

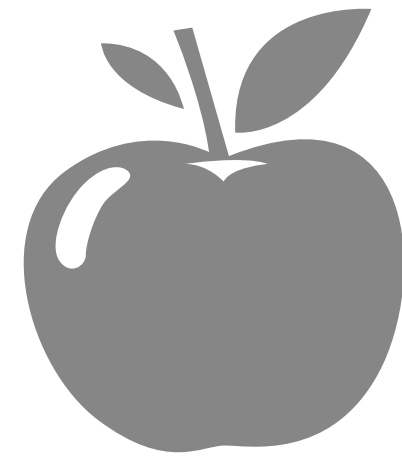


Serving Up Inequality

How sex and
gender
impact
women's
relationship
with food

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ABSTRACT

This paper explores various aspects of women's health relating to food. These include the impacts of nutritional deficiency, the links between nutrition and chronic disease and women's food-related behaviours. Gender itself is a key structural determinant of women's health and inequality, playing out in women's roles in relation to food, in psychosocial health and the socio-economic factors that impact on access to nutritious food.

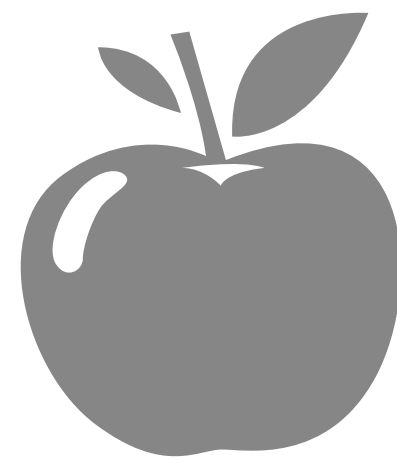
Controversy exists in public health and health promotion about the approach and key messages that should be adopted in relation to food-related behaviours and body size to promote 'health' and prevent illness for women. This paper outlines various perspectives in this discourse and highlights principles and recommendations for designing health promotion programs and managing the risks of public health messages.

ABOUT WOMEN'S HEALTH VICTORIA

WHV is a statewide women's health promotion, information and advocacy service. We work collaboratively with women, health professionals, policy makers and community organisations to influence systems, policies and services to be more gender equitable to support better outcomes for women.

As a statewide body, WHV works with the nine regional and two other statewide services that make up the Women's Health Association of Victoria (WHAV).^{*} The women's health services network offers a unique approach to women's health across the state by providing an infrastructure which focuses solely on gender equality, health promotion and improving women's health outcomes.

^{*}The three statewide services are Women's Health Victoria, the Multicultural Centre for Women's Health and Women with Disabilities Victoria. The nine regional services are Women's Health and Wellbeing Barwon South West, Women's Health Grampians, Women's Health Loddon Mallee, Women's Health Goulburn North East, Gippsland Women's Health Service, Women's Health West, Women's Health in the North, Women's Health East and Women's Health in the South East.



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EXECUTIVE SUMMARY

Adequate and nutritious food is essential for good health. However, when it comes to food, women's health is influenced by more than the nutrients consumed. Though biological factors of sex and life-stage affect women's nutritional needs, women's food choices and dietary practices are strongly influenced by structural, social and economic factors. This paper explores various aspects of women's health relating to food.

Key findings include:

- Though diet is a modifiable risk factor for chronic disease, less than 30 per cent of women report eating the recommended intake of fruit, vegetables, legumes and fish;
- Though women are increasingly in paid employment, they are still expected to do more food work than men, leading to an unequal burden of stress and time;
- Being female is the strongest risk factor for the development of an eating disorder, and eating disorders are the third most common chronic illness among young women;
- Better quality diet is associated with lower likelihood of depressive and anxiety disorders in women;
- Women's food access, behaviours and health outcomes are strongly influenced by the socio-economic determinants of income, education and location;
- Women are more likely than men to experience food insecurity in Australia and worldwide;
- Women living in areas of most disadvantage and women experiencing food insecurity are more likely to be obese, but this correlation is not observed in men;
- Food insecurity impacts women's psychosocial wellbeing more strongly than men's, and is associated with higher levels of stress, anxiety and depressive symptoms.

NUTRITION

Consuming the right amounts of nutrients is essential for women's health. Recent evidence has shown that suboptimal levels of vitamins are risk factors for chronic diseases such as cardiovascular disease, cancer, osteoporosis and depression. However, excess energy from food contributes to overweight and obesity, with implications for a woman's physical health and psychological wellbeing.

Women are at greater risk of iron deficiency than men, due to their higher need for the mineral nutrients during menstruation, pregnancy and menopause. Compared to men, women are also at an increased risk of folate, vitamin D and calcium deficiency, which can negatively influence their overall health. Greater consumption of foods rich in fibre and Vitamins A, C and E is associated with a lower risk of breast cancer.

GENDERED NORMS & EXPECTATIONS

Gendered norms and expectations influence women's diet, eating behaviours and health outcomes, contributing to and reinforcing gender inequality. Increased participation in the workforce has not seen a decrease in women's food-related chores, with women spending almost two and a half times as long on food preparation and clean up than men. With women expected to do the majority of a household's food work, it follows that they cite time as the main barrier to healthy eating. Women who reported time pressure as a barrier are significantly less likely to meet the Australian Dietary Guidelines' recommended intake of fruit and vegetables per day.

PSYCHOSOCIAL HEALTH

Socially constructed body image ideals and normalisation of dieting and other weight control behaviours have influenced many young women to adopt a relationship with food that has little to do with nutrition. Poor body image is associated with dangerous dietary practices and weight control methods and young women are at particular risk of developing disordered eating patterns that affect their quality of life.

Women may also use food to self-medicate a depressed or anxious state. Emotional distress, stress related to racism, and lifetime experiences of racism are positively associated with binge eating behaviour, indicating that Aboriginal and Torres Strait Islander women may have additional risk factors for disordered eating. Similarly, the discrimination and other stressors experienced by lesbian and bisexual women are associated with binge eating.

OTHER SOCIO-ECONOMIC FACTORS

Better diet quality in adult Australian women is associated with a lower likelihood of depressive and anxiety disorders. However, being unable to access affordable, nutritious food negatively impacts women's psychosocial wellbeing and is associated with higher levels of stress, anxiety and depressive symptoms.

Structural factors like income play an important role in being able to afford and access a nutritious diet. Cost is usually the most important factor determining the food-purchasing decisions of lower-income households. However, the cost of healthy foods in Australia has been rising faster than that of less nutritious foods, meaning that a healthy diet as recommended by the Australian Dietary Guidelines is increasingly unaffordable for low-income families in Australia. Single parent families face higher risks of poverty and food insecurity; in Australia, 88 per cent of single parent families are headed by women

IMPLICATIONS FOR HEALTH PROMOTION

When armed with health knowledge, women have a greater tendency than men to engage in healthy behaviours. But there are strong ethical considerations to take into account in the promotion of women's health arising from the intersection between food, gender, eating behaviour, body image, mental health and chronic disease. Health promotion policies and programs that operate within a weight-centred health paradigm have the potential to negatively impact on the health and wellbeing of individuals and communities, through dissatisfaction, dieting, disordered eating, discrimination and death. Health promotion efforts should focus less on individual behaviour change, and address the multiple social and economic factors at play. Effective public health advocacy should maintain and strengthen its focus on improving the accessibility and affordability of healthy food.

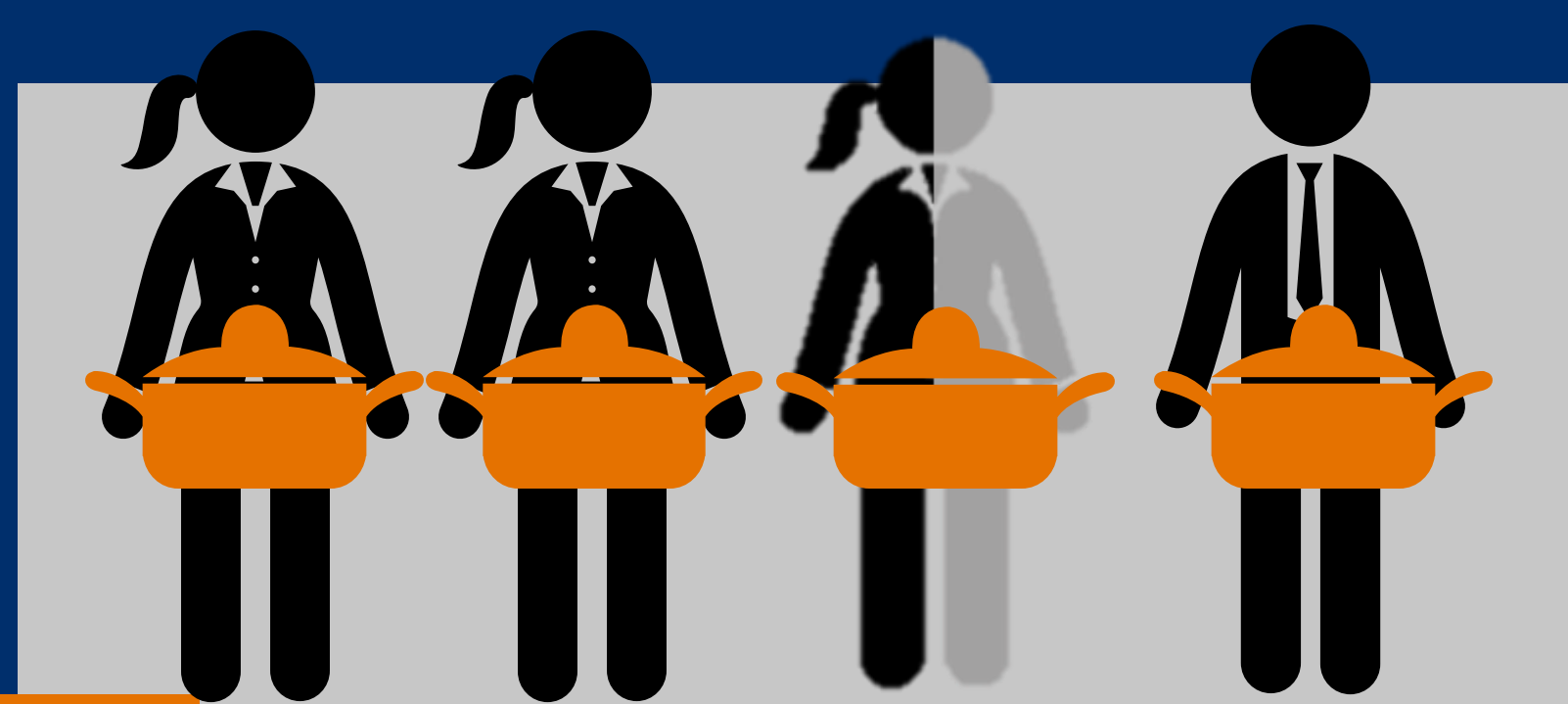
KEY RECOMMENDATIONS:

1	Develop a comprehensive gender-sensitive national food and nutrition policy
2	Increase access to and affordability of healthy food, while also reducing the overabundance of unhealthy food
3	Take a holistic and gendered approach to food insecurity, addressing both its causes and impacts
4	Challenge gender norms and practices that position food work as women’s work
5	Apply an intersectional gender lens to food-related health promotion campaigns and programs
6	Address body image concerns, disordered eating and associated mental health issues
7	Develop practical guidance for women on the risk of nutrient deficiencies and how to ensure adequate nutrient intake, to accompany the Australian Dietary Guidelines
8	Address the risk of undernutrition among older women and other vulnerable groups
9	<div>Undertake additional research into:</div> <ul style="list-style-type: none">• The prevalence of dieting and other disordered eating practices in women and girls;• The experience of same-sex attracted women, gender diverse and trans people in relation to food and eating behaviours, food work and nutrition.

