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Indigenous Australians' Lived Experiences of Diet, Nutrition, and Oral Health: A Qualitative Study

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Abstract

Objective

To explore the lived experiences, perceptions, and attitudes of Indigenous Australian adults regarding diet, nutrition, and oral health, with a focus on the social, cultural, historical, and structural factors that shape food choices and oral health behaviours.

Materials and Methods

A qualitative study was conducted using semi-structured interviews with Indigenous Australian adults across South Australia. Interview questions explored participants' experiences of diet and nutrition, perceptions of the relationship between diet and oral health, experiences of receiving dietary advice in dental settings, and views on public health food and nutrition initiatives. The interviews were audio-recorded, transcribed, and de-identified. Data were analysed using template thematic analysis through six iterative steps: data familiarisation, initial coding, theme clustering, template development, iterative refinement, and final template application.

Results

280 adults participated, and 136 agreed to be interviewed. Four themes were identified from interviews. Theme 1, individual attitudes and beliefs about diet and oral health, revealed strong personal awareness of the links between sugar consumption and dental health, while demonstrating that individual choices are closely constrained by food affordability and access. Theme 2, societal and structural barriers to healthy eating, highlighted the lasting disruption of traditional, nutrient-dense food systems through colonisation, as well as the high cost and limited availability of fresh produce, particularly in rural and remote communities, as key drivers of dietary inequity. Theme 3, dietary advice in dental settings, highlighted a dual pattern: respectfully delivered, non-judgemental dietary guidance could empower meaningful behaviour change, while judgemental or shaming encounters led to disengagement from care and reinforced feelings of disempowerment. Theme 4, policy-driven public health promotion initiatives, showed that participants strongly endorsed community-led, place-based strategies, including store-based restrictions on sugar-sweetened products and co-designed food environment policies, as the most credible and culturally appropriate approaches to improving diet and oral health.

Conclusion

Indigenous Australians' dietary choices and oral health outcomes are shaped by a complex interplay of individual awareness, structural disadvantage, food insecurity, and the enduring consequences of

colonisation on traditional food systems. Achieving oral health equity in this population requires community-led, culturally safe strategies that centre self-determination and food sovereignty.

Trial registration

The study was retrospectively registered with the Australian New Zealand Clinical Trials Register (https://anzctr.org.au) with registration number: ACTRN12626000046303 (13-01-2026).

1. Introduction

Nutrition, particularly dietary sugar intake, is a major determinant of both systemic and oral health across the life course. Diet-related risk factors contribute substantially to chronic disease burden [1, 2], and frequent exposure to fermentable sugars is a primary driver of dental caries [3]. Aboriginal and Torres Strait Islander Peoples (hereafter referred to as Indigenous) in Australia experience pronounced inequities in diet quality and oral health compared with non-Indigenous Australians, with high sugar consumption sitting at the intersection of these disparities [4–6]. Addressing diet and nutrition is therefore central to reducing the chronic disease burden in these priority populations.

Understanding these dietary patterns involves considering the wider historical and cultural contexts in which they have evolved. Prior to European colonisation, Indigenous communities had diverse, nutrient-dense diets centred on bush foods by consuming traditional diets, rich in native fruits and vegetables, lean land animals (e.g., kangaroo), and seafood that supported metabolic health and connection to Country, which varied based on seasons and geographic location [7]. Colonisation and land dispossession disrupted these traditional food systems, leading to an increasing reliance on Westernised diets, which often comprise processed, store-bought foods high in refined sugars, saturated fats, and salt [8–10]. Family and community structures, which continue to shape food choices through shared meals and caregiving practices, have also been profoundly affected [11]. These historical disruptions are compounded by present-day food insecurity, defined as the lack of consistent or reliable access to sufficient, safe, nutritious, and culturally appropriate food. Food security is shaped by interconnected structural determinants, including employment, income, welfare, education, housing, and access to reliable public transport [8].

