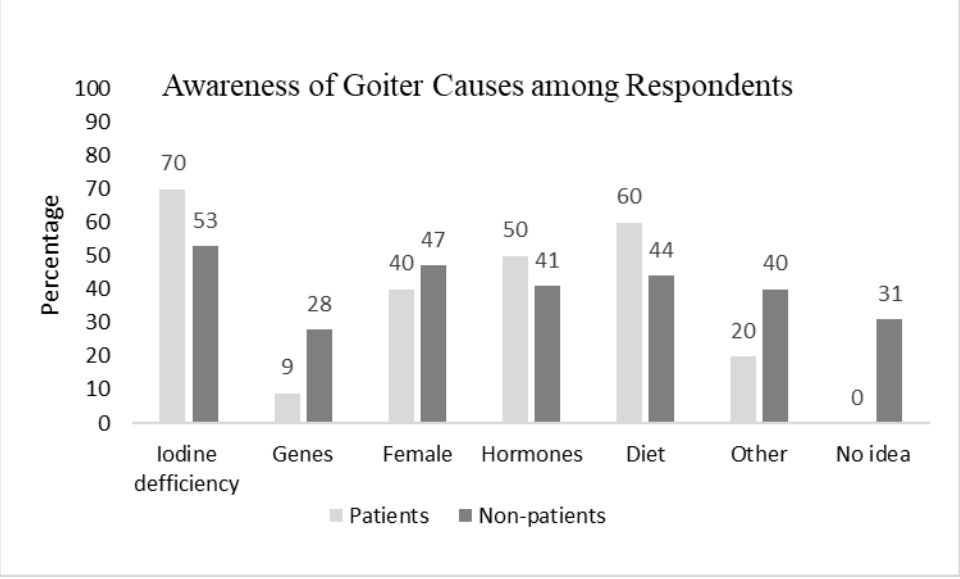
Results and Discussion

Awareness of Goiter Causes

The sample of this study consisted of 100 women aged between 35 and 55 years. Among the non-patient group, the majority (32%) were in the 51–55 age category, while the lowest proportion (9%) was observed in the 41–45 age group. Among women diagnosed with goiter, the highest proportions (30% each) were found in the 36–40 and 51–55 age categories. In addition, 20% of goiter patients were within the 41–45 and 46–50 age groups, respectively. Notably, no goiter patients were identified below 35 years of age.

The perceptions of causes of goiter differed between patients and non-patients. Among patients, the majority (70%) identified iodine deficiency as the primary cause, compared to 53% of non-patients. Dietary factors were also frequently mentioned, with 60% of patients and 44% of non-patients attributing diet to the condition. Hormonal influence was recognized by half of the patients (50%) and 41% of non-patients, while female sex was considered a contributing factor by 40% of patients and 47% of non-patients. Genetic inheritance was less frequently reported by patients (9%) than by non-patients (28%). Notably, cultural explanations categorized as 'other' (including beliefs in the evil eye, karma or sorcery) were cited by 20% of patients and a higher proportion of non-patients (40%). Strikingly, none of the patients indicated having 'no idea' about the cause of goiter, whereas 31% of non-patients expressed uncertainty (Figure 2).

Figure 2: Awareness of Goiter Causes among Respondents (n=10 patients; n=90 non-patients)