Women & food at a glance

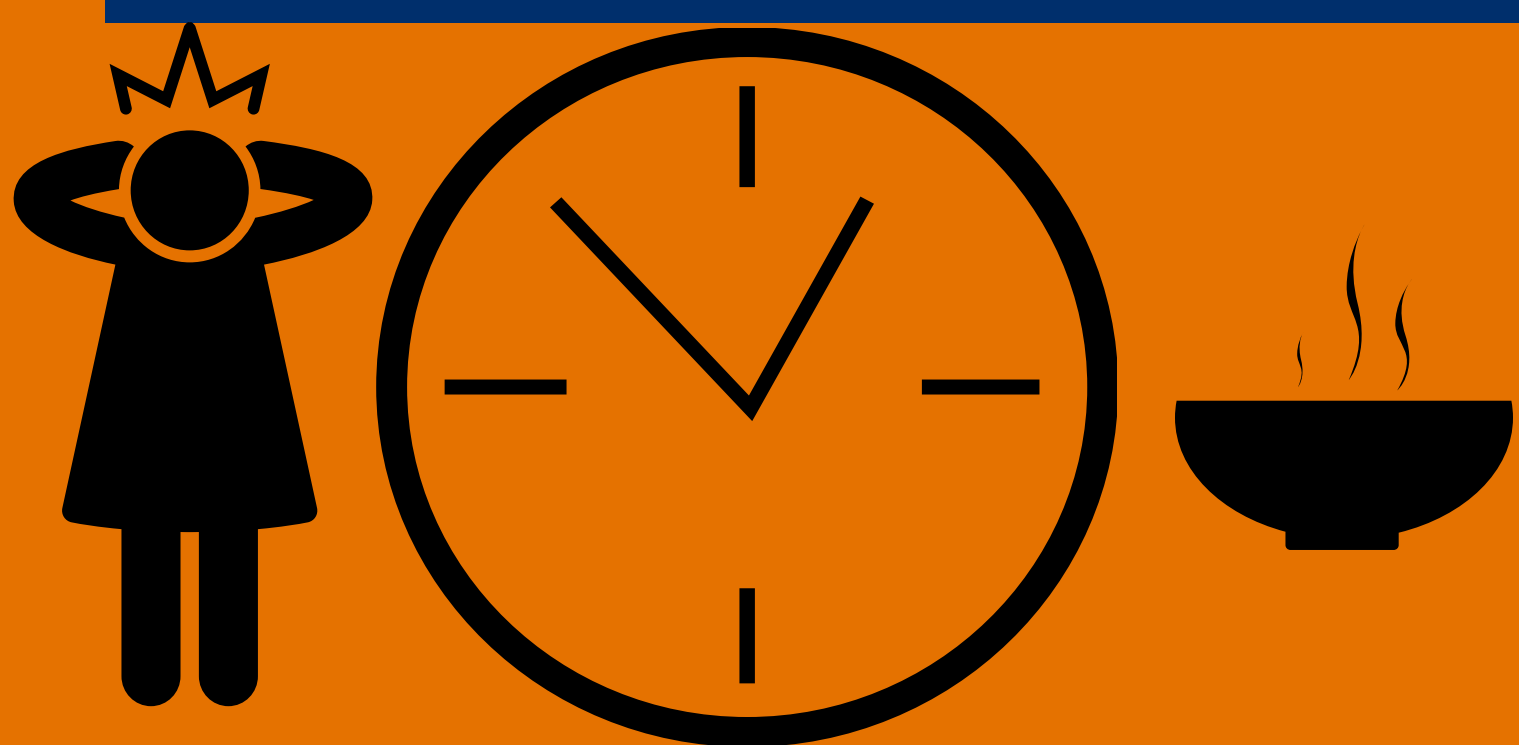


Women do up to 2.5 times more food work than men



Even though they are increasingly in paid work

40% women report time as a barrier to healthy eating



Cost is a significant barrier to a healthy diet

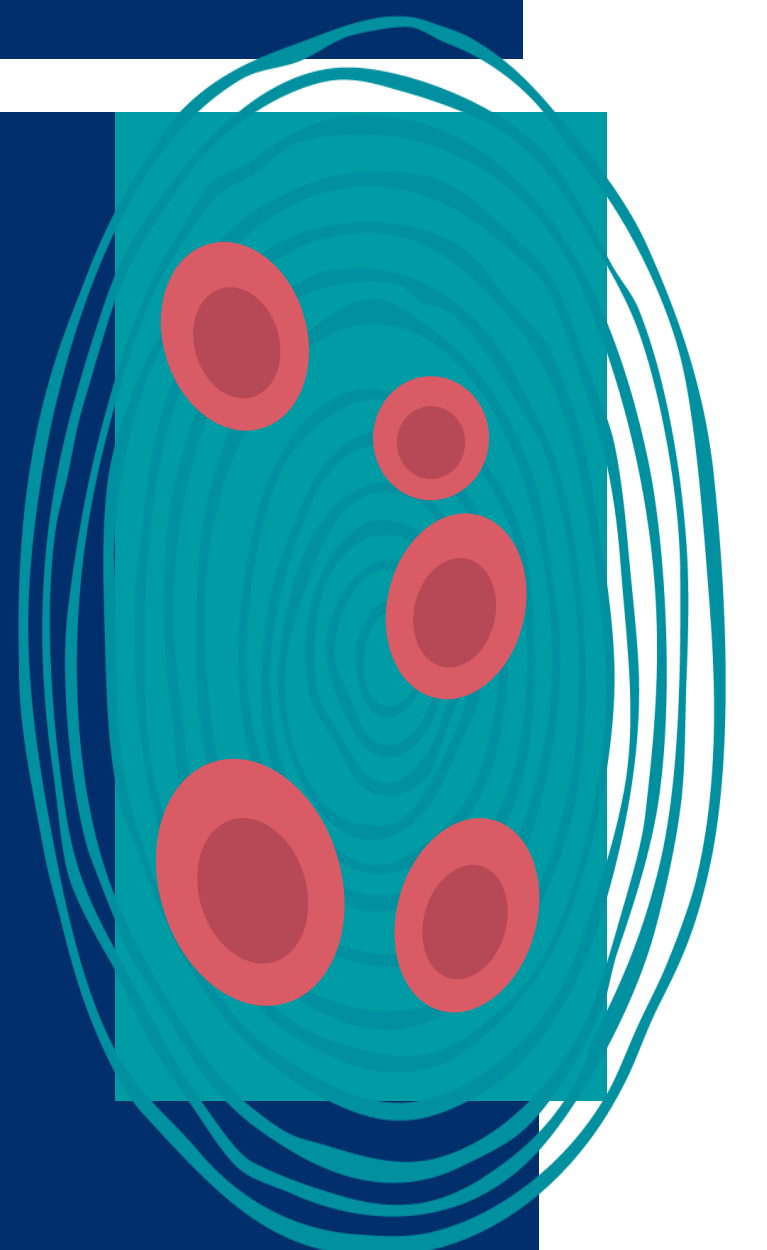


Diets rich in Vitamins A, C + E are linked to lower risk of breast cancer



Women are at greater risk of iron deficiency than men

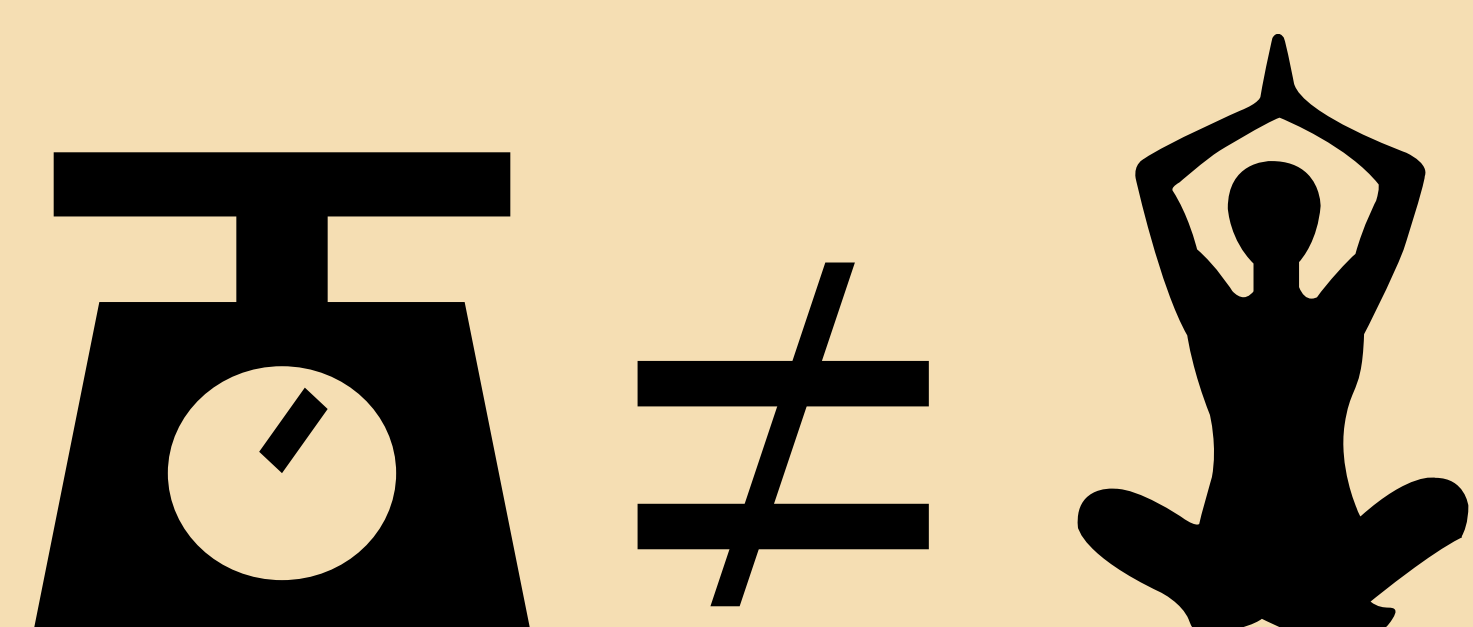
due to higher need for nutrients during menstruation, pregnancy & menopause



Better quality diet is associated with better mental health



Health promotion campaigns should not conflate health and weight





INTRODUCTION

Access to adequate nutritious food is a basic human right, and is recognised as a key determinant of health and wellbeing [1]. However, when it comes to food, women's health is influenced by more than the nutrients consumed. While biologically determined factors of sex, age and physiological stage of life affect women's fundamental nutritional needs, it is gender and other socially and environmentally determined factors that mediate women's food consumption. These factors influence women's access to, motivation for and capacity to make, healthy food choices.

This paper explores various aspects of women's health relating to food. These include the impacts of nutritional deficiency and the influence of overall dietary patterns, the links between nutrition and chronic disease, the impact of gender on women's roles in relation to food, how a woman's relationship with food affects her psychosocial health, and the socio-economic factors that impact on access to nutritious food.

