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RESEARCH ARTICLE

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An analysis of current obesity strategies for adolescents in NSW against best practice recommendations: Implications for researchers, policymakers and practitioners

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Abstract

Issue addressed: Obesity is a significant health challenge facing adolescents. There is a critical need for government action to support all adolescents to improve risk factors for obesity. This study critically appraised initiatives, guidelines and policies (termed "strategies") from local health districts (LHDs), speciality health networks and Primary Health Networks (PHNs) across New South Wales (NSW), relevant to the prevention and management of obesity amongst adolescents and compare these to best practice recommendations.

Methods: We critically appraised strategies against best practice recommendations that included support, access, responsiveness to needs, supportive environment, monitoring and evaluation and health equity. Strategies were collected by systematically searching websites of 15 LHDs, one speciality health network and 10 PHNs.

Results: There was evidence of strategies regarding adolescent obesity prevention and management across all best practice recommendations. There was limited evidence of adolescent consumer participation, digital strategies for health services and online health information. There were minimal targeted public or school-based education campaigns and interventions on physical activity or nutrition. Place-based approaches such as sports and recreation facilities were not included in policies regarding the sale of healthy food and drinks. Evaluation evidence across all strategies was minimal.

Conclusions: Numerous strategies are being implemented across NSW to address adolescent obesity. Despite this, the alignment of strategies with best practice recommendations is poor and evidence of progress in tackling adolescent obesity remains unclear.

So what?: Opportunities to generate and translate best practice evidence within government strategies for obesity must be prioritised with embedded measurement and evaluation plans.

KEYWORDS
adolescent, management, obesity, policy, prevention, public health, young people

1 | INTRODUCTION

Most countries, including Australia, have preventive health policies and health systems that are predominantly designed for either young children or adults.[1] Adolescents require age-specific preventative health care, given their specific health and development needs. This is supported by the World Health Organization (WHO), which has strongly advised that adolescents aged between 10 and 19 years are provided with "high-quality, well-coordinated and well-integrated programs in their everyday context."[1] There is an urgent need for governments to prioritise adolescents as a discrete population in obesity prevention and management strategies.

Adolescence is a unique life stage where many begin to develop independence and lifestyle behaviours, likely to be maintained throughout their adult life.[2] Australian national data for diet and physical activity behaviours mirror global trends,[3,4] with only 4% of adolescents meeting the national guidelines for fruit and vegetable intake and they represent the highest consumers of energy-dense nutrient-poor foods such as sugar-sweetened beverages and ultraprocessed snack foods.[5] Less than 2% of adolescents meet the Australian national guidelines for physical activity and sedentary behaviours.[5] Emerging data from 6,640 Australian adolescents highlight the clustering nature of diet, physical activity and other chronic disease risk factors.[6] Patterns of poor dietary and physical inactivity behaviours in adolescence are challenging to undo in adulthood and can increase the risk for excess weight gain and obesity.

In 2017-2018, 25% of Australian children and adolescents aged 5-17 years had overweight or obesity, with 31% living with overweight and obesity by age 16-17 years and 46% of 18-24 years entering adult life overweight.[7] Adolescents with overweight or obesity are five times more likely to maintain their increased weight status into adulthood, thus increasing the risk of developing chronic comorbidities such as type 2 diabetes and cardiovascular diseases.[8] Data from a 24-year prospective cohort study have reported that a high body mass index (BMI) during adolescence is a risk factor for premature myocardial infarction and type 2 diabetes in adulthood, regardless of adult BMI.[9] Obesity can negatively impact the quality of life, and these effects are more significant in adolescence than at any other time during childhood.[10,11] The burden of obesity during critical formative years of life weighs heavily on global health-care systems and economies.[12] The economic burden of obesity in Australia is estimated to be $11.8 billion, inclusive of $5.4 billion in direct health costs and $6.4 billion in indirect costs.[13]