Source: Authors

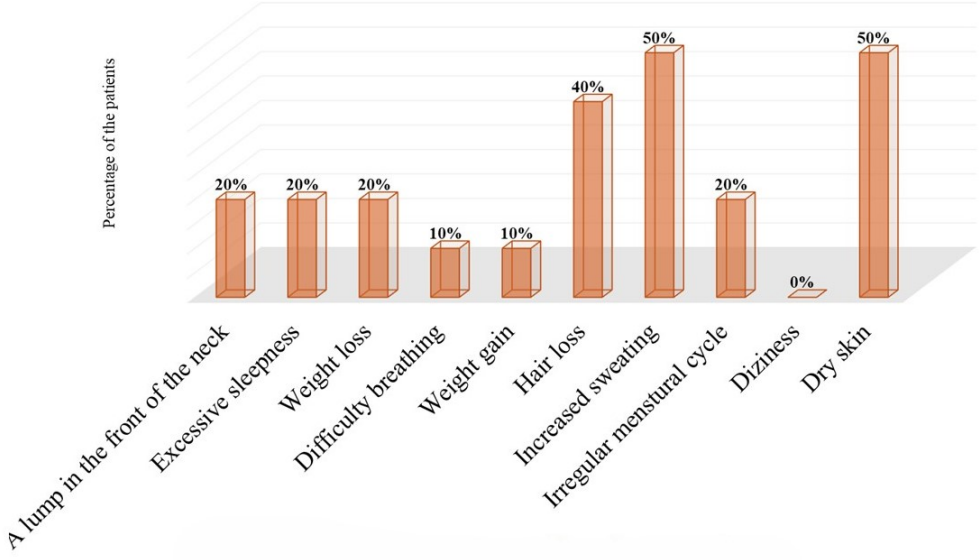
Less than half of the non-patients (44%) knew that goitrogens (e.g. cassava) or environmental factors (soil iodine) play a role. Some non-patients (28%) stressed that goiter is only coming from generation and they argued that iodine

deficiency is not the reason for the disease because they consume fish more frequently. These findings suggest that patients tended to emphasize biomedical explanations such as iodine deficiency, diet and hormonal factors, whereas non-patients were more likely to cite genetics, cultural beliefs or report uncertainty about the causes. On the other hand, significant non-patients ascribed goiter to supernatural or cultural causes: about 40% cited '*karma*', the *evil eye* or sorcery. Similar observations have been reported in northern Benin, Africa, where bewitchment (25.6%), sorcery (2.3%), and divine punishment (2.3%) were noted as perceived causes of goiter [30].

Signs and symptoms of goiter

The study also highlighted significant gaps in knowledge about the signs and symptoms of goiter. Among non-patients, 75% lacked even a basic understanding of clinical manifestations or associated risk factors, such as hormonal changes. Many were unaware of the role of the pituitary gland in regulating thyroid function and maintaining normal metabolism. Patients reported experiencing various symptoms, including irregular menstrual cycles (20%), dry skin (50%), hair loss (40%), and excessive sleepiness or weight loss (20% each). Despite experiencing these signs, most participants did not consider them to indicate serious health concerns (Figure 3).

Figure 3: Signs and symptoms of goiter reported by the patients



Source: Authors

Many women perceived goiter primarily as a visible swelling in the neck, often overlooking systemic symptoms linked to thyroid dysfunction. This limited awareness contributed to delays in seeking care, as signs such as fatigue, menstrual irregularities, or skin changes were often normalized or attributed to other causes. Consequently, treatment was typically sought only after noticeable neck enlargement appeared, increasing the risk of complications. These observations underscore the importance of community-level education on the full spectrum of goiter manifestations to encourage earlier detection and timely intervention.

Cultural Practices and Dietary Habits

Cooking traditions significantly influenced behaviors related to iodine intake. Most participants (80%) reported adding salt at the start of cooking, which can substantially reduce iodine content due to heat exposure. Awareness of this effect was limited, with only 20% recognizing the potential problem. Even among those aware, longstanding habits and taste preferences discouraged change. Among thyroid patients, just 6% reported modifying cooking practices following medical advice, while the majority continued traditional methods. These patterns highlight how entrenched cultural norms and sensory preferences can challenge public health efforts aimed at reducing iodine deficiency [31, 32, 33].

Traditional Remedies and Holistic Practices

All participants reported using some form of traditional remedy for general health, with many applying these specifically for thyroid health. The most common practice involved consuming *kotthamalli* tea (boiled coriander seeds

with ginger), used daily by roughly 80% of women. About 60% regularly included *kola kenda*, a green herbal porridge combining rice and medicinal leaves, believed to detoxify and support health. Nearly half (50%) engaged in yoga or pranayama exercises, thought to enhance thyroid function. Other practices included Ayurvedic tonics, fenugreek infusions and herbal neck massages. These habits reflect Sri Lanka's longstanding Ayurvedic traditions and cultural emphasis on lifestyle interventions for disease prevention [34,35].

