Summary of overweight and obesity among Indigenous peoples

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Introduction

The dramatic worldwide increase in obesity has been called a global epidemic by the World Health Organization [1]. Obesity occurs in all population groups in Australia - children; adults (men and women); Indigenous and non-Indigenous people; and people from all socio-economic backgrounds - but Indigenous peoples and people from low socio-economic backgrounds are most susceptible.

The increasing levels of overweight and obesity are of great concern because of their contributions to a variety of adverse health outcomes, including:

- cardiovascular disease (including stroke)
- type 2 diabetes
- some cancers
- osteoarthritis and other musculoskeletal problems
- kidney and gall-bladder disease; and
- respiratory problems [2] [3].

As well, obesity can damage self-esteem and contribute to mental illness.

Factors contributing to obesity in the Indigenous population

The factors contributing to overweight and obesity among Indigenous peoples are varied and complex. The development of an obesogenic environment (factors that contribute to conditions that lead people to become overweight or obese) applies population-wide in Australia, but the situation is complicated for many Indigenous groups by various geographical, social, economic and infrastructure factors that affect food choices and availability [4].

As with many other aspects of Indigenous health, geographical, historical, social, economic and infrastructure factors are likely to be the major contributors to overweight and obesity among Indigenous peoples, but it has been suggested that genetic factors also contribute [4].

According to the Neel's 'thrifty' genotype hypothesis, traditional populations with a hunter-gatherer lifestyle may have developed a degree of insulin resistance (a precursor of type 2 diabetes) in response to 'feast or famine' conditions [4] [5]. In environments with abundant food and less physical activity, the thrifty genotype can lead to rapid weight gain, obesity and diabetes [6]. Insulin resistance is now seen as a major factor in syndrome X (also known as the metabolic syndrome [7]), a constellation of metabolic disorders (including type 2 diabetes), with obesity being a common factor [4] [8]. Indigenous populations exposed to rapid change to a 'westernised' lifestyle are seen as particularly vulnerable to syndrome X [4]. As well as rapid westernisation, it is likely that foetal under-nutrition also contributes to the development of syndrome X.

The lifestyle changes of Indigenous people since European occupation of Australia involve both dietary and physical activity components. The traditional Indigenous diet was high in protein and complex carbohydrates (of low glycaemic index) and low in sugars, and so was a diet generally low in energy density and high in nutrient density [4]. In contrast to this healthy diet, the diets of many Indigenous people are often high in refined carbohydrates and saturated fats.

Considerable energy was expended in the collection and preparation of food by people following a hunter-gatherer lifestyle. Transition to a western lifestyle meant a loss of these roles, especially with the introduction of settlements [9]. More recently, reduced employment requiring physical activity, particularly in rural areas, and the increased availability of social welfare benefits has contributed to further declines in the level of physical activity [10]. For more info view Indigenous physical activity web resource

As noted above, Indigenous people living in rural and remote areas face significant barriers in accessing nutritious and affordable food [11]. The level and composition of food intake is influenced by poverty, high prices, poor quality fruit and vegetables in community stores and unavailability of many nutritious foods [12].

Cost is a major issue, with the price of basic healthy foods 50% or more higher in these areas than in the major cities [13]. Foods of better nutritional choice, including

fresh fruits and vegetables, are often expensive due to transportation and overhead costs, or only minimally available [14]. In comparison, takeaway and convenience food items, often energy-dense and high in fat or sugar, are less affected by issues of cost and availability [13].

A study of apparent intake in six remote Aboriginal communities, based on store turnover, found that intake of energy, fat and sugar was excessive, with fatty meats making the largest contribution to fat intake [13] [15]. In comparison to national consumption data, intake of sweetened carbonated beverages and sugar was much higher in these communities. The proportion of energy derived from refined sugars was approximately four times the recommended intake. In response to these issues, a number of strategies have been initiated and food subsidies and 'healthy store' policies in Aboriginal communities have been shown to lead to increased consumption of healthy food [11].

Consequences of obesity in the Indigenous population

The burden of ill health among Indigenous peoples is much greater than in the general population, particularly with regard to nutrition-related chronic disease [16]. Obesity is one of the risk factors for the main causes of morbidity and mortality in the Indigenous population - type 2 diabetes, cardiovascular disease and renal disease [4] [3].