Nutrition is an area of health where sex and gender relevance is significant, especially in the context of cardiovascular diseases and the prevalence of eating disorders [2]. Until the 1990s, research on women was largely neglected [2]. This led to mostly gender-insensitive* nutritional guidelines and health programs, that is, guidelines and programs that ignore or do not address gender on the assumption that no gender differences apply [2]. More is now known about many of the gender differences related to food and nutrition. It is debatable whether current Australian and Victorian policy and programs account for these differences.

Globally, poor diet, including diets high in sodium and low in fruit, contributes the most to women's overall disease burden. Poor diet is a modifiable risk factor for cardiovascular disease, cancers and diabetes [3]. These chronic diseases contribute significantly to the overall burden of disease and therefore lend themselves to prevention strategies [4].

Overweight and obesity is a potential outcome of a poor diet. Based on past trends, it is estimated that proportion of obese Australian women will increase from 25.5 per cent in 2015 to just over 30 per cent in 2035 [5]. Obesity has a greater impact on health outcomes for women than for men, playing out in their physical, reproductive, psychological and social well-being, as well as their access to health services [6].

Food intake and eating behaviours impact on women's physical and psychological wellbeing in a complex interplay between the external environment and internal factors. Socially constructed idealised body image and normalisation of dieting and other weight control behaviours have influenced many young women to adopt a relationship with food that has little to do with nutrition. Women's food-related roles and social expectations (gender norms) in turn play a part in contributing to and reinforcing gender inequality.

Transgender men and women may experience the interplay of sex, gender and food in different ways. Some of the content in this paper related to sex and gender may resonate with these groups, whether in terms of sex-related nutrition requirements, or in terms of navigating sometimes harmful and limiting gender expectations. WHV recommends further research into the specific needs and experiences of gender diverse people.

Controversy exists in public health and health promotion practice regarding key messages that should be adopted in relation to food-related behaviours and body size to promote 'health' and prevent illness for women. This paper outlines various perspectives in this discourse and highlights principles for designing health promotion programs and managing the risks of public health messages.

Interventions to improve dietary changes by impacting on modifiable factors at an individual level, such as dietary knowledge, beliefs and attitudes, and overall wellbeing, will be enhanced and facilitated by long-term societal interventions that tackle the context and situation of the living environment, and the balance between health promotion and food industry marketing [7].

*Gender insensitive approaches are often referred to as 'gender blind', however 'gender insensitive' is now the preferred language.



DIET & RISK OF NUTRIENT DEFICIENCY

The Australian dietary guidelines provide recommendations to promote good health and wellbeing and reduce the risk of diet related illness and chronic disease. Key dietary guidelines are recommendations that women consume five serves of vegetables per day, at least two and a half serves of dairy foods per day and at least two and a half serves of lean meat and alternatives per day [1].

According to the Australian Health Survey, these guidelines are not being met by a large proportion of the female population, with only 4.2 per cent of women meeting the recommendation of five serves of vegetables per day, only 7.2 per cent meeting the recommendation for dairy and only 5 per cent meeting the recommendation for red meat or alternatives [2]. In a 2015 survey of 26,000 Australian women, less than 30 per cent of participants reported eating the recommended intake of fruit, vegetables, legumes and fish [3]. A recent survey of Aboriginal and Torres Strait Islander people found that 97 per cent did not consume an adequate daily amount of fruit and vegetables [4]. Levels of fruit and vegetable consumption are lower for those living in remote areas partly due to the lack of availability and accessibility of fresh food to those areas [5]. These findings are concerning given the role of nutrition in women's health and the prevention of potentially serious health problems.

Women compared to men are at an increased risk of iron deficiency anaemia as well as folate, vitamin D, iodine and calcium deficiency, which can negatively influence their overall health. Certain groups of women are more at risk than others of specific nutrient deficiencies, and therefore it is important these groups are able to follow dietary guidelines. Groups at risk of specific nutrient deficiencies include:

- Adolescents
- Pregnant women
- Breastfeeding women
- Post-menopausal women
- Older women
- Aboriginal women
- Women experiencing breast cancer
- Women experiencing food insecurity

In addition, women's individual dietary preferences and practices may confer either health benefits or health risks.

2.1 RISKS ASSOCIATED WITH LIFE STAGE

The Australian dietary guidelines and the various Guidelines for healthy eating provide recommendations for women and girls for different ages and stages of life [1]. Adolescents, pregnant women, and older women are at higher risk of nutrient deficiency due to the physiological changes associated with the life stage:

Adolescents have greater nutritional requirements with lower estimated energy requirements than adults, which can make an adequate diet hard for this age group to achieve. Female adolescents have higher calcium requirements than other ages (apart from women over 50) yet between 54 and 90 per cent of this age group have inadequate calcium intake [6]. Adolescents tend to skip meals more often (especially breakfast) and have a diet high in sugar and processed foods resulting in poor nutrition and a risk of nutrient deficiency and a higher BMI [7]. In addition, adolescents are more vulnerable to disordered eating as they commonly adopt weight control behaviours that can influence under-nutrition and other negative health outcomes [8].

Women of childbearing age are at particular risk of poor health due to micronutrient deficiencies [9]. There is strong evidence that a negative iron balance prevails in many apparently healthy women in developed countries due to a combination of poor diet and menstrual blood loss [10]. Ninety-three per cent of menstruating women have dietary iron intakes lower than the recommended dietary allowance [10]. Women aged over 19 years are more than four times as likely as men to report inadequate iodine intake [6].

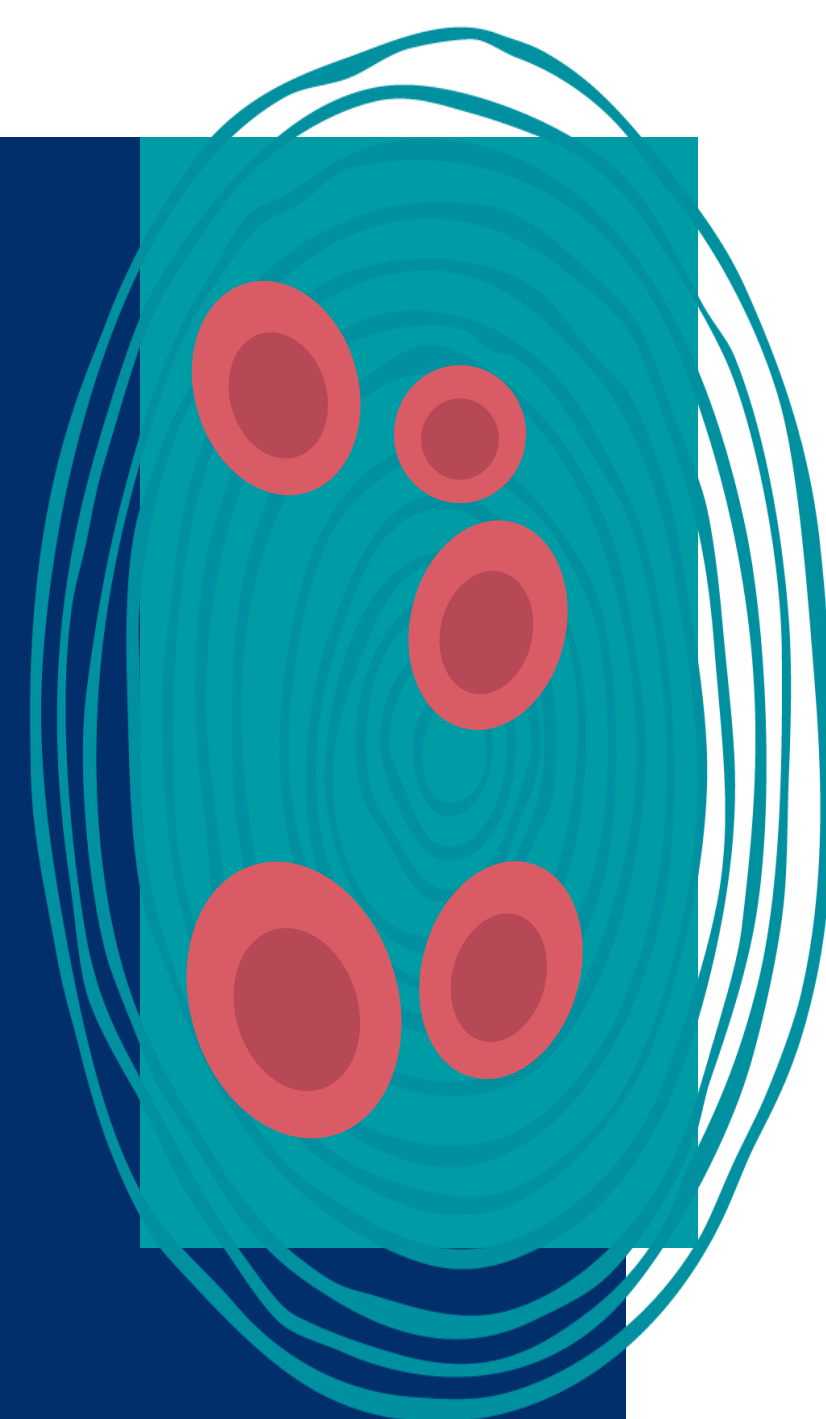
Pregnant women are at particular risk of poor health due to malnutrition and micronutrient deficiencies [11]. Just over seventy per cent of pregnant women have low levels of Vitamin D and the prevalence is even higher in women with gestational diabetes [10]. Vitamin D is essential to bone health and is a factor in the pathogenesis of cardiovascular disease [10].



Over 90% of women over 50 consume insufficient calcium, and many consume insufficient zinc and iodine [6]. Daily calcium intake tends to decline with advancing age: the intestinal absorption of calcium is reduced in older women relative to young women, and vitamin D deficiency contributes to declining calcium absorption [10]. Age-related muscle loss is considered to be a major risk factor for the development and progression of many common chronic diseases. Physical inactivity, inadequate protein intake and low vitamin D status have been implicated [12].

Women are at greater risk of iron deficiency than men

due to higher need for nutrients during menstruation, pregnancy & menopause



Older women who are housebound, in residential care or who otherwise have decreased food intake are at risk of deficiency. The risk of undernutrition is prevalent among older people in residential care, with women three times more risk than men [10]. Poor oral health is a risk factor for undernutrition in older people [13]. Ageing and medications may impair zinc uptake. Zinc has a role in wound healing and immune function. Low zinc levels can lead to reduced taste sensation which in turn can affect food intake (quantity and choice of foods) putting older women at risk of deficiency and over consumption of salt [13]. Ageing also decreases thirst sensation and dehydration can go undetected, leading to electrolyte imbalance and confusion [13].

In addition, women's use of oral contraceptives and hormone replacement therapy may affect the absorption and availability of certain nutrients [10]. The use of intrauterine devices by women is associated with a higher frequency of iron depletion (28.1 per cent) than in those using oral contraceptives (13.6 per cent) [10].

2.2 RISKS AND BENEFITS OF DIETARY PATTERNS

Nutritional epidemiology has moved away from a heavy focus on nutrients towards recognising the importance of overall dietary patterns [14]. A large-scale global study has recently found that six dietary factors were the largest contributors to disease burden, including diets high in sodium, low in vegetables, low in fruit, low in whole grains, low in nuts and seeds, and low in seafood omega-3 [15]. A woman's dietary preference may confer nutritional benefits and risks. For example, a vegetarian, vegan or restricted diet may confer nutritional benefits, but may also result in a number of nutrient deficiencies and/or negative health outcomes.