Lifestyle behaviours contributing to obesity are strongly influenced by physical, economic, political and socio-cultural factors. The complex nature of obesity has encouraged the adoption of systems-based approaches to prevention.[14] In 2007, the United Kingdom foresight map presented a pioneering road map of the correlates and determinants of obesity, visually displaying the causal links between individual, social and systemic factors.[15] As obesity rates continue to escalate in Australia, it is well recognised that comprehensive, multi-sectoral approaches across all levels of government are needed to prevent and manage obesity.[16] Strategies must target multiple risk factors and life stages, address the social determinants of health and enable multiple access points to age-appropriate health services.[17] The WHO calls for policy action on obesity, identified within the Global Action Plan for prevention and control of chronic diseases.[18] A recent review found that 89% of developed countries reported having a unit, branch or department in their national government health department tasked with acting upon chronic diseases.[19]

The National Obesity Strategy for Australia was released in March 2022, with an ambitious target to reduce overweight and obesity in children and adolescents by at least 5% by 2030.[20] To date, obesity prevention and management have mainly been the responsibility of state/territory governments and through federally funded Primary Health Networks (PHNs). Australia's current response to obesity is hindered by the division and lack of coordination across federal and state/territory governments. This hindrance is primarily due to the differing strategic priorities of each jurisdiction within the health-care system. The National Obesity Strategy for Australia aims to address this by providing a roadmap for all levels of government.[20] Whilst research has explored the use of theory in understanding policy processes,[14] few have reviewed current policies with the latest best practice recommendations to assess the degree to which evidence is integrated into policy.[21] This has significant implications in supporting policymakers and practitioners in the short term. There is a critical need for action from all levels of government to support adolescents to improve risk factors for obesity considering the negative impacts of obesity on adolescents' quality of life and our economy. Therefore, this study aimed to compare current government-led obesity prevention and management initiatives, guidelines and policies for adolescents, aged 13-17 years in New South Wales (NSW) against best practice recommendations based on relevant Australian scientific literature and guidelines, frameworks and policies.

2 | METHODS

2.1 | Search strategy

We conducted a comprehensive review of publicly available information about state-wide health-care services between January and March 2020 to identify government-led obesity prevention and management initiatives, guidelines and policies related to adolescents. An updated search was conducted in July 2021. Adolescence was defined as 13-17 years to coincide with secondary education in NSW, which

is a common place-based setting for initiatives, guidelines and policies and young people often transition to the adult health system as soon as they turn 18 years of age. This search included 15 Local Health Districts (LHDs), one speciality health network (Sydney Children's Hospitals Network), 10 PHNs and relevant NSW government department guidelines and policy registers. Web directory sites including "The Obesity Collective", "Obesity Activity Map", "Our Local", "headspace", "Healthy Kids for Professionals" and "Youth NSW" were also searched to ensure all available initiatives, guidelines and policies relevant to adolescents reported. A systematic approach was used to search for initiatives, guidelines and policies that met the selection criteria. Key terms used during the advanced search included 'adolescents', "youth", "youth health", "teenagers", "obesity", "overweight", "weight management", "diet", "nutrition", "physical activity", "exercise", "prevention or management", "non-communicable diseases" and "chronic disease."

Initiatives were defined as health services or health programs run routinely or periodically or health resources that are publicly available. Guidelines and policies directives were defined per the NSW Health Policy Directives and Other Policy Documents.[22] Policies directives were defined as a policy documents that must be complied with and implemented in ongoing operations. Guidelines were defined as a policy document that establishes best practices concerning clinical and non-clinical activities and functions. Herein, initiatives, guidelines and policies are collectively referred to as "strategies." Strategies that target key risk factors, namely nutrition and physical activity, were also considered. One researcher (AT) conducted the initial search, and the updated search was conducted independently by two researchers (SRP, SJ). All strategies were discussed until an agreement reached regarding inclusion or exclusion (SRP, SJ, AT).