The implications of food insecurity extend directly to oral health. Diets consistently high in fermentable sugars, which are often the most affordable and accessible foods in food-insecure contexts, substantially elevate the risk of dental caries [12]. Frequent consumption of sugar-sweetened beverages, confectionery, refined carbohydrates, and other discretionary foods drives persistent exposure of tooth surfaces to fermentable carbohydrates, leading to acid production, enamel demineralisation, and progressive dental caries [1, 12]. Historical disruption of traditional, nutrient-dense diets and ongoing socioeconomic disadvantage further compound these risks, contributing to earlier onset, higher severity, and poorer treatment of dental caries among Indigenous children and adults [5, 6, 13]. Addressing caries in these communities, therefore, requires not only clinical care but also culturally informed, community-

led strategies that tackle the dietary environment, improve access to healthy foods, and respect Indigenous knowledge and priorities around food and oral health.

Despite well-documented associations between diet, food security, and dental caries, existing research has predominantly relied on quantitative approaches that measure dietary intake or clinical disease outcomes in isolation, without capturing the social, cultural, and historical contexts that shape food choices and oral health behaviours [9, 14, 15]. Qualitative evidence is limited, and little is known about how Indigenous Peoples perceive and respond to dietary advice from dental professionals or public health nutrition initiatives. To address these gaps, this study used a qualitative study design with semi-structured interviews. The aim of this study was to explore the lived experiences, perceptions, and attitudes of Indigenous peoples regarding diet, nutrition, and oral health, focusing on the social, cultural, and historical factors that shape food choices and their consequences for oral health outcomes. The aim was to develop a culturally informed understanding of the factors that shape dietary behaviours and their consequences for oral health outcomes among Indigenous Australian communities.

2. Method

As part of a longitudinal quasi-experimental interventional study registered retrospectively with the Australian New Zealand Clinical Trials Registry (registration number: ACTRN12626000046303; registered on 13 Jan 2026). Baseline data collection took place from July 2022 to December 2023, with a 12-month follow-up from March 2024 to March 2025 [16–18]. The study was conducted on the traditional lands of the Kaurna (Greater Adelaide), Adnyamathanha (Hawker), Nukunu (Port Augusta), Barngarla (Port Augusta), and Ngarrindjeri (Murray Bridge) Peoples. This study was conducted in accordance with the Declaration of Helsinki, and all procedures involving research participants were approved by the Aboriginal Health Council of South Australia's Human Research Ethics Committee and the University of Adelaide Human Research Ethics Committee (combined number 04-22-990). Written and verbal informed consent was obtained from all participants.

2.1. Positionality and reflexivity statement

This study was carried out in accordance with the CONSIDER statement, recognising the importance of positionality and reflexivity in conducting Indigenous oral health research [19]. This research was overseen by the Indigenous Oral Health Unit Reference Group (IOHURG) and the Director of the Indigenous Oral Health Unit. They supported the project across all domains, including hiring, participant recruitment, data collection, analysis and community feedback [18]. The team engaged in regular reflection sessions led by Indigenous researchers to ensure that cultural safety was centred across all dimensions of the research process, including the framing of questions for qualitative interviews [18].

2.2. Study design and participants

Participants were recruited through convenience and snowball sampling via word of mouth, local Indigenous health services, Indigenous community organisations, and social media. The participation

inclusion criteria were to be aged 18 years or older, to identify as Aboriginal or Torres Strait Islander, and to currently reside in South Australia.

The interventional component comprised the provision of culturally safe dental care. Participants were referred to either public or private dental services according to their eligibility for an Australian Government Health Care Card (HCC; concession card). Those attending a private urban dental clinic could choose care from either an Indigenous or a non-Indigenous dental practitioner. The study subsidised travel to the clinic and contributed to the cost of preventive and restorative dental treatment. [20] Oral health education was individually and family-tailored, using plain language, storytelling [21], and culturally relevant visual resources (including artwork) to convey complex oral health concepts. At 12 months, all participants were reevaluated.