A vegetarian diet is associated with many health benefits because of its higher content of fibre, folic acid, vitamins C and E, potassium, magnesium, many phytochemicals (such as flavonoids) and unsaturated fats [16]. Individuals who follow this diet may be less likely to develop cardiovascular disease, diabetes and other diet-related diseases. However, women who are vegetarian have an increased risk of nutrient deficiency in protein, minerals (including iron, calcium and zinc), Vitamin B12 and Vitamin D [7].

Typically, vegan diets are similar to the vegetarian diet with the additional elimination of all animal products, including animal milk, eggs and honey. Compared with other vegetarian diets, vegan diets tend to contain less saturated fat and cholesterol and more dietary fibre. Vegans are at higher risk of nutritional deficiencies including Vitamins B12 and D, calcium, omega-3 fatty acids, iron and zinc [16]. Vegan women benefit from regular monitoring of Vitamin B12 status for early detection and treatment of Vitamin B12 deficiency, which is implicated in atherosclerosis (plaque build-up inside the arteries) and pregnancy complications [17].

A traditional Mediterranean diet consists of: low glycaemic-load carbohydrates; high levels of unsaturated fat; a high amount of antioxidants in the form of a widely varied mix of fruit and vegetables; and whole, minimally processed foods and legumes, nuts, and lean proteins, especially fish. Research suggests that the Mediterranean diet aids in the prevention of several diseases, including metabolic syndrome, atherosclerosis, cancer, diabetes, obesity, pulmonary diseases and cognitive disorders. A study of more than 60,000 postmenopausal women over two decades found that adherence to a Mediterranean diet (excluding alcohol) was associated with a reduced risk of ER-negative breast cancer by 40 per cent in postmenopausal women [18]. This diet has also been linked to halving the incidence of new-onset diabetes in an at risk group over a four-year period compared with a low-fat diet.

This outcome occurred in the absence of significant changes in body weight or physical activity indicating that it is possible to reduce the risk of diabetes without weight loss by changing the food eaten [10]. This diet is a favourable dietary pattern in the health industry as there are fewer restrictions to foods that have nutritional benefits [19]. For older women, consumption of the Mediterranean diet is associated with decreases in vasomotor symptoms of menopause (known as hot flashes and night sweats) [20].

Diets rich in flavonoids (often found in brightly coloured fruits and vegetables) are beneficial for women due to their oestrogen-mimicking effects that reduce the incidence of cardiovascular disease and osteoporosis [10]. Flavonoids reduce the levels of total cholesterol, low density lipoproteins and triglycerides in the blood [10].



The typical Western diet is high in energy, saturated fat, sugars and salt, and contains many common foods that limit iron absorption, for example tea and coffee. Women are at greater risk of iron deficiency than men, due to their higher needs of nutrients during menstruation, pregnancy and menopause. Women who follow a typical western diet may need to adopt more iron rich foods such as red meat, poultry, seafood, dark leafy greens and iron fortified cereals [13]. Alcohol and concentrated sources of calcium (usually supplements) may also impair iron absorption [21]. Eating fresh fruit and vegetables high in Vitamin C alongside iron rich foods helps to improve iron absorption [22].

A study evaluating the cost of a cardiovascular-friendly diet found that although spending more money is associated with a healthier diet, improvements could be achieved without necessarily spending more. The study recommended increasing consumption of nuts, soy and beans, and whole grains, and reducing consumption of red and processed meats and high-fat dairy. [23].

Aboriginal women experience poorer health than other Australian women, with many suffering health problems due to the context in which they live their lives, impacted by dispossession, forced removal from family, racism and exposure to violence [24]. Traditionally, Aboriginal diets were high in protein, complex carbohydrates and nutrients, and varied between location and time of year [5]. Colonisation saw Aboriginal and Torres Strait Islander people forced to live in settlements where they lost autonomy over their diet. The European foods available in the settlements were often high in fat, sugar and salt [5].

On arrival in Australia, some migrants may aim to maintain traditional food practices (for example, what they eat, when they eat certain meals and sharing meals with friends and family), but influences from their host country influence these practices soon after arrival. Influences are the price of food, the lack of availability of ingredients and influence from children.

Findings from a survey of migrant students undertaking an English language program in Melbourne in October 2015 are consistent with other research on how new migrants change their dietary habits. The survey indicated that new migrants who ate traditional meals were more likely to consume vegetables daily and that more than eight out of ten respondents shared a meal with their family more than three days per week – both health protective behaviours. Some migrants choose energy dense foods, snacks and sugar-sweetened beverages as in their home country these types of processed foods are seen as status foods which very few can afford [25].

A study of young women of African and South Asian descent living in the United Kingdom also found that women from each of the ethnic minority groups had assimilated the fast-food aspect of the British diet into their eating habits [26].

Women with physical disabilities report that their nutrition-related behaviours are facilitated (or restricted) by their social and structural environment – income, assistance with shopping or cooking, and food delivery services [27]. Depending on their level of mobility, women with disabilities may be unable to prepare fresh food (holding a knife, opening cans). They may also have limited say around their diet as they may be reliant on their carers or support workers to prepare meals [28]. Better mobility, greater self-efficacy for nutrition and more vitality (psychological measure) are indicators of better nutritional behaviours in women with physical disabilities [29].

2.3 IMPLICATIONS FOR PUBLIC POLICY & HEALTH PROMOTION

2.3.1 Health promotion for different life stages

Women's dietary patterns and nutritional needs at different life stages need to be taken into account in the approach to, and targeting of, health promotion messaging and public health programs. Increasing the health literacy of women about the benefits and risks of particular dietary practices, alongside improvements in the food quality of the typical Western diet and accessibility of healthy foods for all, are necessary approaches to improve women's diet.

With certain groups of women more at risk than others of nutrient deficiencies, targeted early intervention and nutritional screening in primary health care and residential-care settings would increase the reach of these interventions for more vulnerable women [30]. Given that obesity has a greater impact on health outcomes for women than for men, and is one of the most common high-risk obstetric conditions for pregnant women, it is important that women's nutritional health is prioritised.

2.3.2 Tailored health promotion for populations with distinct needs

Universal health promotion approaches should cater for diverse and disadvantaged populations but tailored solutions may also be required, taking into account the distinct needs of Aboriginal and Torres Strait Islander women, women with different abilities, women from diverse cultures, and low-income or otherwise socio-economically disadvantaged women, in particular single parents. Listening to and supporting communities to take action is fundamental to this approach.

2.3.3 Health promotion approaches for Aboriginal and Torres Strait Islander women

Health promotion initiatives for Aboriginal and Torres Strait Islander women that target the individual may have less success than those that embrace women's relationships or connectedness to the land, the community or the family. For example, Aboriginal people living in Melbourne see type 2 diabetes as the result of living a life out of balance, a life of lost or severed connections with land and kin and a life with little control over past, present or future. The three levels of connectedness considered important in determining an individual's susceptibility not only to diabetes but to all disease are (1) family, (2) community and (3) society [31]. For urban Aboriginal women in Brisbane certain approaches were found to lead to more sustainable healthy eating changes. These included: a household rather than an individual framing of nutrition promotion; providing positive ideas for cooking; and opportunities such as cooking workshops in relaxed group environments [32].

Action research in Geelong, Victoria in 2010 with mainly women from a local Aboriginal community controlled organisation illustrated the need for researchers and practitioners to listen carefully to the needs and nutrition knowledge of the local community. This research, involving photo-voice methods, found that Aboriginal women's food selections were influenced by family harmony, collectivism and the relief of hunger brought about by cheap foods high in carbohydrate and fat [33].

Hope For Health is a nutrition program developed for the Yolngu people of north-east Arnhem Land. The program was developed with 12 women Yolngu Elders and combines traditional Yolngu knowledge of diet and lifestyle with non-Indigenous nutritional knowledge. While the program aims to impart traditional diet and cooking skills, Hope For Health also works with participants to address other systematic barriers to a healthy lifestyle, including: access to regular income, difficulty storing fresh produce and the burden of grief and stress [34] [35].

Public health policy for improving nutrition and diet-related health of Aboriginal and Torres Strait Islander women should encompass increasing access to nutrition education in schools and increasing access to healthy food [36] [37]. Aboriginal organisations themselves, as significant employers of Aboriginal people, and involved in organising food and catering for events in their local community, can play a role in community leadership, workplace policy and forming partnerships with food security agencies to influence healthy eating and responses to food security [38].

2.3.4 Health promotion approaches for migrant and refugee communities

Migration and acculturation have a significant influence on the food consumption of new migrants to Australia and there is opportunity for culturally appropriate health promotion activities on food and nutrition to support and advocate healthy food habits [25]. However, it is important to ensure that initiatives targeting women do not inadvertently reinforce traditional stereotypes and cultural norms (for example, that women are responsible for domestic food work) in turn perpetuating gender inequality.

2.3.5 Food labelling initiatives

A number of recent initiatives have been introduced that aim to improve consumer health literacy and uptake of healthy food choices. The national Health Star Rating system provides simplified nutrition information at-a-glance, indicating the healthiness of the food product (reflected as a star rating), on the front of pre-packaged foods. The system is designed to penalise salt, sugar and fat content in foods while rewarding other nutrients like fibre [39]. Positive outcomes of this system have included companies reformulating some products to achieve a better rating [40]. However, there are number of flaws in the current system including: foods are only compared to other foods in the same category (nuts with nuts; sweets with sweets); evidence of gaming of the system to market unhealthy foods (for example, adding more fibre to a product to achieve a higher rating, even though it is still high in sugar); and the voluntary nature of the scheme. [41]. A two-year review of the Health Star Rating system in Australia revealed that while over 50% of respondents reported that Health Star Ratings influenced their purchasing decision, price was still the most important factor [42].

Victoria recently passed legislation to introduce mandatory kilojoule labelling on menus in large fast food chains and supermarkets. Labelling on food and drinks, together with displaying the average daily kilojoule intake, makes it easier for customers to compare meals and make an informed decision. This legislation brings Victoria into line with NSW, ACT, QLD and SA [43].* An evaluation of NSW's kilojoule menu labelling scheme found that it was noticed by consumers, there was a shift towards better understanding of daily energy intake and that there was some reduction in kilojoules purchased. A consumer education campaign was necessary to increase understanding about energy content in food and to encourage the purchase of healthier food [44].

*The Food Amendment (Kilojoule Labelling Scheme and Other Matters) Act 2017 (Vic) is due to commence in July 2018 unless proclaimed earlier.



NUTRITION & CHRONIC CONDITIONS

Both the quality and quantity of food consumed affects a woman's health status and her risk of developing certain diseases, and in different ways from men. Evidence has shown that suboptimal levels of vitamins, even when well above levels causing deficiency syndromes, are risk factors for chronic diseases such as cardiovascular disease, cancer, osteoporosis and depression [1].

3.1 OBESITY

Excess energy from food contributes to overweight and obesity, with implications for a woman's physical health and psychological wellbeing. In 2014/15, 56.3 per cent of women in Australia were overweight or obese. Rates of overweight and obesity increase with age. Of women aged 45 years and over, 65.7 per cent of women are overweight or obese [2].