2.2 | Inclusion and exclusion criteria

To be included in this study, adolescent obesity prevention and management strategies had to fulfil the following criteria: (i) led by the federal or NSW government or related department or agency; (ii) obesity prevention and management strategies that were inclusive of adolescents aged 13-17 years and (iii) obesity-related strategies that are currently available and accessible in NSW, including strategies involving focused interventions on behavioural risk factors such as physical activity and nutrition. Strategies that were excluded were those that: (i) were not relevant to adolescents; (ii) did not contain any support for obesity or related lifestyle risk factors such as physical activity or nutrition; (iii) research projects or (iii) were not currently active as of July 2021.

2.3 | Data extraction

All current strategies relevant to adolescent overweight and obesity were reviewed and categorised into three levels of prevention: primary, secondary or tertiary by the research team. Prevention in the context of overweight and obesity has been defined as any action taken to protect, promote and sustain the population's health. Primary prevention aims to decrease the risk, chance or likelihood of an individual developing overweight or obesity.[23] Secondary prevention is aimed at early detection of those with overweight and preventing progression to obesity and tertiary prevention at managing and reducing the health consequences of established overweight and obesity (eg comorbidities such as insulin resistance and hyperlipidaemia).[24] Additional data (if available) were extracted related to the sector of influence (eg individual, family, community or societal and political), place (eg education, community, health care, sports or online), target age group (years), other eligibility criteria (eg BMI, existing health conditions or geographical location), priority populations (eg people from culturally and linguistically diverse [CALD] backgrounds, Aboriginal and Torres Strait Islander people, people from low socio-economic status backgrounds), availability (eg length of strategy) and evidence of evaluation (eg published report that was publicly available).

2.4 | Data analysis

The descriptive data analysis approach was used to compare the current strategies undertaken by PHNs, LHDs, networks or the NSW government to best practice recommendations relating to adolescent obesity prevention and management from relevant Australian scientific literature and guideline and policy frameworks (Table S1). The methodology was adapted from previously published research that analysed NSW local government policies on nutrition and healthy eating.[21] Brief descriptions of all relevant Australian scientific literature and guidelines and policy frameworks are provided in Table S2. Two researchers (SP, SJ) categorised best practice recommendations from 13 documents identified by the research team into the following domains: adolescents are supported to optimise their health, accessible health services, health services and communities respond to the needs of adolescents, supportive environments, monitoring and evaluation and health equity. We excluded recommendations outside of the scope of LHDs, networks, PHNs or the NSW government jurisdiction, eg implementing an effective tax on sugar-sweetened beverages and restrictions on the marketing of foods and non-alcoholic beverages.

3 | RESULTS

3.1 | Key findings

Through searching publicly available information, 41 strategies were identified that were relevant to adolescents (Table S3). The search yielded 15 metropolitan initiatives, 11 regional initiatives and eight state-wide initiatives. There were two state-wide guidelines and five policy directives. Ten initiatives identified were from PHNs. There were four secondary prevention weight management services and five tertiary prevention weight management services specifically for