Social Stigma and Perceptions

Social consequences of goiter were also apparent. Approximately 70% of affected women reported feeling ashamed or embarrassed by their condition, with 60% citing stigmatizing remarks from family or community members. Concerns about marriage prospects for daughters were expressed by 40% and women often covered their necks in public. Comparable findings in Benin indicated that 78.7% of women with goiter experienced stigma, 33% suffered loss of self-esteem and 42.6% altered clothing habits to conceal the neck [30]. These results emphasize that goiter carries social as well as biomedical implications, reinforcing the need for culturally sensitive interventions.

Health Education Gaps

The study revealed significant gaps in biomedical knowledge and highlighted the influence of cultural beliefs on goiter awareness. Many women combined partial scientific understanding with traditional explanations, reflecting the coexistence of indigenous medical systems and biomedicine in Sri Lanka. Ayurveda and folk practices are not merely alternatives but integral to health culture. Our findings show that *Koththamalli* tea, herbal porridge and yoga remain widely trusted for supporting thyroid health. Liyanage and Nima (2016) [36] note that Sri Lankans often access medical care through culturally familiar remedies, suggesting that these practices can be leveraged as entry points for public health interventions rather than viewed as barriers.

Nonetheless, exclusive reliance on cultural approaches can reinforce social exclusion. Visible goiters triggered shame and family embarrassment among participants. Literature emphasizes that chronic visible conditions often carry psychosocial burdens, especially for women concerned with appearance. Hounkpatin et al. [30] reported similar patterns of stigma, including concealment behaviors and altered clothing choices. In Dediyawala, some women avoided social gatherings or covered their necks, which may exacerbate mental health challenges and delay medical care.

Gender dynamics further shape health outcomes. Interviews revealed that some women needed male accompaniment to attend clinics, reflecting limited autonomy. This aligns with broader research showing that caretaking roles and decision-making power influence women's health behaviors. Manandhar et al. (2018) [37] highlight that gender roles intersect with Sustainable Development Goals (SDGs), such as SDG4 on education and SDG8 on economic empowerment. For example, women with higher education demonstrated better knowledge of goiter and were more proactive about seeking care, whereas economically dependent women faced greater access barriers [38].

Medical anthropology underscores the necessity of integrating cultural understanding into health programs. As Omobowale (2022) [39] argues, acknowledging the meanings people attach to disease is essential for effective interventions. By situating health behaviors within cultural contexts, programs can be tailored to local realities, a principle supported by Gilbert et al. (2020) and Omobowale (2022) [39, 40].

Digital strategies offer additional opportunities. WHO Europe (2024) [41] emphasizes that social media and mobile technologies can expand access to health information and services, supporting universal health coverage. In Dediyawala, digital campaigns in Sinhala, through social media or WhatsApp groups could raise awareness about goiter prevention and direct women to free clinics. Such initiatives should be accompanied by digital literacy training and affordable internet access to ensure inclusiveness.

Achieving SDG targets requires integrated approaches. Enhancing women's education (SDG4) can improve health literacy, while economic empowerment (SDG8) strengthens autonomy in healthcare decision-making. Manandhar et al. [37, 42, 43] advocate for cross-sectoral strategies to promote health equity and gender equality.

Overall, our findings emphasize that social, cultural and gender factors shape goiter awareness. Misconceptions and traditional practices are not irrational obstacles but reflect Dediyawala women's lived experiences. Anthropology's role is to document these realities and work with them, ensuring that health interventions are culturally appropriate, needs-based and more likely to be adopted and sustained.

Conclusion

This study demonstrates that goiter among middle-aged women in Dediyawala is influenced not only by biomedical factors but also by social, cultural and economic dynamics. Knowledge gaps, delayed treatment and persistent misconceptions are closely linked to traditional beliefs, gender roles and limited autonomy. Key observations include widespread reliance on both biomedical and folkloric explanations, stigma associated with visible goiters leading to shame and social isolation and the constraints of women's time and economic dependence in accessing healthcare.

Despite the availability of iodized salt, awareness of goiter and its prevention remains limited. Cultural practices continue to shape dietary behaviors and health-seeking patterns, highlighting the need for interventions that integrate biomedical education with cultural understanding and gender-sensitive approaches. Providing women with accessible, culturally appropriate knowledge through targeted communication channels can help reduce the burden of goiter while simultaneously supporting national and global development objectives.