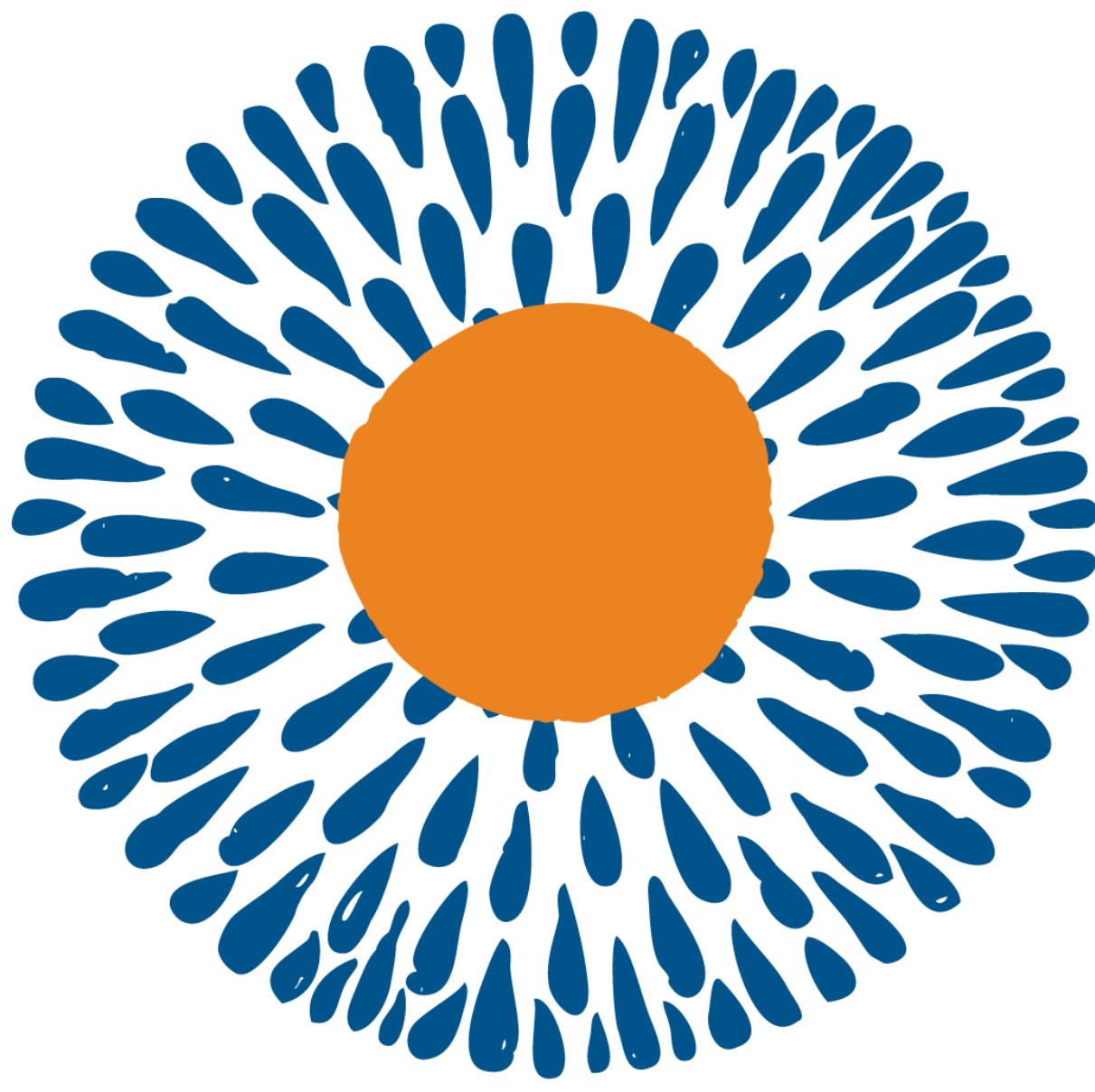
There is growing consensus among researchers that obesity and eating disorders are complex chronic conditions with significant shared risk factors, including unhealthy beliefs and behaviours around weight and eating. One in five individuals with obesity also has disordered eating [3].

Obesity is related to early onset of puberty in girls, affect fertility and increases the risk of complications in pregnancy for both the mother and her child [4].

The Australian Longitudinal Study on Women's Health, a prospective, population-based survey, indicates that in younger and mid-age Australian women there is an overall trend of continuing weight gain and increasing levels of overweight and obesity. Findings of the study reveal that the behaviours affecting changes in women's energy balance (i.e. eating, sitting and moving) are strongly determined by life stage, social circumstances and occupation, as well as by psychological attributes such as attitudes to activity and diet [5].

The American Association of Clinical Endocrinologists recently published a statement redefining the medical diagnostic term for obesity as Adiposity-Based Chronic Disease (ABCD). This frames ABCD as a complex chronic disease, shifting the emphasis to the health impacts of excess weight rather than the weight or body mass index itself [6].

Public health messaging often emphasises the importance of weight rather than health and reduces complex health issues to weight measurement. This messaging has not reduced obesity, but has reinforced the stigmatisation of fat people, which emerging research indicates can have worse health outcomes for these individuals than excess body weight. Implicit anti-fat bias is evident among many groups including health professionals, members of the general public, and those who are themselves overweight or obese [7]. This is explored further in Section 7.1.



3.2 CARDIOVASCULAR DISEASE

Cardiovascular disease (CVD) is the leading cause of premature death in Australian women [8]. Many women are unaware of their risk of CVD, with more than 90 per cent of women having at least one risk factor. More than half of Australian women are overweight or obese, almost half have high blood cholesterol, and about three-quarters are physically inactive, all risk factors for CVD. The National Heart Foundation reports that the prevalence of heart disease for all Australian women is 7.9%, increasing to 33.7% in women over 85 years [9].

A large randomised controlled dietary modification trial in post-menopausal women found that a reduction in total fat intake and an increased intake of vegetables, fruits and grains did not significantly reduce the risk of cardiovascular disease [1]. It found that the quality of fat, rather than the amount, has a different effect between men and women, due to sex differences in fat distribution and metabolism [1]. Consumption of foods rich in omega-3 fatty acids (those found in oily fish) appear to exert a beneficial effect on human health and are recommended particularly in post-menopausal women who are at risk of cardiovascular disease due to high blood triglyceride levels [1].

Sex differences in body fat distribution are associated with different diseases [1]. Visceral fat (which is stored around the body's vital organs in the abdominal cavity) has been associated with increased risk of heart disease and metabolic disorders. This means that men and post-menopausal women typically have increased risk relative to pre-menopausal women [1].

Particular fats and fat compounds circulating in the blood - triglycerides and low density lipoproteins (LDL) - are crucial cardiovascular disease risk factors in women [10]. A high level of triglycerides in the blood is a cardiovascular disease risk that increases with age [1]. High carbohydrate-low fat diets can produce high triglycerides and LDL levels and elevate weight gain [1]. Pregnancy, hormone replacement therapy and oral contraceptives can each lead also to an increased level of triglycerides in the blood [1].

3.3 DIABETES

Diet is a modifiable risk factor for type 2 diabetes in women. After adjusting for age differences, Aboriginal and Torres Strait Islander women are four times more likely to report diabetes than non-Indigenous women [11]. Recent research has called for dietary carbohydrate restriction to be the first approach in diabetes management [12]. Dietary carbohydrate restriction reliably reduces high blood glucose, does not require weight loss and leads to the reduction or elimination of medication [12]. The Australian Longitudinal Study on Women's Health found that for middle-aged women, adherence to the established dietary guidelines was a protective factor against the development of type 2 diabetes [13]. In fact, many forms of a healthy diet are inversely associated with the disease across racial/ethnic groups [14].

High intake of fibre from fruit, vegetables, whole grains, legumes and nuts can reduce or delay the absorption of glucose. Milk and milk products have also been found to reduce the risk of type 2 diabetes. The consumption of red meat has been associated with type 2 diabetes risk [13]. Emerging evidence suggests that consuming sugary beverages one or more times per day is associated with type 2 diabetes risk in women but not men [15].

Women with diabetes are more likely to have eating disorders than women without diabetes

Women with diabetes are at greater risk of heart attack and stroke than their male counterparts [16]. Women with type 1 diabetes are at greater risk of all-cause mortality than men with type 1 diabetes which may be caused by increased impairment of insulin sensitivity during puberty [17]. Research also suggests that women with any kind of diabetes are more likely to have eating disorders than women without diabetes [18].

3.4 CANCER

The importance of diet, particularly plant-based foods, in cancer prevention has been confirmed [1] and the Australian dietary guidelines reflect recommendations based on the best evidence to date. Evidence of whether diet has sex-specific effects in cancer prevention is not conclusive. However some episodic sex-specific effects have been described in the research, for example, in the study of colorectal cancers in men and women and links to body weight, folic acid, dietary fibre and red meat consumption [1].

There is little evidence that dietary supplements reduce overall cancer risk. However, there is evidence that high doses of some supplements increase the risk of cancer [19].

Greater consumption of foods rich in Vitamins A, C and E and fibre is associated with a lower risk of breast cancer. A large European prospective cohort study found that breast cancer risk for post-menopausal women was inversely associated with a high index score for a diet with a combination of seven dietary factors: cereal fibre, folate, the ratio of polyunsaturated to saturated fat, fatty fish (as a marker for omega-3 fatty acids), margarine (as a marker for industrially produced trans-fats), glycaemic load, and fruits and vegetables [20]. Another large study, which followed 60,000 post-menopausal women over two decades, found that adherence to Mediterranean diet excluding alcohol was associated with a 40 per cent reduced risk of ER-negative breast cancer [21].

Body mass index gain is found to be a significant determinant of breast cancer recurrence following treatment with chemotherapy, and obesity is an independent adverse prognostic factor for disease-free survival and overall survival of breast cancer [22]. Similarly, higher BMI is associated with adverse survival among the majority of women with ovarian cancer [23]

3.5 OSTEOPOROSIS

Osteoporosis occurs when bone loses minerals, such as calcium, more quickly than the body can replace them, causing a loss of bone thickness (bone density or mass) and increasing the risk of fractures. Women are at greater risk than men due to smaller bones and the decrease in oestrogen (which has a protective role) at menopause. Various factors can influence the rate of bone loss, including diet, calcium intake, activity levels and hormonal changes [24]. 91% of women over 50 do not consume sufficient calcium [25]. Approximately 23 per cent of Australian women and 6 per cent of men aged over 50 years are estimated to have osteoporosis, increasing to 43 per cent of women and 13 per cent of men aged over 70 years [26] [27]

**Diets rich in
Vitamins A, C + E
are linked to lower
risk of breast
cancer**



3.6 IRON DEFICIENCY ANEAMIA

Anaemia is caused by a decrease in either the number of red blood cells in the body or the quantity of haemoglobin within red blood cells, affecting oxygen supply around the body. Iron deficiency is among the most common nutrient deficiencies among women, with 40 per cent of women aged 14-50 years having inadequate iron intake (compared to 3 per cent of men) [28] [25]. Worldwide, half of the cases of anaemia are due to iron deficiency. Iron deficiency anaemia may cause fatigue, impaired cognitive function and adverse pregnancy outcomes [29].

Women are particularly at risk of iron deficiency between puberty and menopause [30]. In Australia, iron deficiency appears to be a condition predominantly seen in young women. Menstrual blood loss means that young women have double the iron requirements compared to young men, however for women taking the oral contraceptive pill, this increased requirement is lessened [30].