2.3. Data collection

Data collection, dental examinations and qualitative interviews were conducted in participants' homes, workplaces, community centres, or dental clinics, according to participants' preferences. Trained Indigenous and non-Indigenous research officers collected data, following standardised training and calibration procedures [18]. Indigenous research officers administered self-report questionnaires via interviewer-administered surveys, paper forms, or secure online completion using REDCap (Research Electronic Data Capture) [22] software. The structured questionnaire (Supplementary 1) was adapted from previously validated instruments used in Indigenous Australian oral health surveys. The full covariate categorisation of all the variables is explained in Supplementary 2.

Self-reported questionnaire: The sociodemographic variables comprised age (continuous and categorical), sex, and residential location (metropolitan vs. regional). The highest level of education (secondary vs tertiary), the main income source (paid employment vs Centrelink payments), and ownership of an Australian Government HCC (concession card). Centrelink income denotes receipt of government social security benefits (for example, pensions or allowances), while HCC ownership indicates eligibility for reduced-cost prescription medicines and other health and cost-of-living concessions based on low income or qualifying benefits. Health behaviour variables included smoking (current, former, or never), alcohol consumption frequency (never, monthly, or weekly), and self-rated general health (good, moderate, or poor). Dental behavioural variables included time since last dental visit (< 1 year vs ≥ 1 year), and primary reason for dental attendance (check-up vs problem-based). Oral health outcome variables included self-rated oral health (good, moderate, or poor) and dental caries status, as defined by an ICDAS-based clinical examination [23].

Qualitative interviews: Following this, semi-structured qualitative interviews were conducted (Supplementary File 3). A yarning-based approach was used during interviews to facilitate open, respectful, and culturally safe dialogue [9, 21]. The yarning process is a cultural practice of storytelling, learning, and connection, and prioritises building respect, relationships, and trust between people [18]. Interview questions explored participant experiences of diet and nutrition, perceptions of the relationship between diet and oral health, experiences of receiving dietary advice in dental settings, and views on

public health food and nutrition initiatives. With participant consent, all interviews were audio-recorded, transcribed, and de-identified to protect confidentiality.

2.4. Statistical analysis

All analyses were conducted in R (R Foundation for Statistical Computing, Vienna, Austria), and the code is available at https://github.com/sonianath. Participant characteristics were summarised by demographic, socioeconomic, and dental health characteristics.

For qualitative data analysis, this study adopted template thematic analysis to provide a more structured examination of participants' perspectives on predefined topics of interest (i.e., food and oral health) [24, 25]. Patterns around food, diet and oral health-related meaning-making were noted across interview transcripts. The analysis involved six iterative steps: (1) data familiarisation through repeated reading and note-taking of transcripts by authors (SN, JG, RA); (2) initial coding and development of a priori themes (e.g., dietary advice, dietary attitudes and beliefs, structural/financial barriers to eating); (3) organising and clustering themes into hierarchical categories (child themes nested within broader parent themes); (4) developing the initial coding template; (5) iteratively refining the template as the data were continuously reviewed; and (6) finalising and applying the template to the entire dataset. All data extracts and defined themes were collaboratively reviewed and discussed by the authorship team to ensure a rich, culturally accurate representation of the data.

3. Results

3.1 Characteristics of the study population

A total of 280 Indigenous Australian adults were included (Table 1) with a mean age of 44.85 years (SD 15.08). The majority were female (58.6%) and identified as Aboriginal (89.2%). Most participants were aged 35–54 years (45.5%), and over three-quarters resided in a metropolitan area (80.1%). Most participants had a high school education (57.9%), and over a third relied on Centrelink payments as their primary source of income (37.8%). Approximately half reported owning a Healthcare Card (50%). Self-rated general health was predominantly moderate (47.6%) to poor (37.8%). Most participants were current smokers (60.4%), and 41% reported never consuming alcohol. Most participants had not visited a dentist in the past year (67.9%) and attended primarily for a problem rather than a routine check-up (77.1%). Self-rated oral health was poor at 69.3%.

The prevalence of dental caries was 67.5%, indicating that approximately two-thirds of the participants had clinically detected dental caries (Scores D3-D6) at the time of examination. At the participant level, initial caries was common, with D1 present in 32.1% and D2 in 50.0%. Moderate-stage lesions were also frequently observed, with D3 recorded in 47.5% of participants and D4 in 29.3%. Extensive caries lesions (D5–D6) were present in 41% of participants, highlighting the considerable burden of advanced, dentine-involved caries in this population.