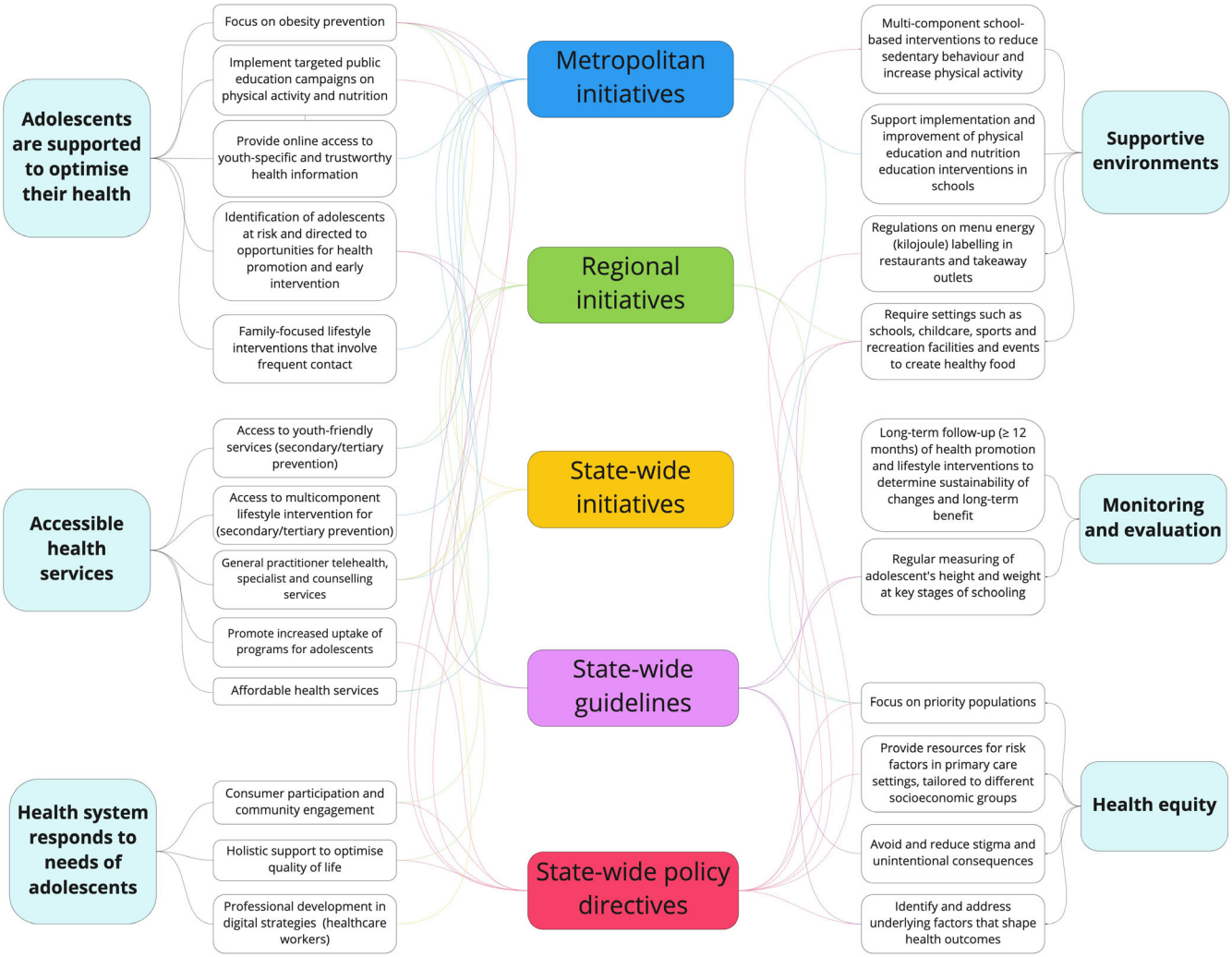

FIGURE 1 Concept map linking best practice recommendations related to the prevention and management of overweight and obesity amongst adolescents to current NSW Government Strategies. A stronger relationship between existing strategies and best practice recommendations is represented by a higher volume of linking lines

adolescents. Publicly available nutrition or dietician services were available at 11 locations across NSW, with 10 being offered via headspace centres (provide information, support and services to young people aged 12-25 years and their families and friends). There was one high school program running in two LHDs in metropolitan NSW and one program in a regional LHD. Three strategies focused on sports and their associated clubs and associations. Only three online or telehealth strategies were identified. The state-wide telephone counselling service was only available to adolescents over 16 years and one digital health program was only accessible to adolescents who live or study in one metropolitan PHN. The Active Kids Voucher Program was accessible online; however, not all subsidised programs are accessible online.[25] There was one state-wide guideline and one policy directive regarding the sale of healthy food and drink in NSW health facilities and high school canteens, respectively. One policy mandated a minimum of 150 minutes of planned moderate activity with some vigorous physical activity across the school week. There were published and publicly available evaluations or evaluation protocols available for only seven strategies.[25–33] The NSW Youth Health Framework 2017-2024 was identified as an overarching policy directive to support the health and well-being of young people 12-24 years. A concept map linking all identified strategies to the best practice recommendation domains is presented in Figure 1. A narrative summary of strategies relating to each best practice recommendation domain is described below.