Strengthening monitoring systems and ensuring sustainable control of iodine deficiency disorders remain critical for long-term elimination. Framing these efforts within the Sustainable Development Goals, SDG 3 (Good Health and Well-being) emphasizes equitable disease prevention, while SDG 5 (Gender Equality) underlines the importance of empowering women in health-related decision-making. Gender emerges as a central social determinant of health, influencing both behaviors and access to care. By adopting a culturally informed, gender-sensitive strategy, health programs can more effectively address goiter awareness and support better outcomes for women in Sri Lanka.

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References

[1] Fernando, G. W. A. R., Liyanage, P. L. C. L., Rajapaksha, A. U., & Vithanage, M. (2017). Medical geology of endemic goiter in Kalutara, Sri Lanka: Distribution and possible causes. Environmental Geochemistry and Health, 39(5), 1501–1511. doi:10.1007/s10653-017-9985-7

[2] Ma, R., Yan, M., Han, P., Wang, T., Li, B., Zhou, S., Zheng, T., Hu, Y., Borthwick, A. G. L., Zheng, C., & Ni, J. (2022). Deficiency and excess of groundwater iodine and their health associations. Nature Communications, 13(1), 7354. doi:10.1038/s41467-022-35042-6

[3] WHO, (1996). *Recommended Iodine levels in salt and guidelines for monitoring their adequacy and effectiveness*, Nutrition unit, Division of Food and Nutrition, World Health Organization. Geneva.

[4] WHO, (2014). *Goitre as a determinant of the prevalence and severity of iodine deficiency disorders in populations*, World Health Organization. https://www.who.int/publications/i/item/WHO-NMH-NHD-EPG-14.5

[5] Leung, A. M., Braverman, L. E. and Pearce, E. N. (2012). History of U.S. iodine fortification and supplementation, *Nutrients, 4(11), 1740–1746. doi:10.3390/nu4111740*

[6] Pandav, C. S., Yadav, K., Srivastava, R., Pandav, R., Karmarkar, M. G. (2013). Iodine deficiency disorders (IDD) control in India. *The Indian Journal of Medical Research*, *138*(3): 418-433. https://journals.lww.com/ijmr/toc/2013/38030

[7] Zimmermann, M. B. (2009). Iodine Deficiency, *Endocrine Reviews*, 30(4), 376–408. doi:10.1210/er.2009-0011

[8] Zou Y., Ding G., Lou X., Mo Z., Zhu W., Mao G. and Zhou J. (2014). A study on the influencing factors of urinary iodine concentration and the relationship between iodised salt concentration and urinary iodine concentration. *British Journal of Nutrition, 113(1), 142–146. doi:10.1017/S0007114514003377*

[9] Chandra, A. K., Bhattacharjee, A., Malik, T. and Ghosh, S. (2008). Goiter prevalence and iodine nutritional status of school children in a sub-Himalayan Tarai region of eastern Uttar Pradesh, *Indian Pediatrics, 45(6), 454–455.*

[10] Makwana, N. R., Shah, V. R., Unadkat, S., Shah, H. D. and Yadav, S. (2012). Goiter prevalence and current iodine deficiency status among school age children years after the universal salt iodization in Jamnagar district, India, *Thyroid Research and Practice*, 9(2), 40–44.

[11] Saira, S., Khattak, R. M., Rehman, A. U., Khan, A. A. and Khattak, M. N. K. (2014). Prevalence of goiter and iodine status in 6-12 years school children and pregnant women of district Charsadda, Pakistan, *Acta Endocrinologica (Bucharest), 10(1), 65–75.*

[12] Makwana, N. R., Shah, V. R., Unadkat, S., Shah, H. D., Yusuf, H. K., Rahman, A. M., Chowdhury, F. P., Mohiduzzaman, M., Banu, C. P., Sattar, M. A., & Islam, M. N. (2008). Iodine deficiency disorders in Bangladesh, 2004-05: ten years of iodized salt intervention brings remarkable achievement in lowering goiter and iodine deficiency among children and women, *Asia Pacific Journal of Clinical Nutrition*, *17*(4):620-628.