3.7 ORAL DISEASE

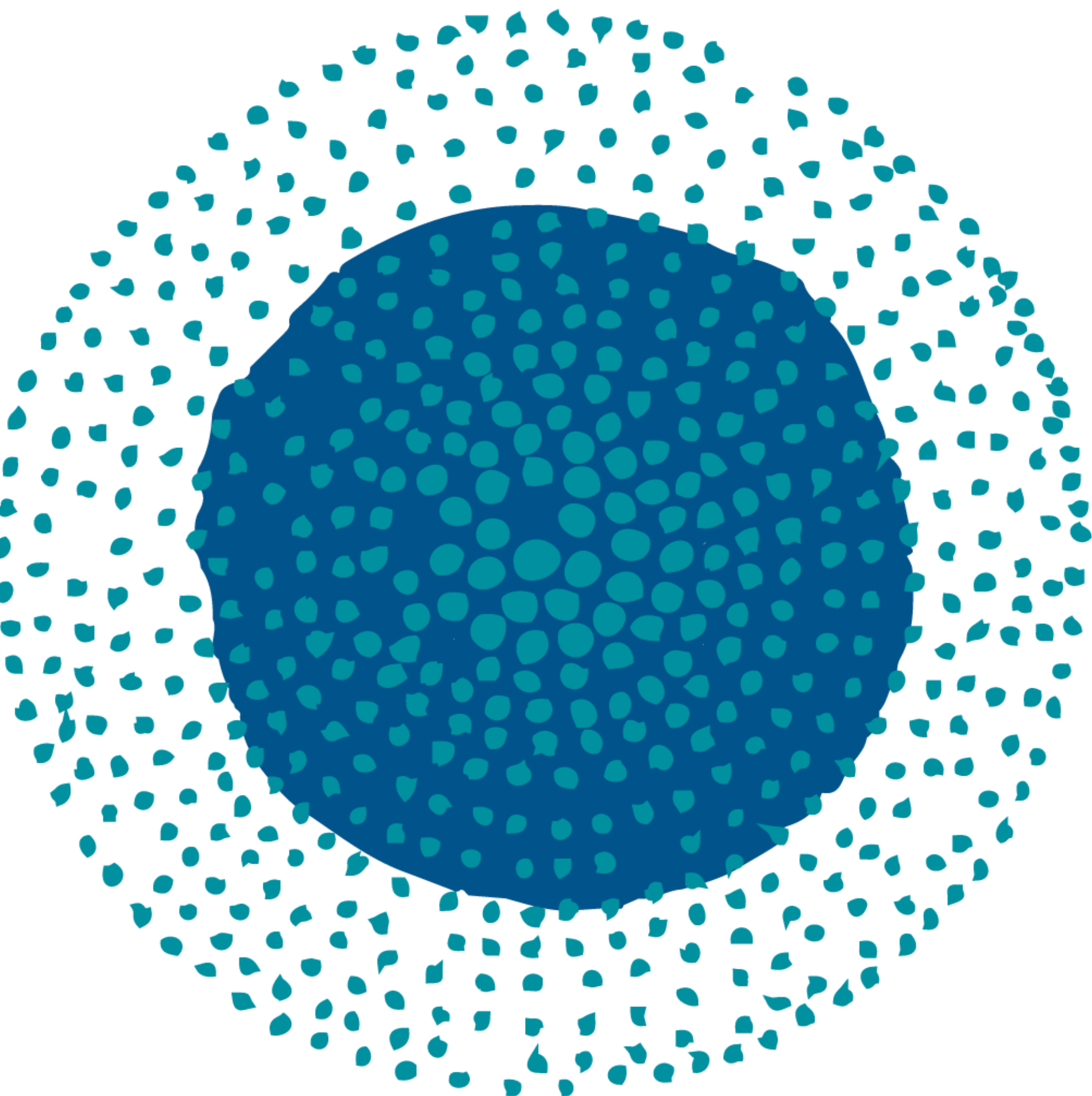
Nutritional deficiency and high sugar diets contribute, along with other risk factors, to the development of dental decay and other oral health problems for women. According to the Australian Institute of Health and Welfare (2014), nearly 23 per cent of women have untreated decay and 19 per cent suffer gum disease [31].

Many women with eating disorders experience poor oral health. High rates of dental erosion and dental caries are observed in people with eating disorders [32] [33] [34] [35]. Some combination of vitamin and nutritional deficiencies associated with disordered eating, dietary behaviours, eating disorder behaviours and oral health behaviours contributes to these oral health issues [36]. Higher rates of tooth erosion among women with eating disorders may be more closely aligned with acidic diet and consumption of acidic foods rather than vomiting episodes (Kisely, Baghaie, Lalloo 2015).

3.8 POLYCYSTIC OVARIAN SYNDROME

Polycystic Ovarian Syndrome (PCOS) is a hormonal disorder that affects between 12 to 18 per cent of women of reproductive age and up to 21 per cent of Aboriginal and Torres Strait Islander women [37]. Symptoms of PCOS vary and can include cyst-like formations on the ovaries, irregular periods, excess facial and body hair, acne and sleep apnoea. Many of the symptoms are caused by high levels of androgens (male hormones) circulating in the body.

Insulin resistance is common in women with PCOS and puts them at increased risk of developing type 2 diabetes and cardiovascular disease. Following a healthy diet (as recommended by the Australian Dietary Guidelines, or similar to diets recommended to manage diabetes or high cholesterol) is an integral step in reducing insulin resistance and managing PCOS [38].



3.9 IMPLICATIONS FOR PUBLIC POLICY & HEALTH PROMOTION

Given the important contribution of diet to women’s risks for obesity, heart disease, diabetes and cancers, in ways that are distinct from that for men, health promotion and prevention strategies approaches should consider gender-sensitive approaches.

Young women have high dietary iron intake requirements, but are also most at risk of iron deficiency

For example, young women have high dietary iron intake requirements, but are also most at risk of iron deficiency. Although the Australian Dietary Guidelines acknowledge this risk, there is no suggestion as to what sufficient iron intake looks like (e.g. in terms of iron rich foods and serving sizes). Practical guidance should be developed for women on the risk of nutrient deficiencies and how to ensure adequate nutrient intake, similar to the guidance provided for increasing calcium intake.

A gender-sensitive approach to diabetes treatment would recognise that women with both type 1 and 2 diabetes are at risk of eating disorders, as well as cardiovascular disease. Health professionals should ensure that interventions aiming to manage diabetes do not inadvertently increase the risk of eating disorders.



WOMEN'S FOOD-RELATED ROLES

Food work is gendered, with women largely responsible for food purchasing, meal choice and preparation in Australian households. Women are increasingly expected also to be responsible for broader food-related social and environmental concerns. These role expectations arise from, and play a part in reinforcing, gender norms and stereotypes that contribute to gender inequality.

This section explores women's roles and behaviours in relation to food and food work and the ways these roles and behaviours are influenced by, and reinforce, social expectations and gender stereotypes. It examines women's food-related roles in a heterosexual context. There is limited research on food work in lesbian relationships, however emerging research suggests that these couples engage in a more equal distribution of household labour than heterosexual couples [1].

4.1 FOOD AS WOMEN'S RESPONSIBILITY

In most cultures the performance of femininity is more tied to the preparation and consumption of food and body image than is masculinity. A systematic review in 2014 found that food activities contribute to the maintenance of women's gendered identities [2]. The relationship between women's gender identity and domestic food role is complex and, while changing over time, remains entrenched despite women's participation in the paid labour force outside the home [3].

Women's increased participation in the paid labour force has not seen a corresponding decrease in women's domestic work, in particular food-related chores [3] [4]. Women's responsibility for domestic food work has been sustained and even strengthened during the latter half of the 20th century and into the 21st century, with the emergence of additional layers of responsibility for women, each requiring its own knowledge and skill: food as a source of health and health care; home economics as a professional discipline; and the use of culturally-specific food practices to retain and affirm ethnic affiliation and belonging in response to cultural homogenisation [3].

Women's food work is different from men's, with gendered roles and responsibilities shaping cooking approaches [5]. Western popular culture has seen increased attention to cooking and chefs over the past ten years. Analysis of chef profiles and fine dining reviews in two major US magazines highlighted that women chefs receive far less attention than men and that the traditional gender role dichotomy in professional cooking is evident (man as artist, and woman as home cook) [6]. Western food-related television programming reflects dominant gender roles for both men and women. For example, US daytime food-related television shows feature mostly female cooks and chefs standing in their home kitchens (or replicas of home kitchens) teaching recipes for the family evening meal. Evening programs feature more male cooks and chefs in shows involving exciting competitions and challenges [7].

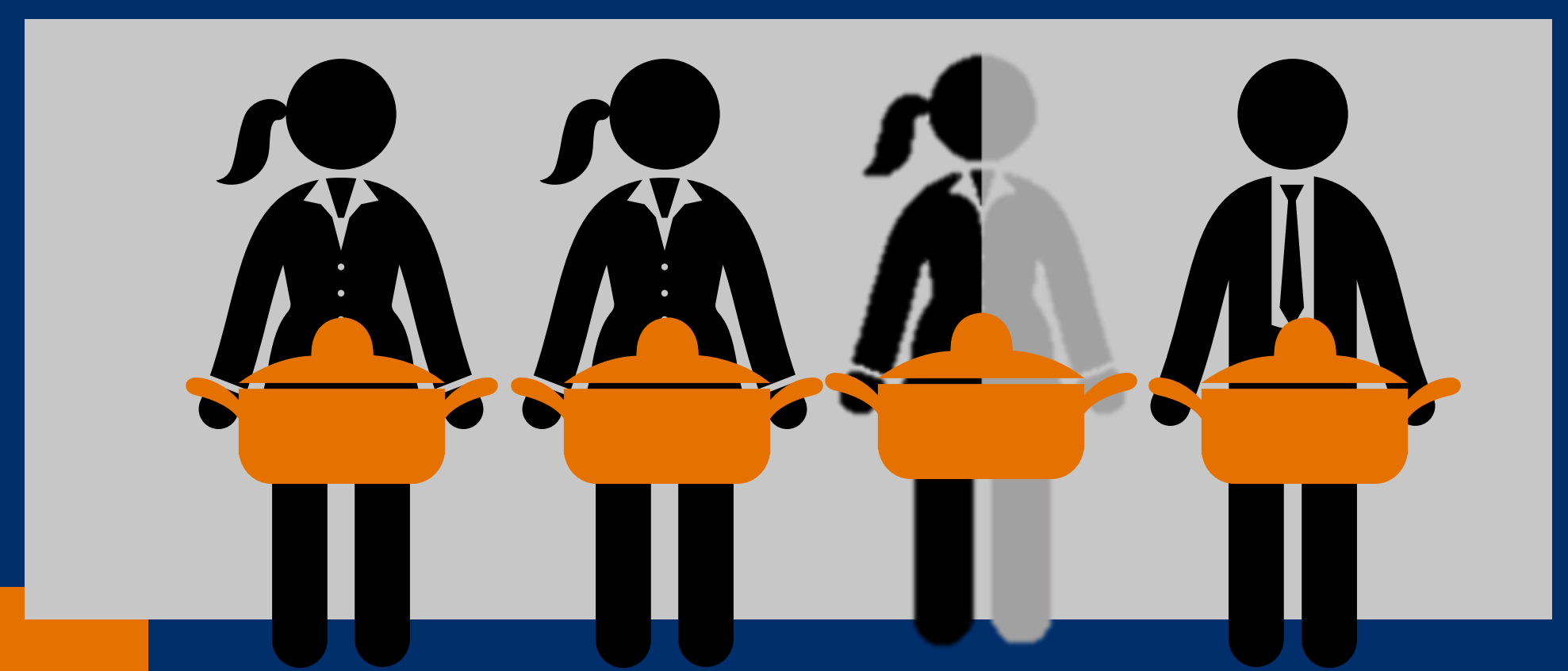
As women age, food-related activity changes due to a change in food choice and deteriorating health. For example, in older age, women tend to do less shopping and cooking. A 2013 study in the UK of women aged 65-95 years found that women's reasons for reducing food-related activities included changes in health, loss of a partner or caring role, and new patterns of socialising [8]. These changes may threaten identity [2]. However, many of the women in the 2013 study actively managed these changes to maintain their relationships with food and with others, for example by participating in shared food activities, being at home when meals are delivered, or using their energy for getting out and about rather than cooking from scratch [8].