2.5. Qualitative findings

A total of 136 Indigenous people participated in the interviews, with four themes developed (Fig. 1) that explored their lived experiences, perceptions, and attitudes regarding diet, nutrition, and oral health.

Theme 1: Individual attitudes and beliefs about diet, dental and overall health

Attitudes and beliefs about diet play an important role in shaping dental and overall health among Indigenous people in Australia. Many participants reported strong personal awareness of the links between dietary choices and oral health, particularly regarding sugar consumption. One participant reflected on the personal responsibility around reducing sugary drinks to protect dental health over time:

I don't drink a lot of like sugary drinks, I drink a lot of like protein milk, a lot of water, teas instead of coffee...a lot of people drink a lot of the sugary drinks…but I don't touch them. They're probably why my teeth are a little bit better at 64. (P328)

Such attitudes suggest that health knowledge can motivate healthier behaviours, even when unhealthy options are common within the broader community.

Individual attitudes and beliefs are also impacted by community environment and economic pressures. One participant discussed the impacts of limited availability of healthy foods on overall health:

Especially out in the [rural and remote] communities where it's cheaper to buy sugary foods and that type of stuff impacts on your dental hygiene, as well as your blood sugars and diabetes and all that type of stuff. (P422)

These reports show that while Indigenous communities may be aware of the importance of healthy eating for improved dental and overall health, their attitudes and choices are shaped by affordability and access to foods and beverages. This highlights that individual beliefs about diet and health are closely connected to broader structural conditions, as foregrounded in the following theme.

Theme 2: Societal and structural barriers to healthy eating

Participants highlighted how a shift from nutrient-rich diets has created societal and structural barriers to healthy eating:

Before colonisation, pretty deadly smiles. Before access to sugars and all the shit food. And it's wonderful too in terms of communities that still have access, even back home where there's still a lot of access to bush tucker, wild meat, that sort of stuff it makes a big difference. (P69)

Similarly, another participant discussed growing fresh produce, which became the basis of healthy eating, and this was made more difficult at present due to excess macronutrients in most foods:

Our diets have dramatically changed from what they used to be like for instance as kids, we ate lots of fruit or vegetables because that was what was grown in the backyard. You know, we had potatoes and we had

onions, lettuces, tomatoes. So there was fresh fruit and vegetable... whereas now the fats, sugars and salts, like the sodium it's in every product that you can think of apart from water. (P360)

High costs and poor quality of fresh produce, specifically in rural and remote areas, were further structural barriers to consuming nutritious foods:

I was at [remote town] people there would have horrible abscesses and some of the abscesses are due to a contributing factor of poor nutrition. It was cheaper to get a bag of Smith's chips and a can of Coke than what it was to buy a lettuce that was dripping through the tray because it was inedible because it was rotten. (P390)

Overall, while traditional, land-based diets were described by participants as promoting health, modern dietary habits shaped by structural barriers such as cost, access, and food availability contribute to poor health outcomes for Indigenous communities.

Theme 3: Dietary advice in dental settings

Participants reported mixed experiences of dietary advice received from dental professionals, ranging from supportive and empowering interactions to judgemental encounters that negatively affected trust and engagement with care. One participant reflected on noticing meaningful change in their diet post dental treatment: *"It's just something that I've noticed now, that I eat a lot more fruit and vegetables" (P145).* This suggests that when dietary advice is communicated in an encouraging and non-judgemental manner, it can empower individuals to make positive changes that benefit both oral and overall health.