[13] Mahadeva, K. & Shanmuganathan, S. (1967). The problem of goiter in Ceylon. *British Journal of Nutrition, 21(3), 341–352.*

[14] Fernando, M. A., Balasuriya, S., Herath, K. B. and Katugampola, S. (1989). Endemic iodization in Sri Lanka. *Asia-Pacific Journal of Public Health, 3(1), 11–19.*

[15] Dissanayake, C. B. and Chandrajith, R. (1999). Medical geochemistry of tropical environments. *Earth-Science Reviews, 47(3–4), 219–258. doi:10.1016/S0012-8252(99)00033-1*

[16] Chandrasinghe, P., Fernando, R., Nandasena, S., and Pathmeswaran, A. (2015). Epidemiology of goiters in Sri Lanka with geographic information system mapping: Population-based cross-sectional study. *World Journal of Endocrine Surgery*, 7(3), 55–59. doi:10.5005/jp-journals-10002-1170.

[17] Premawardhana, L. D. K. E., Wijeyaratne, C. N., Chen, S., Wijesuriya, M., Illangasekera, U., Brooking, H., Amoroso, M., Jeffreys, J., Bolton, J., Lazarus, J. H., Furmaniak, J., & Rees Smith, B. (2006). Islet cell, thyroid, adrenal and celiac disease related autoantibodies in patients with Type 1 diabetes from Sri Lanka, *Journal of Endocrinological Investigation, 29(11), 968–974. doi:10.1007/BF03349209*

[18]. Dold, S., Zimmermann, M. B., Jukic, T., Kusic, Z., Jia, Q., Sang, Z., & Andersson, M. (2018). Universal Salt Iodization Provides Sufficient Dietary Iodine to Achieve Adequate Iodine Nutrition during the First 1000 Days: A Cross-Sectional Multicenter Study, *The Journal of Nutrition*, 148(4), 587–598. doi:10.1093/jn/nxy015

[19] Fernando, R., Chandrasinghe, P. and Pathmeswaran, A. (2012). The prevalence of autoimmune thyroiditis after universal salt iodisation in Sri Lanka. *Ceylon Medical Journal, 57(3), 116–119.*

[20] Fordyce, F. M. (2013). Selenium Deficiency and Toxicity in the Environment. In O. Selinus (Ed.), *Essentials of medical geology: Revised edition* (pp. 375–416). Dordrecht, Netherlands: Springer.

[21] Fernando, R., Pathmeswaran, A. and Pinto, M. D. P. (2015). Epidemiology of goitre in Sri Lanka in the post-iodization era. *Ceylon Medical Journal*, *60*(2), 41–44.

[22] Panicker, V. (2011). Genetics of thyroid function and disease. The Clinical Biochemist Reviews, 32(4), 165–175. Retrieved from https://pubmed.ncbi.nlm.nih.gov/22147956/

[23] Thomas, A. J., Mitchell, E. S. and Woods, N. F. (2018). The challenges of midlife women: themes from the Seattle midlife Women's health study, *Womens Midlife Health*, *15*;4:8. https://doi.org/10.1186/s40695-018-0039-9

[24] Hammarström, A. and Hensing, G. (2018). How gender theories are used in contemporary public health research. *International Journal for Equity in Health, 17(34). doi:10.1186/s12939-017-0712-x*

[25] Connell, R. (2012). Gender, health and theory: Conceptualizing the issue, in local and world perspective, *Social Science & Medicine*, *74*(11): 1675-1683. https://doi.org/10.1016/j.socscimed.2011.06.006

[26] Kalutara District. (2022). District landslide risk profile. State Ministry of National Security and Disaster Management. Retrieved from https://www.nbro.gov.lk/images/district_profiles/Kalutara.pdf

[27] Kalutara District Secretariat. (2017). Statistical information. Retrieved from http://kalutara.ds.gov.lk/index.php/en/statistical-information.html

[28] Department of Census and Statistics. (2021). Statistical pocket book. Colombo, Sri Lanka. Retrieved from https://www.statistics.gov.lk/Pocket%20Book/chap01.pdf

[29] Department of Census and Statistics, Sri Lanka. (2022). Census of population and housing 2022. Colombo, Sri Lanka. Retrieved from http://www.statistics.gov.lk