Cardiovascular disease is the leading cause of death for Indigenous people [16]. Consideration of overweight and obesity as a risk factor for CVD among Indigenous peoples is however a complex issue [3]. In a study of 774 Indigenous people in a remote community to assess the association between BMI and the risk of disease specific mortalities, no association was found between BMI and death from CVD even in the highest BMI quartile (median 30.1) [17]. The authors concluded that this finding may be due to the association of higher BMIs with relative socioeconomic advantage and could also be explained by higher birth weights. To gain and maintain a moderate to mildly excessive amount of weight was thought to indicate a survival advantage for adults in this society. For more info view cardiovascular disease web resource

Results from a cross sectional study on 332 Indigenous people found diabetes prevalence strongly linked to age and BMI [18] [19]. It was concluded that strategies to prevent or delay the onset of diabetes should focus on the maintenance of leanness from adolescence and throughout adult life whilst young people are still in the process of forming lifelong habits. For more info view diabetes web pages

Patterns of obesity in the Indigenous population

Recent evidence of the extent of overweight and obesity in the Indigenous population comes mainly from population surveys. The 2004-2005 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) found that obesity is an increasing problem in the Indigenous population [20]. Self-reported height and weight measurements were collected for people aged 15 years and over (an option to have height and weight measured was provided in some remote areas). Height and weight information could not be obtained for 17% of Indigenous people and 8% of non-Indigenous people. Almost two-fifths of Indigenous people aged 15 years or older were in the normal or healthy weight range, but 28% were overweight and 29% obese (Table 1) [Derived from [20]]. The overall proportion of Indigenous people who were overweight or obese (57%) was slightly higher than the proportion of non-Indigenous people (52%), but the proportion of obese Indigenous people (29%) was considerably higher than that of obese non-Indigenous people (17%). The difference in levels of obesity between Indigenous and non-Indigenous people was greater females than males.

Overweight and obesity were more common among Torres Strait Islanders aged 15 years or older (61%) than among Aboriginal people in that age range (56%) (the difference is not statistically significant [20]. The level of overweight and obesity was particularly high among Torres Strait Islanders living in the Torres Strait area, with 86% having a BMI of 25.0 or greater.

The proportions of Indigenous people who were overweight or obese in 2004-2005 NATSIHS were similar for those living in remote and non-remote areas, and had not changed significantly since the previous survey in 2001 [20]. Similar information about body weight is not available for Indigenous people living in remote areas for earlier years, but level of overweight and obesity among Indigenous people living in non-remote areas increased from 48% in 1995 to 58% in 2004-2005.

Table 1 Body weight: proportions for BMI categories, by Indigenous status, sex and age group, Australia, 2004-2005

Age group	Indigenous				Non-Indigenous			
	Underweight	Normal	Overweight	Obese	Underweight	Normal	Overweight	Obese
Source: Derived from [20]								
Notes:								
1. Derivation of proportions excludes people for whom BMI was not known. Any discrepancy in the sums of proportions results from rounding for presentation								
Males								
15-24	8	52	25	15	6	64	25	6
25-34	3	37	37	24	1	40	42	17
35-44	1	32	31	36	1	30	47	22
45-54	3	27	38	32	0	29	46	25
55 and older	2	24	39	36	1	35	45	19
All ages	4	38	32	26	2	39	42	18
Females								
15-24	13	53	19	15	13	64	16	7
25-34	5	38	22	35	5	57	25	14
35-44	7	30	25	38	4	54	26	16
45-54	4	29	26	41	2	48	30	20
55 and older	3	24	30	43	3	43	33	21
All ages	7	38	23	32	5	52	27	16
Persons								
15-24	11	53	22	15	9	64	21	6
25-34	4	38	29	29	3	48	34	16
35-44	4	31	28	37	2	42	37	19
45-54	3	28	32	37	1	38	38	22
55 and older	2	24	34	39	2	39	39	20
All ages	6	38	28	29	3	45	35	17

Prevention and management strategies for overweight and obesity

Initiatives to counter the growing prevalence of overweight and obesity have been introduced in most developed countries [18] [21] [22], and in Australia [23] [24] [25] [26] [27] [28] [29] [30].

The Australian *Healthy weight 2008* initiative includes national actions for community-wide education, whole of community demonstration areas, evidence and performance monitoring and coordination and capacity building [24]. In 2003, the National Health and Medical Research Council produced the *Clinical practice guidelines for the management of overweight and obesity in children and adolescents* [31] and the *Clinical practice guidelines for the management of overweight and obesity in adults* [32].