3.2 | Strategies relating to each best practice recommendation domain

3.2.1 | Adolescents are supported to optimise their health

There were eight metropolitan initiatives, eight regional initiatives, seven state-wide initiatives and guidelines and four state-wide policy directives with a primary focus on prevention. There was no evidence of adolescent-targeted public education campaigns on physical activity

or nutrition. The NSW Youth Health Framework (state-wide policy directive) recommends that adolescents have online access to youth-specific and trustworthy health information. However, this was only identified in four initiatives. "Nutrition Care", including Growth Assessment in Children, is a state-wide policy directive that states all children 0-17 who encounter NSW Health facilities have their growth assessed (height and weight) and a nutrition assessment recorded. One state-wide public oral health service initiative provides dietary advice to adolescents at high risk after their growth assessment and those at risk are directed to opportunities for health promotion and early intervention. One secondary and three tertiary weight management services (all located in metropolitan areas) included family support. Three state-wide initiatives support families, including the Active Kids Program (a universal program, which from 2019 provides two $100 vouchers for parents or guardians of school enrolled children to use towards sports and active recreation membership and registration costs each calendar year) and social media accounts and headspace online.

3.2.2 | Accessible health services

There were nine youth-friendly services for weight management for adolescents in NSW. Eight were in metropolitan areas, and only one tertiary service was identified from a regional area. Five services were tertiary multicomponent weight management services. There were a further four secondary multicomponent weight management services. Of these services, only one was a digital health service. However, this service was only accessible to adolescents who live or study in one metropolitan PHN. All other services were accessible by attending in person. Two secondary services criteria for referral included obesity (patient BMI above 95th percentile) or adolescents with overweight (patient BMI above 85th percentile) and established comorbidities (eg insulin resistance). As well, three of the four secondary prevention services were only accessible to adolescents aged 13-16 years. There were two secondary services located in regional areas accessible for adolescents 16-17 years. However, these services focused broadly on chronic disease management and criteria for referral included established chronic disease risk factors or pre-existing chronic diseases. A telehealth state-wide counselling service (the Get Healthy Information and Coaching Service) was accessible for adolescents over 16 years. Only one service had identifiable linked social media accounts, which aimed to promote increased program uptake for adolescents.

3.2.3 | Health services and communities respond to the needs of adolescents

There were three strategies identified inclusive of consumer (adolescent) participation across strategies. The NSW Youth Health Framework (state-wide policy directive) includes stakeholder consultations and feedback from adolescents. National and individual headspace centres comprise youth advisory councils. One regional strategy was a competition to support young people's ideas to improve the health and well-being of young people in the local community. Holistic support to optimise quality of life was evident in six metropolitan and six regional youth-specific local health services, which offered support for nutrition and weight and preventative health advice more broadly. This included nine headspace centres across four PHNs that offer a dietetic service. One strategy offered health-care workers professional development opportunities; however, it could not be determined if any strategies provided targeted digital health strategies.

3.2.4 | Supportive environments

Two metropolitan and two regional initiatives focused on optimising community places (including high schools) for well-being. There were a further four state-wide initiatives focused on community well-being through participation in sports. One policy mandated a minimum of 150 minutes of planned moderate activity with some vigorous physical activity across the school week, including planned weekly sports. Identified strategies supported healthy eating via NSW Health facilities, high school canteens and larger fast food and snack food chains. The Healthy Food and Drink in NSW Health Facilities for Staff and Visitors Framework was identified and provided guidelines to increase the availability of healthy options to make healthy choices easy for staff and visitors at all NSW Health facilities. The Nutrition in Schools policy requires all government schools to promote healthy eating and good nutrition. School canteens are required to implement the NSW Healthy School Canteen Strategy that includes food and drink criteria. The Food Act also mandates larger fast food and snack food chains (with 20 or more locations in NSW or 50 or more locations in Australia) by law to display nutrition information at the point of sale.