Some participants described experiences of dietary advice as judgemental and discouraging, leaving them feeling disempowered. One participant recounted an experience where they were shamed regarding their eating habits, creating self-doubt, anxiety around being present at the dental appointment, and highlighting a power imbalance:

…This is a dentist that I don't see, but implying, 'if you're not going to change how you're eating, it's not really worth you coming to see us' and that freaked me out because I stress eat quite a bit and just other issues as well, whether that's finances and there's not a lot of variety of food...that made me feel pretty insecure and like I was a bit dumb, like I didn't know how to look after my own mouth and it was a bit embarrassing because there was a bit of a power dynamic that it was like a dental specialist, a dentist that was speaking down to me. (P339)

These experiences show that dietary advice in dental settings can either support positive behaviour change when delivered respectfully or reinforce shame and disengagement when communicated in a judgmental manner.

Theme 4: Policy-driven public health promotion initiatives

Public health promotion initiatives are increasingly being used to reduce sugar consumption and improve health outcomes for Indigenous communities. These initiatives are delivered in multiple forms, such as limiting sales of sugar-sweetened beverages within stores, strategic placement of water in high-traffic areas, and increasing the availability of fresh produce for purchase. One participant described how a store in the APY Lands, a remote South Australian Aboriginal community, restricted access to sugar-sweetened food and drink to limit consumption among children, with aims to prevent early habit formation and support healthier choices:

But APY Lands is practising some really good stuff at the canteen where all the chocolates and sugary stuff, including soft drinks, are behind the counter. So kids can't get it. (P423)

Another participant highlighted the importance of "place-based" initiatives tailored to specific geographic areas in promoting oral health and supporting access to nutritious foods:

…collaboration with community and health promotion…working with local Aboriginal councils and stuff like that to spread awareness in the community. I know there's been a lot of that and I think that's also a good thing to keep doing. And anything where there's policy or there's procedure, has the involvement of some Aboriginal people for co-design as well and resources and stuff specifically developed place-based. (P292)

These accounts highlight the importance of initiatives and policy informed by local knowledge and cultural safety to address health risks and promote access and uptake of nutritious foods. This is especially important for communities in rural and remote areas, which often remain overlooked. By changing what is accessible in local stores, these initiatives aim to create long-term improvements in diet and reduce the risk of chronic disease.

3. Discussion

This study explored the dietary patterns and lived experience perspectives among Indigenous Australian adults. The findings collectively highlight that dental caries in this population is not simply a matter of individual dietary choices, but rather reflects an interplay of behavioural, structural, historical, and cultural determinants that shape food environments and oral health outcomes.

Participants' lived experiences highlighted that dietary choices were constrained by food insecurity and structural inequities. Participants described the high cost and limited availability of fresh produce, particularly in rural and remote communities, as leading to reliance on energy-dense, sugar-rich foods that are more affordable and accessible [26]. These accounts are consistent with existing literature demonstrating that food insecurity among Indigenous Australians is shaped by intersecting structural determinants, including low income, unemployment, inadequate housing, and limited transport, all of which compromise the ability to store, prepare and consume nutritious foods [27–29]. Participants described the devastating, lasting effects of historical disruptions to traditional food systems, which diminished the once healthy diets Indigenous communities relied on. Traditional diets rich in bush foods and native plant foods were described as having protected oral and general health, a view supported by

growing evidence that colonisation altered Indigenous food systems and increased reliance on westernised diets high in refined sugars and saturated fat [30]. These accounts underscore that current dietary inequities are not the product of individual choice or cultural preference but are rooted in the lasting structural consequences of colonisation, including reduced access to Country and traditional food knowledge [30]. Addressing dietary and oral health inequities in Indigenous communities, therefore, requires approaches that acknowledge and respond to this historical context.

The qualitative findings also highlighted the critical role of the dental clinical encounter in shaping dietary behaviour. Participants reported that respectfully delivered, non-judgmental dietary advice from dental professionals could meaningfully encourage healthier food choices, whereas judgmental or shaming encounters led to disengagement from care and reinforced feelings of disempowerment. These findings are particularly important given that the majority of participants with cavitated lesions attended the dentist for problem-related reasons rather than for preventive care. Problem-driven dental attendance, combined with poor self-rated oral health, suggests a pattern of delayed help-seeking that may be compounded by prior negative experiences with dental professionals. Culturally safe communication of dietary advice is thus not only a matter of professional courtesy but a prerequisite for meaningful engagement and behaviour change in this population.