The main focus of obesity initiatives is on nutrition and physical activity. The Strategic Inter-Governmental Nutrition Alliance (SIGNAL) has published *Eat Well Australia*, an action plan for public health nutrition for the period 2000-2010, which includes several initiatives aimed at managing and reducing current levels of overweight and obesity [33]. SIGNAL is a sub-committee of the National Public Health Partnership established to coordinate action to improve nutritional health nationally. The *Dietary Guidelines for Australian Adults*, published in 2003, include specific guidelines on preventing weight gain and monitoring consumption of fat and sugar [13]. Physical activity initiatives such as *Be Active Australia* include strategies of communication and community education, increasing workforce capacity, research, monitoring and evaluation, and strategic management and coordination [2].

With regard to the Indigenous population, improving nutrition and the control of obesity are necessary for controlling many of the major causes of ill health and death [4]. Reduction of dietary energy can achieve weight loss in the short-term but to maintain weight loss the requirements include behaviour change, with attention to diet, and regular physical activity. Even small weight losses can have substantial health benefits so realistic achievable goals are recommended.

Environmental change is also a crucial component of long-term success In tackling Indigenous overweight and obesity [34]. Several studies have attempted to understand food purchasing habits and preferences in Indigenous communities as a basis for nutrition education and intervention, and have demonstrated the value of community-based programs in dealing with identified health problems, including overweight and obesity [35] [36] [37] [15] [38].

Indigenous-specific initiatives

General strategies have been complemented by several initiatives that have been implemented specifically for Indigenous communities.

Individual programs have been designed primarily for Indigenous people who already are overweight or obese. An early example is the 'Healthy Weight Program', which began in Queensland in 1996 as a weight and waist management and healthy lifestyle program designed for Indigenous adults. Indigenous health workers were trained to facilitate community-based workshops and conduct ongoing assessment of participants [39]. The majority of participants remained in the program 8 weeks or longer, losing weight and decreasing their waist and hip measurements [40]. The program has since been extended to other States.

Another Queensland initiative is adaptation of the 'GutBusters' program, for males living in the Torres Strait Islands [34]. The program targeted male-based health issues and promoted long-term lifestyle changes, such as reduction in dietary fat and increases in exercise. The initiative achieved modest reductions in abdominal obesity during its first year of operation in a group of 135 men in eight island communities in the Torres Strait.

The National Obesity Taskforce held a national workshop in 2003 to develop priority actions required in addressing overweight and obesity in the Indigenous population. It was envisaged that the workshop would lead to the development of national strategies to manage and reduce Indigenous overweight and obesity [41].

Several Indigenous-specific strategies have been implemented to provide a framework for national action in improving the nutritional status of Indigenous people. The *National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan 2000-2010* (NATSINSAP) was published in conjunction with *Eat Well Australia*, and several of the action areas target the underlying factors contributing to overweight and obesity in the Indigenous population [42]. Specific mention is made of Indigenous issues in *Dietary Guidelines for Australian Adults*, and Aboriginal and Torres Strait Islander guides to healthy eating have been developed [13]. (For more info view Nutrition web page)

The *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples*, which was produced In 2004, lists the measurement of BMI and waist circumference as part of a routine health check [11]. For those found to be overweight or obese it is recommended that advice should be given from the NHMRC *Clinical guidelines for the management of overweight and obesity* [11]. It is also recommended that Indigenous people choose store foods that are most like traditional bush foods and to enjoy traditional bush foods whenever possible .

Summary

There is little doubt that many Indigenous people are at high risk of ill health due to overweight and obesity. The evidence indicates that many chronic health conditions that occur among Indigenous peoples are linked to overweight and obesity. Results from the 2004-2005 NATSIHS demonstrate that in all age groups over the age of 15 years substantial proportions of Indigenous people are overweight or obese.

Initiatives addressing overweight and obesity among Indigenous peoples include relevant education and encouragement of physical activity and healthy nutrition. As with other health conditions, healthy environments are necessary for prevention strategies. Improving access to nutritious food is a vital step. Indigenous people in rural nd remote areas do not have sufficient access to nutritious foods and need particular consideration. Preventive strategies, including those for young people, are essential to prevent the consequences of overweight and obesity leading to further ill-health in the Indigenous population. Of course, these initiatives need to be positioned within broad strategies addressing the continuing social and economic disadvantages experienced.

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