3.2.5 | Monitoring and evaluation

The state-wide policy directive (The NSW Youth Health Framework) recommends monitoring and evaluating health promotion and lifestyle interventions. Evidence syntheses recommend evaluation of preferably ≥12 months to determine the sustainability of changes and long-term benefit. There were published and publicly available evaluations or evaluation protocols available for only seven strategies. Regularly measuring and recording an adolescent's height and weight at critical stages of schooling (including high school) is mandatory when any child encounters the NSW Health facilities as outlined in the Nutrition Care, including Growth Assessment in Children (policy directive) and is a key performance indicator for all LHDs. Growth assessments are recorded and monitored through multiple NSW Health electronic medical recording systems (electronic medical record, Community Health and Outpatient Care and Titanium).

3.2.6 | Health equity

Sixteen strategies specifically mentioned targeting priority populations and one program was a universal program. It could not be determined

if strategies in primary care were providing resources for risk factors tailored to different socio-economic groups. In many strategies, it could not be determined if or how strategies avoided or reduced stigma and unintentional consequences or if there was support for health professionals to identify and address underlying factors that shape health outcomes. Tools and training are available relating to strategies which support health professionals to identify and address underlying factors that shape health outcomes eg Home, Education/Employment, Eating, Activities, Drugs, Sexuality, Suicide/Depression and Safety (HEEADSSS) assessment, a psychosocial holistic health assessment tool for adolescents. However, there is no evidence of how these tools are being implemented across different LHDs and in practice.

4 | DISCUSSION

We aimed to compare current government-led obesity prevention and management strategies for adolescents in NSW against best practice recommendations. Our analysis demonstrates a diversity of strategies across LHDs, Networks, PHNs and the NSW Government, which aim to prevent and manage adolescent obesity in NSW. However, despite evidence of action across different levels of prevention and sectors of influence, significant gaps remain across the best practice recommendations, which need to be addressed. Most prominent gaps include a lack of focus on obesity prevention and management strategies specifically for adolescents (13-17 years), limited access to health services, specifically digital health approaches and only few short- and long-term evaluation of strategies.

Ensuring that adolescents are supported to optimise their health depends on adolescents having accessible health services. Our findings suggest that most weight management services for adolescent obesity prevention and management are concentrated in metropolitan areas, and few are available in rural areas. This finding is aligned with a recent study of 16 multidisciplinary paediatric weight management services across Australia that found services are inadequate for those living in rural and remote communities.[34] Rural regions report higher rates of chronic disease and lifestyle-related illnesses and obesity.[35] This is likely attributed to higher levels of sedentary behaviour, as well as higher prices and limited availability of healthy foods in these areas.[36,37] High-quality research that is rurally focused and located has been demonstrated to result in positive health service and cost outcomes.[38]

Targeted strategies for priority populations can be complemented by universal approaches. The present study identified one universal strategy, the Active Kids Voucher Program, which is a voucher program designed to incentivise participation in sports and physical activity for all children and adolescents across NSW.[25] This strategy was one of the seven strategies identified with evidence of evaluation. The program reached 22.2% and 20.9% of adolescents 12-14 years and 15-18 years, respectively, with overweight or obesity in NSW and a substantive proportion of those adolescents were from socio-economically disadvantaged areas.[31] Barriers to sustained uptake and engagement for the Active Kids Voucher Program include low awareness of the program in socially disadvantaged groups and limitations in program access.[39]

Accessibility to strategies and health-care services can be increased by providing greater access to digital health services, particularly for adolescents living in rural and regional areas of NSW. This is in line with the Australian Digital Health Strategy that proposes to provide increased telehealth services to health care for people living in rural and remote areas.[40] The COVID-19 pandemic may have accelerated the adoption of some services to include telehealth delivery options with the Australian Government temporarily expanding access to health professionals (eg Accredited Practising Dieticians) for Medicare Benefits Schedule items to deliver telehealth services.[41] However, it could not be determined if services had expanded to telehealth as this information was not publicly available at the time of review. Digital health programs (including mobile phone-based programs) have been identified as an engaging platform for adolescents with overweight and obesity.[42] There is emerging evidence suggesting that digital health interventions for adolescent obesity are feasible solutions that may effectively promote short- and long-term decreases in adiposity outcomes. Still, the evidence is inconclusive regarding the efficacy of preventing adolescent overweight or obesity.[43] Public health approaches to digital technology for obesity prevention and management must be thoroughly considered and evaluated to ensure equitable access to services.[44]