The findings of this study have clear implications for practice, policy, and research. Dental practitioners working with Indigenous communities should integrate culturally safe dietary counselling into routine care, acknowledging the social, historical, and structural factors that shape food choices rather than attributing dietary risk solely to individual behaviour. Policymakers should prioritise community-led, co-designed food environment initiatives that improve access to affordable, nutritious foods and address the structural determinants of food insecurity [29]. Participants strongly endorsed community-designed, place-based policies as the most credible and effective strategies for improving diet and oral health. Initiatives such as restricting the display and sale of sugar-sweetened beverages in community stores, as described in the APY Lands, were seen as practical and culturally appropriate methods to reduce sugar exposure, particularly among children.

In addition to these local initiatives, broader fiscal and regulatory policies warrant consideration. International evidence indicates that taxes on sugar-sweetened beverages (SSB) can reduce purchases and sugar intake, with modelling studies suggesting that a 20% tax could yield meaningful reductions in caries incidence and treatment costs, particularly among lower-income groups [31]. The WHO and major dental organisations now recommend SSB taxation as part of a comprehensive set of measures to curb free sugar consumption and improve oral health [32]. For Indigenous Australians, this approach has significant limitations. In many remote communities, sugary drinks are not a freely chosen preference, but a default option driven by constrained food environments, food insecurity, limited access to safe drinking water, and the dominance of for-profit store operators who stock high-sugar, energy-dense products because they are cheap, shelf-stable, and profitable. Effective policy must therefore shift focus from behaviour change to structural change in food environments. Community stores, often the sole food access point in remote settings and frequently operated by external, for-profit organisations, have a

particular responsibility in this regard. Policies mandating responsible stocking practices, including limiting shelf space for high-sugar products, requiring sugar-free alternatives, and subsidising fresh fruit, vegetables, and water, address the food environment directly rather than penalising individuals for choices shaped by structural disadvantage. Community-controlled stores have demonstrated greater capacity to implement health-enabling stocking and pricing policies, supporting the case for greater investment in community-led food governance [33]. The Australian Government's recently released National Strategy for Food Security in Remote First Nations Communities and the Low-Cost Essentials Subsidy Scheme, which subsidises 30 essential food items in remote stores, represent important steps toward improving affordability and food access in these settings [34].

Limitations include potential recall and social desirability bias in self-reported health data, and the dietary tool does not capture overall diet quality or total nutrient intake. Convenience and snowball sampling from a single Australian state may limit the generalisability of the findings to all Indigenous communities, particularly in other jurisdictions and very remote regions.

Taken together, our findings and the wider evidence base suggest that sustainable improvements in diet and caries prevention for Indigenous communities require a dual policy focus: structural reforms to food environments including responsible stocking mandates, healthy food subsidies, and community-controlled food governance alongside fiscal measures that are designed with, rather than imposed on, Indigenous communities, and implemented in ways that actively support access to healthy foods rather than merely penalising existing dietary patterns. Additionally, expanded access to preventive dental care and culturally safe chairside counselling, all designed with and led by Indigenous communities, centring self-determination and food sovereignty as foundational principles.

4. Conclusion

These findings underscore that dental caries inequity in this population is driven by structural disadvantage, including constrained food environments, food insecurity, and the ongoing consequences of colonisation rather than individual dietary choices alone.

Declarations

Consent for publication

Not applicable. This study does not contain any identifiable data from individual participants

Data Availability Statement

The datasets generated during and/or analysed during the current study are not publicly available due to ethical and cultural requirements.

Competing Interests

The authors declare that they have no competing interests.

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Authors Contribution

S.N: contributed to conception and design, analysis, funding acquisition, interpretation, drafted the manuscript, and critically revised the manuscript and gave final approval. J.G: contributed to design, analysis, contributed to interpretation, drafted manuscript and critically revised manuscript and gave final approval. R.A: contributed to conception and design, analysis, contributed to interpretation, drafted manuscript, and critically revised the manuscript and gave final approval. NR: contributed to design, contributed to analysis and interpretation, drafted manuscript, and critically revised the manuscript and gave final approval. G.G: contributed to conception and design, contributed to interpretation, drafted manuscript, and critically revised the manuscript and gave final approval. K.K: contributed to conception and design, contributed to interpretation, drafted manuscript, and critically revised the manuscript and gave final approval. L.J: contributed to conception and design, funding acquisition, contributed to interpretation, drafted manuscript, and critically revised the manuscript and gave final approval.