[30] Hounkpatin, S. H. R., Bouraima, F. A., Vodouhe, U. B., Adjibode, O., Flatin, M.C. and Gandaho, P. (2018). Psychosocial Experience in Goiter Patients, *International Journal of Otolaryngology and Head & Neck Surgery*, *7*(6): 367-374. https://doi.org/10.4236/ijohns.2018.76037

[31] Begum, J., Umaramani, G. and Ali, S. I. (2021). Evaluation of Factors Affecting Thyroid Levels and its Relationship with Salt Iodine to Suggest the Way Forward, *International Journal of Preventive Medicine, 12, 166. doi:10.4103/ijpvm.IJPVM_594_20*

[32] Sandri, E., Capoferri, M., Piredda, M. and Micheluzzi, V. (2025). Culinary Habits and Health: Analyzing the Impact of Cooking Practices and Knowledge Among Spanish Young Adults, *Nutrients, 17(10), 1635. doi:10.3390/nu17101635*

[33] Rana, R. and Raghuvanshi, R. S. (2013). Effect of different cooking methods on iodine losses. *Journal of Food Science and Technology, 50(6), 1212–1216. doi:10.1007/s13197-011-0436-7*
[34] Obesekara, G. (1976). The impact of Ayurvedic ideas on the culture and the individual in Sri Lanka. In C. Leslie (Ed.), Asian medical systems: A comparative study. Berkeley, CA: University of California Press.
[35] Verma, S.K., Pandey, M., Sharma, A. and Singh, D. (2024). Exploring Ayurveda: principles and their application in modern medicine. *Bulletin of the National Research Centre, 48, 77. doi:10.1186/s42269-024-01231-0*
[36] Liyanage, I., & Nima, B. (Eds.). (2016). Multidisciplinary research perspectives in education: Shared experiences from Australia and China. Leiden, Netherlands: Brill Academic Publishers.
[37] Manandhar, M., Hawkes, S., Buse, K., Nosrati, E., & Magar, V. (2018). Gender, health and the 2030 agenda for sustainable development. Bulletin of the World Health Organization, 96(9), 644–653. doi:10.2471/blt.18.211607
[38] Balogun, S. A., Yusuff, H. A., Yusuf, K. Q., Al-Shenqiti, A. M., Balogun, M. T. and Tettey, P. (2017). Maternal education and child immunization: the mediating roles of maternal literacy and socioeconomic status. *Pan African Medical Journal, 26, 217. doi:10.11604/pamj.2017.26.217.11856*
[39] Omobowale, M. O. (2022). Embedding cultural studies in public health higher education: the role of medical anthropologists, *Pan African Medical Journal, 41, 271. doi:10.11604/pamj.2022.41.271.18226*
[40] Gilbert, E., Collins, R., Webster, V., Boyd, N., Maple-Brown, L., Boyle, J., & Smith-Vaughan, H. (2021). Using co-design to develop a culturally responsive reproductive health learning resource for Aboriginal and Torres Strait Islander youth. Health Promotion Journal of Australia, 32(S1), 179–185. https://doi.org/10.1002/hpja.392
[41] World Health Organization Regional Office for Europe. (2024). European health report 2024: Keeping health high on the agenda. Copenhagen, Denmark: Author. Retrieved from https://www.who.int/europe/publications/i/item/WHO-EURO-2025-10668-50440-76183
[42] Al-Chetachi, W., Krivova, A., Badran, H., Azam, S., Radwan, E., & Bhuiyan, S. U. (2022). Women's empowerment under the lens of global health equity: Literature review of challenges, best practices, and societal impact. International Health Trends and Perspectives, 2(1), 88–117. https://doi.org/10.32920/ihtp.v2i1.1625
[43] Filho, W. L., Kovaleva, M., Tsani, S., Țîrcă, D.-M., Shiel, C., Dinis, M. A. P., Nicolau, M., Sima, M., Fritzen, B., Salvia, A. L., Minhas, A., Kozlova, V., Doni, F., Spiteri, J., Gupta, T., Wakunuma, K., Sharma, M., Barbir, J., Shulla, K., Bhandari, M. P., & Tripathi, S. (2022). Promoting gender equality across the sustainable development goals. *Environment, Development and Sustainability, 25*(12), 14177–14198. https://doi.org/10.1007/s10668-022-02656-1

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