To prevent and manage adolescent obesity, it requires evidence-informed strategies that can be implemented in practice and policy. This study found limited reporting of both short- and long-term evaluation of the included strategies. Using evidence and data more effectively has been included as an enabler of Australia's 10-year National Obesity Strategy[20] as it is recognised that evidence-informed strategies strengthen multisectoral approaches to address obesity.[45] However, the approach to monitor progress in National Obesity Strategy remains focused on population monitoring and surveillance of health outcomes and individual behaviours (eg food and drink consumption). There are calls for a systematic approach for obesity prevention evaluation; however, how this will be achieved is yet to be realised and will require upskilling of the public health workforce to deliver evaluations within government-delivered strategies.

Despite calls for action from academic researchers to focus on adolescent populations, reducing overweight and obesity rates in children has been removed as a Premier's Priority in NSW.[46] Reducing overweight and obesity rates in children aged 5-16 years by 5% over 10 years remains a priority in the NSW Youth Health Framework 2017-2024.[47] A reduced focus on adolescents as a priority population for obesity prevention and management by the NSW governments will have engrained negative health consequences for society. Critically, priority should be placed on the consumer participation and community engagement to develop strategies to foster long-term collaborations between policymakers, researchers and adolescents. It is now recognised that research systems should support dynamic cycles of collaborations between policy, research and consumer groups before strategies are developed.[48]

4.1 | Recommendations

- Researchers, practitioners and policymakers must recognise adolescents as a unique population group who have different needs from children and young adults.
- Unify all stakeholders around a common goal, improve adolescent health through weight reduction, with consumer participation and community engagement processes adopted between adolescents, researchers, practitioners and policymakers at all stages of strategies creation, implementation and evaluation.
- Consumer participation and community engagement to develop strategies with adolescents from priority populations, researchers, practitioners and policymakers are required with clear accountable targets and measurements to bridge the gap between research and practices.
- Increase the accessibility of obesity prevention and management services and health promotion information for adolescents in line with the Australian Digital Health Strategy.

4.2 | Strengths and limitations

This study has several methodological strengths and limitations. This study was limited to strategies publicly available on NSW government websites and therefore did not evaluate other strategies that could not be identified in this manner. Directories of services that are available for adolescents should be publicly accessible online. This is in line with the NSW Youth Health Framework, which acknowledges that online information about health services influences access, and this was echoed by the adolescent consumers consulted.[47] Without awareness, there may be a reduced reach of the strategies. Subsequently, this potentially hinders the delivery of strategies and their intended benefits.

Further, the best practice recommendations used in this study were intended to act as a benchmark to assess current approaches within LHDs, Networks, PHNs and NSW government jurisdictions and identify gaps and areas for further action. It is recognised that there are other key recommendations to address the prevention of obesity that are the responsibility of the Federal Government, such as implementing an effective tax on sugar-sweetened beverages and restrictions on the marketing of foods and non-alcoholic beverages.[49] Such obesity prevention policies have strong and sustained public support in NSW.[50] An evaluation of the effectiveness of strategies was not within the scope of this study and is hindered by the limited availability of evaluation of current strategies. Finally, a follow-up consultation is required with adolescent consumers, researchers, practitioners and policymakers to gain further perspective of strategies to enhance adolescent obesity prevention and management efforts.

4.3 | Conclusions

All NSW LHDs, networks, PHNs and NSW government strategies were instrumental in delivering adolescent obesity prevention and management strategies, yet alignment with best practice evidence was poor. Integration of best practice within obesity strategies is required with acknowledgement of adolescents as a discrete population group. Further strategy development must adopt a collaborative, interlinked and coordinated approach between consumers, researchers, health practitioners and policymakers, with evaluations embedded.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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