Human Ethics and Consent to Participate declarations

This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures involving research study participants were approved by the Aboriginal Health Council of South Australia's Human Research Ethics Committee and the University of Adelaide Human Research Ethics Committee (combined number 04-22-990). Written and verbal informed consent was obtained from all participants.

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Tables

Table 1
Demographic, socioeconomic, health, and dental characteristics of Indigenous Australian adult participants (N = 280)

Variable	Level	Overall N = 280 (%)
Age (mean ± SD)		44.85 ± 15.08
Age category	18–34 years	73 (26.4)
	35–54 years	126 (45.5)
	> 55 years	78 (28.2)
	Missing	3 (1.1)
Sex	Female	164 (58.6)
	Male	116 (41.4)
Indigenous status	Aboriginal	249 (89.2)
	Torres Strait Islander	3 (1.1)
	Both	11 (3.9)
	Other	16 (5.7)
	Missing	1 (0.4)
Location	Metropolitan	218 (80.1)
	Regional	54 (19.9)
	Missing	8 (2.9)
Education	Secondary or less	162 (57.9)
	Tertiary	118 (42.1)
	Missing	5 (1.8)
Income source	Centrelink payment	104 (37.8)
	Job	143 (52.0)
	Other	28 (10.2)
Ownership of healthcare card	Missing	5 (1.8)
	No	124 (44.3)
	Yes	140 (50.0)
	Missing	16 (5.7)
Self-rated general health	Good	40 (14.3)

Variable	Level	Overall N = 280 (%)
	Moderate	131 (46.8)
	Poor	104 (37.1)
	Missing	5 (1.8)
Current smokers	Yes	166 (59.3)
	No	106 (37.9)
	Missing	8 (2.9)
Alcohol consumption	Weekly	70 (25.0)
	Monthly	91 (32.5)
	Never	112 (40.0)
	Missing	7 (2.5)
Last dental visit	Less than 12 months	84 (30.0)
	More than 12 months	190 (67.9)
	Missing	6 (2.1)
Usual reason for visiting dentist	Check-up	57 (20.4)
	Problem	216 (77.1)
	Missing	7 (2.5)
Self-rated oral health	Good	14 (5.0)
	Moderate	67 (23.9)
	Poor	194 (69.3)
	Missing	5 (1.8)
Dental caries (Cavitated)	Absent	91 (32.5)
	Present	189 (67.5)
ICDAS scoring	D1	90 (32.1)
	D2	140 (50)
	D3	133 (47.5)
	D4	82 (29.3)
	D5	74 (26.4)
	D6	81 (28.9)

Data are presented as n (%) unless otherwise stated. Percentages are calculated based on non-missing responses for each variable; denominators vary according to item-level data completeness. Missing data are reported separately for each variable. ICDAS = International Caries Detection and Assessment System; Dental caries presence is defined as having at least one tooth surface with an ICDAS code ≥ 3. ICDAS scoring categories (D1–D6) represent participant-level prevalence, indicating the number and percentage of participants with at least one tooth surface at each severity level; percentages do not sum to 100% as individuals may have multiple ICDAS codes across different tooth surfaces.