**Women do up to 2.5
times more food work
than men**

Even though they are increasingly in paid work

4.3 THE 'GOOD' MOTHER

Women traditionally, and largely still today, adopt the role of family food gatekeeper, especially in families with children [12]. By taking on the role of food provider, many women are responsible not only for their own diets, but also for their family's diet [12] [13]. Social norms dictate that in the role of food-provider, a mother should be competent and caring [14]. According to time use surveys of Australian households conducted in 1992 and 2006, despite men doing more of the cooking in the second survey, women still spent almost two and a half times as long on food preparation and clean up than men [4].



4.2 WOMAN AS CONSCIENTIOUS CONSUMER

Food shopping is gendered in nature and, despite its negative aspects, women may identify strongly with shopping as a pleasurable activity in which they enact the socially valued role of consumer femininity. However, the embodiment of consumer femininity – a woman who is a capable, conscientious consumer, and who values high-quality foods – is not necessarily universally available. For women with limited resources, the potential pleasures of food shopping are undermined by material constraints. This situation may generate feelings of frustration, guilt, disappointment and anger [9]. On the other hand, incarcerated women describe their food practices in prison as a means to be 'good' and 'healthy' [10].

In addition, the emergence of women's role as ethical consumer in the food marketplace places increased responsibility for women as carers – not just for their families, but also for broader social and environmental concerns – for the well-being of food producers, animals used in production and sustainability of global ecosystems [11]. This increased responsibility adds to women's labour, potentially reinforcing gendered divisions of labour and gender inequality [11].

Food choices are complex, changing and shaped by many factors including life course, cultural influences, personal systems (values, cost, health, convenience and relationships) and food systems (infrastructure, storage and preparation facilities) [15]. A woman's food choices may come second to those of their partner or children due to the social norm of women sacrificing their needs for others [12]. Mothers may develop food rationing strategies (of the type and amount) that benefit their children's health at the expense of their own [16]. This practice is likely to have ramifications for women's health where there is persistent household poverty.

Women's own dietary intakes are strongly influenced by their ability in food preparation and other family member's food preferences. Women's practice of providing food is shaped by a process of trade-offs between preferred practices (for example, eating well or healthily) and constraints operating at the time. Such constraints include time, unpredictable events and level of cooking ability [17]. There exist tensions in the balancing of a women's food-related role of caregiver (food preparation for others) with her own feminine practices (concern about appearance and dietary practices) [18].

A study on Aboriginal family food work found that women were mostly responsible for this, and that maintaining healthy eating on a low budget was challenging. These challenges included planning meals for diabetics, the additional work required in looking up recipes to be inventive with ingredients available, and stretching meals to accommodate extra guests. Avoiding family complaints about food coupled with tight budgets meant that participants were unlikely to experiment with food if there was risk of wastage. Women also reported that rejection of the meals prepared affected their self-esteem [19].

The creation of identity as ‘good mother’ is one way in which women may manage the tensions of paid work outside and unpaid work inside the family home [20]. In the role of food-provider, mothers display to themselves, as well as to other people such as school teachers or other parents, that they are competent and caring, for example through their preparation of school lunches [14]. Immigrant mothers with strong ties to their native culture in particular, compared to other low-income women, employ cultural traditions around food to be the ideal, good mother [20].

4.4 FOOD AS A MEANS OF SELF-DISCIPLINE

Contemporary young Western women may characterise themselves as free thinking and autonomous, making free choices about their identities and everyday activities [21]. However dominant cultural meanings around body size, shape, food and eating are evident in analysis of their own language and expression [22].

Middle-class women face a tension in expression of their femininity between freedom as informed, educated food consumer and discipline through dietary control. A practice of ‘choosing health’ has emerged to mediate these contradictory internalised anxieties, where dietary restrictions are reframed as positive choices [23]. The use of detoxes, consumption of ‘superfoods’ and restricted eating for self-diagnosed food intolerances are examples of more acceptable behaviours for the modern woman than dieting and deprivation. These dietary practices may contribute to the eating disorder “orthorexia” discussed in section 5.1.1.

Women reported that rejection of the meals prepared affected their self-esteem

4.5 WOMAN AS 'HEALTHY' CONSUMER

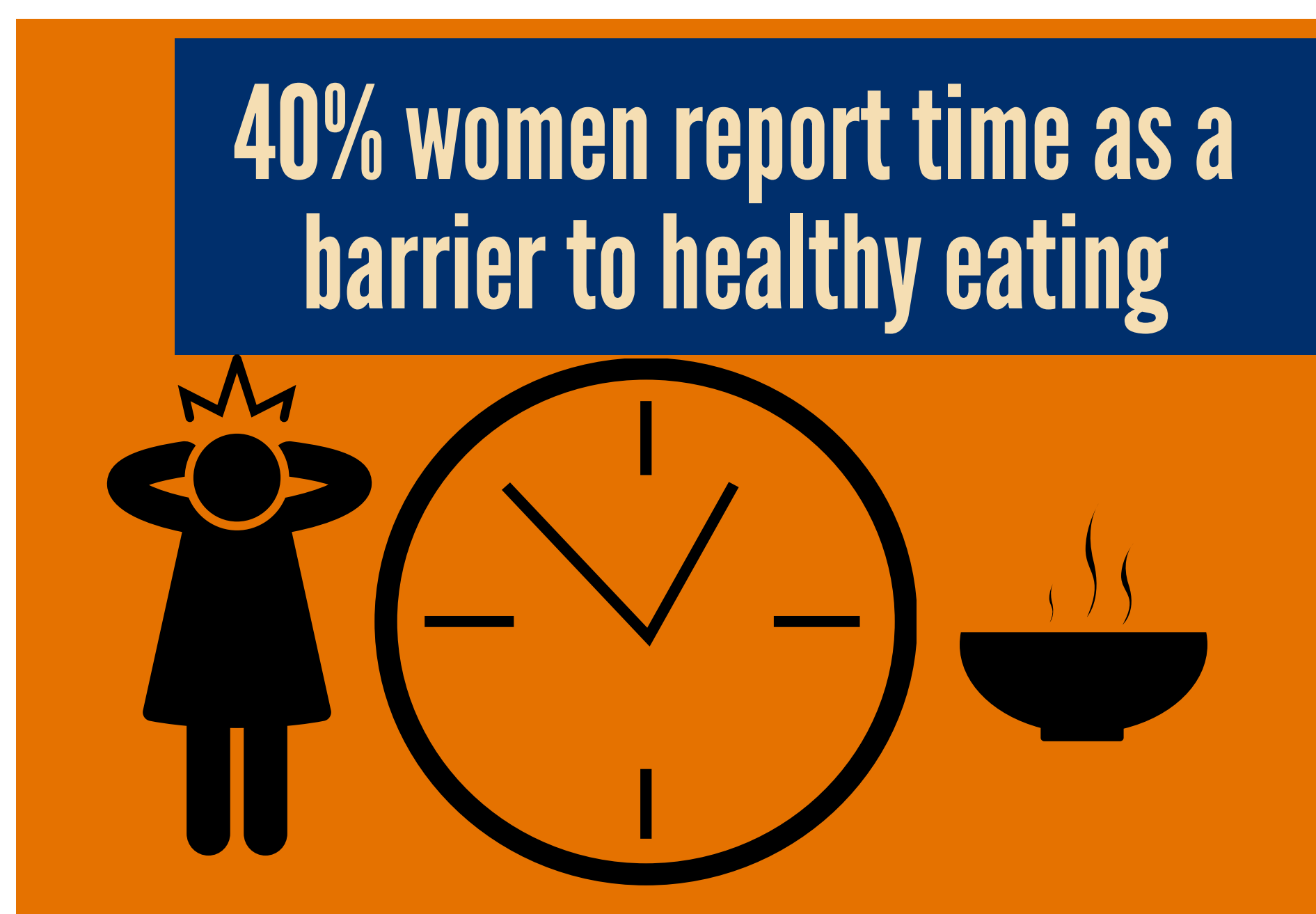
Health is an important concern for women in decisions about food purchases, reflecting and reinforcing a gender stereotype that women eat more healthily than men. This gender norm influences the food preferences of both genders, and is exploited in the packaging and marketing of food [24]. To what degree these differences are simply mirroring the variations in dietary behaviour or shaping them is unclear – both may be possible [25]. An analysis of UK magazines found differences in nutritional content of foods that were advertised according to the socio-economic and gender profile of readers to reflect known differences in dietary intake, knowledge and behaviour among these readers [25].

Women consumers in Australia regard the food advertising term ‘100% natural’ to be both persuasive and credible, with connotation of multiple benefits – promise of freshness, minimal processing and no artificial ingredients [26].

4.6 FOOD-RELATED BEHAVIOURS & DIET QUALITY

Women have a greater tendency than men to engage in healthy behaviours when empowered with health knowledge [27]. Dietary habits are formed at an early age. Positive attitudes toward health benefits of food by girls aged 13-21 years have been shown to be associated with their more favourable food choices and a lowered dietary fat intake [28]. But attitude and knowledge do not necessarily determine food related-behaviours. Even health-conscious women who express intentions to ‘eat well’, who know how to cook and have strong ideas of what food is ‘good’ for them, still experience obstacles to doing so [29]. Decisions about food choice may be experienced as dilemmas: convenience versus care; health versus indulgence; novelty versus tradition; economy versus extravagance [29].

A woman’s approach to food organisation and preparation has an effect on her eating behaviours. Women who plan their eating behaviours by thinking about what to do in order to achieve their goal (a form of autonomous regulation called ‘approach food planning’) are more likely to develop healthy eating behaviours than women who plan their eating behaviours by what to avoid in order to move away from an undesired outcome, such as being overweight (a form of controlled regulation called ‘avoidance food planning’) [30]. Women who enjoy and place a high value on food shopping, preparation and consumption and who spend time organising and forward-planning meals are more likely to have healthier intakes of fruit and vegetables [31].



However, the effect on diet quality of the amount of time spent in meal preparation may depend on meal type. A study of midlife women in the U.S. found associations between the amount of time spent preparing meals and meal food group and nutrient content, with differences observed by meal type. The study found that women who spend more time on meal preparation do not necessarily eat healthier meals. Less time spent preparing breakfast was associated with lower energy and fat intakes, while less time spent preparing lunch and dinner was associated with lower vegetable and sodium intakes. This observation suggests that interventions in healthy meal preparation for midlife women should be tailored according to meal type [32].

While it is often suggested that a healthy diet is more affordable, other factors come in to play that influence food consumption, such as convenience, taste, effectiveness of discretionary food marketing and cooking skills [33]. An identified barrier to healthy eating by women is perceived time pressure. Forty per cent of Melbourne women surveyed perceive this as the main barrier to healthy eating, with long hours at either work or study being the most significant cause [34].

Women aged up to 39 years are more likely to report time pressure as a barrier to healthy eating than older women [34]. Rushing has been linked to being a woman, lone parenthood, disability and work-family conflicts [35]. Women who reported time pressure as a barrier are 40 per cent less likely to meet Australian fruit consumption guidelines (two serves per day) and 47 per cent less likely to eat three or more servings of vegetables (Australian guidelines recommend at least 5 serves per day) [34].