Figures

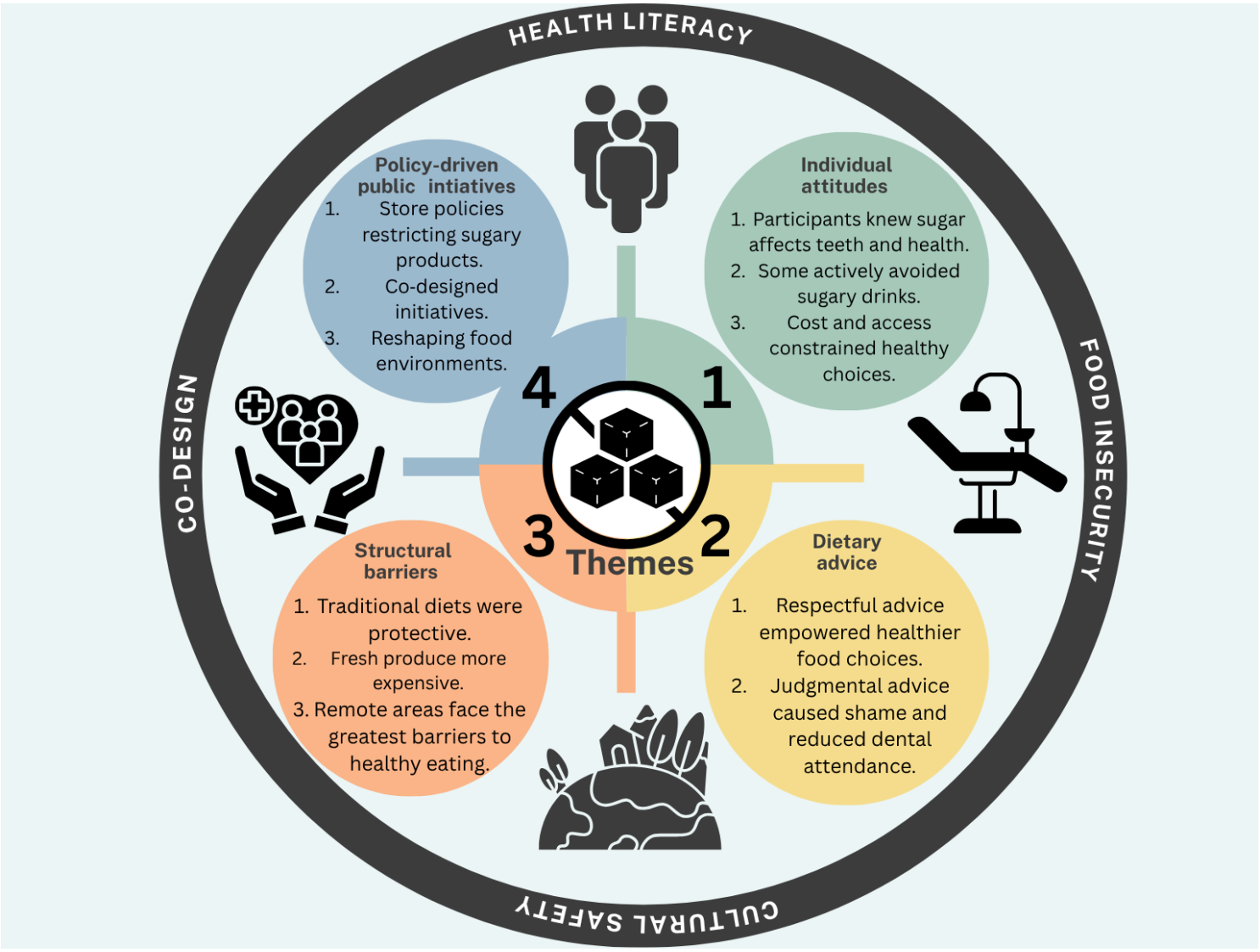


Figure 1

Conceptual framework of themes influencing sugar consumption and oral health in Indigenous communities. The four interconnected themes were identified: (1) individual attitudes, including awareness of sugar-related harms and constraints on healthy choices; (2) dietary advice, highlighting the contrast between respectful, empowering guidance and judgemental advice that may discourage dental

attendance; (3) structural barriers, including the protective role of traditional diets and the higher cost and lower accessibility of fresh produce, particularly in remote areas; and (4) policy-driven public initiatives, including store-based restrictions on sugary products, co-designed strategies, and reshaping local food environments. These themes are situated within broader cross-cutting influences of health literacy, food insecurity, cultural safety, and co-design.

Supplementary Files

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