4.7 IMPLICATIONS FOR PUBLIC POLICY & HEALTH PROMOTION

Women's roles and behaviours in relation to food and food work, and the ways these roles and behaviours are influenced by and reinforce social expectations and gender stereotypes, significantly shape women's diet and eating behaviours. VicHealth notes that 'cultural and societal norms and values may be as, or more, important in shaping diet quality and the social distribution of healthy eating behaviours as the physical availability and price of foods' [36]. Expectations of women's responsibility for domestic food work are not decreasing despite increased participation of women in the workforce outside the home, rather there is an emergence of additional layers of responsibility.

Gender norms have evolved over long periods of time out of social, cultural and religious systems and food industry stakeholders play an increasingly influential role in shaping them. Food advertising is widely acknowledged as an important driver of food preferences and purchasing behaviours [36] and marketing of unhealthy food and beverages is now widely recognised to have negative influence on food preferences, purchases and dietary intake. Food advertising often reinforces gender stereotyping and shapes the types of food work, foods and dietary patterns that are acceptable and desirable for women and men.

Public policy and health promotion programs that are insensitive to, accommodate or exploit gender risk perpetuating harmful gender norms and practices and reinforcing gender inequality. Health promotion programs should encourage critical awareness of gender roles and norms related to food, food practices and body image; provide non-stereotyped role-models; and engage men in action for gender equality (for example, encouraging men to take the lead in food preparation in their households) [37].

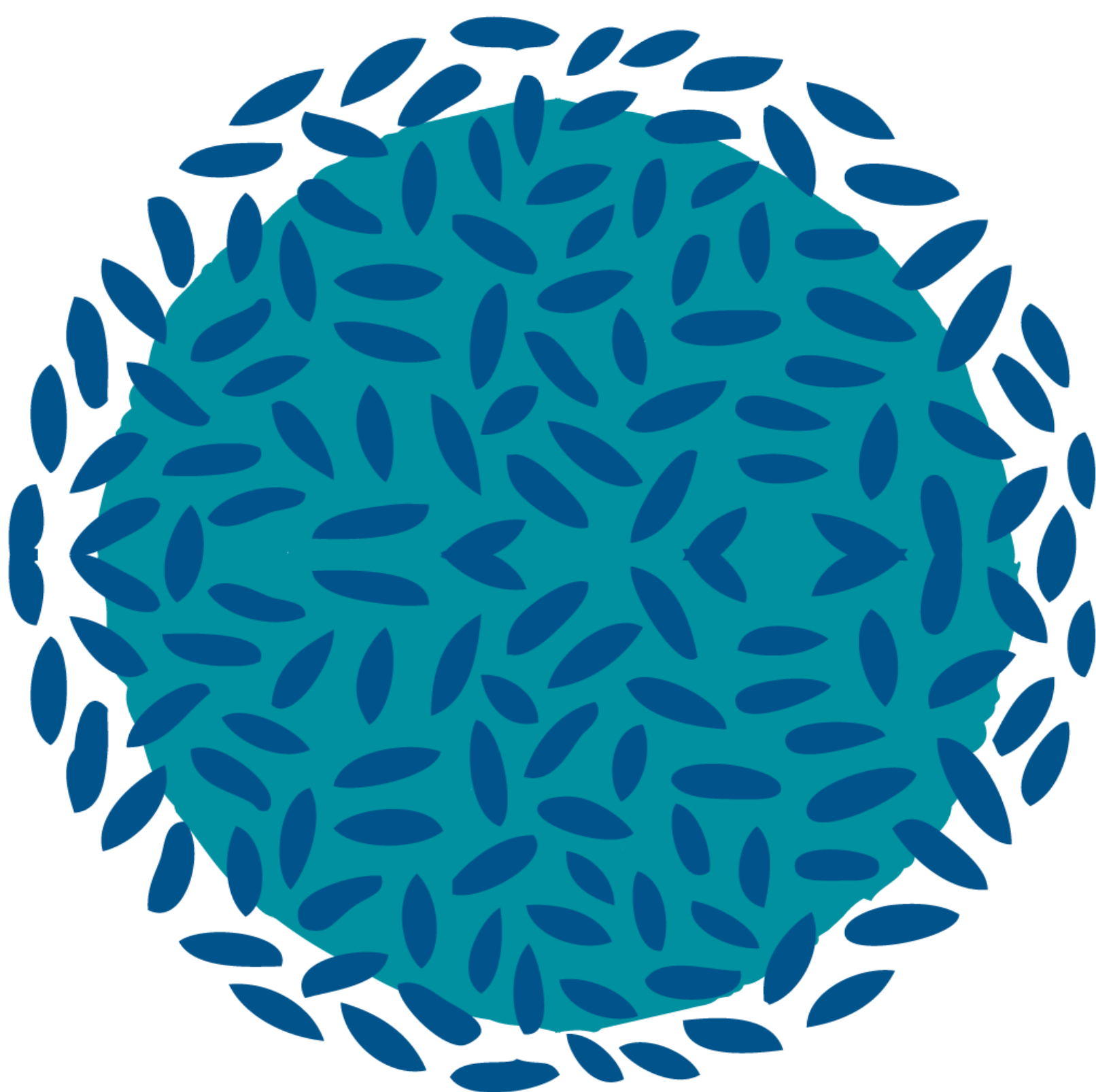




PSYCHOSOCIAL HEALTH

Women's relationship with food is complex, and impacts on women's psychosocial health. While many factors are at play, gender remains the strongest predictor of the risk of eating disorders [1].

Food may gratify emotional needs as well as the body's nutritional requirements. Food-related behaviours may be health enhancing (for example, planning and preparing regular nutritious meals) or damaging. Dieting, skipping meals and inducing vomiting are examples of harmful gendered behaviours that may start in adolescence and lead to established patterns of disordered eating behaviour into adulthood. Women's relationship with food is also mediated by the external environment.



**Better quality diet
is associated with
better mental
health**



For example, women's self-perception based on body size is strongly influenced by social influences and expectations. Body image dissatisfaction negatively impacts on women's mental health. Women may also use certain foods to self-medicate a depressed or anxious state.

This section explores the relationship between food and women's psychosocial health, in particular how food and eating relates to women's mental health, particularly eating disorders. It also explores the relationship between food, gender and body image, and the role of the media in promoting idealised and unrealistic female images.

While many factors are at play, gender remains the strongest predictor of the risk of eating disorders

5.1 Eating disorders

Eating disorders are serious mental illnesses that predominantly affect young women; the most common are described in section 5.1.1 below. Disordered eating practices are risk factors for the development of eating disorders, along with other internal characteristics and social influences. Disordered eating is common in Australian women, especially restrictive dieting. Other unhealthy practices include fasting or chronically restrained eating, skipping meals, binge eating, self-induced vomiting, unbalanced eating (e.g. restricting or eliminating a major food group), misuse of laxatives, diuretics or enemas, steroid and creatine use, and use of diet pills [2].

Extreme concerns about eating, extreme weight/shape concerns and extreme dietary restriction are strongly associated with mental health impairment in Australian urban women [3]. The most frequently co-occurring mental illnesses for people with eating disorders are anxiety and mood disorders. Up to two-thirds of people with eating disorders will experience an anxiety disorder in their lives [4].

5.1.1 Types and prevalence

Eating disorders are serious mental illnesses [5] and are the tenth leading cause of non-fatal health loss in women aged 15-44 [6].

Anorexia nervosa, characterised by depriving the body of food, and often combined with increased levels of exercise, is widely accepted as a complex, multifactorial neuropsychiatric condition that may develop in the presence of genetic and environmental causes, sociocultural influences and psychological traits [7]. The exact contribution of inherited versus social factors remains contested [7] [8].

Bulimia nervosa is characterised by recurrent binge-eating episodes (the consumption of abnormally large amounts of food in a relatively short period of time), followed by compensatory behaviour (purging or overexercising). Binge eating disorder involves recurrent binge eating without the use of these 'compensatory measures' [9].

Australian data indicate that:

- Eating disorders are the third most common chronic illness in young females
- Around 4 per cent of the Australian population have an eating disorder, including anorexia nervosa, bulimia nervosa and binge eating disorder [10]
- Approximately 15 per cent of women experience an eating disorder at some point during their life
- An estimated 20 per cent of females have an undiagnosed eating disorder
- Ninety per cent of cases of anorexia nervosa and bulimia nervosa occur in females
- Approximately one in 100 adolescent girls develops anorexia nervosa, and 75 per cent of children diagnosed with anorexia are female
- Eating disorders are increasing in both younger and older age groups
- Eating disorders occur in both males and females before puberty [11].

In developed countries, the prevalence of anorexia nervosa and bulimia nervosa is 0.5-1.0 per cent among late adolescent women and 1.0-2.0 per cent among adult women. It is estimated that a further 8-15 per cent have significant levels of subclinical symptoms [12].

A newly recognised food regime, known as orthorexia, involves women combining the disordered eating of anorexia, bulimia and/or binge eating disorder with practices that embody ideas of 'health', 'clean', 'natural' and 'care', risking a decrease in engagement with treatment services [13]. These practices may also reinforce women's gendered role as 'the healthy consumer' discussed in section 4.5. The strict dietary practices of orthorexia are common in people with anorexia, bulimia and binge eating disorder [14].

5.1.2 Risk factors

While eating disorders can occur across all ages, socio-economic groups and genders [15], being female and experiencing puberty are key risk factors for the onset of an eating disorder [16]. After gender, dieting is the greatest risk factor for the establishment of an eating disorder.

Commonly cited data relating to the prevalence of eating disorders and disordered eating among young women include that: 68 per cent of 15 year-old females are on a diet; and adolescent girls who diet only moderately are five times more likely to develop an eating disorder than those who don't diet, while those who diet severely are 18 times more likely to develop an eating disorder [17]. However much of this data is drawn from research conducted between 10 and 20 years ago. The most recent Australian Health Survey indicates that 15 per cent of women over 15 years of age reported being on a diet [18]. There is a need for more up-to-date Australian research into the prevalence and risk factors for eating disorders.

Some combination of physiological, biological and social risk factors contributes to a person developing an eating disorder. Perceived stress, depression and anxiety or general psychological distress, coping style and experience of negative life events in young women are correlated with eating disorder symptoms and with each other for the development of eating disorders over time. These relationships are complex and poorly understood. Of these factors, psychological distress and, to a lesser degree, perceived stress have the strongest association. In many studies women with eating disorders have been found to be more likely to employ less effective coping mechanisms than women without eating disorders [19] and individuals who regularly binge-eat have been found to have more difficulty in regulating their emotions than individuals who do not [20]. Childhood stress plays a significant role in women's BMI increases throughout life [21].

Fluctuations in weight preoccupation (a risk for eating disorders) across the menstrual cycle appear to be influenced primarily by emotional eating rather than ovarian hormones directly [22]. So, the behaviour of eating to soothe the emotional states experienced in the menstrual cycle may play a role in women developing eating disorders. Women experiencing negative side effects of oral contraceptives (gonadal hormone sensitivity) have an increased risk of experiencing eating disorder symptoms of body dissatisfaction and drive for thinness [23].

Disordered eating is more common in overweight individuals and is associated with both weight gain and the development of eating disorders over time [20]. Longitudinal analysis for the Australian Longitudinal Study on Women's Health indicated an increased risk of persistent binge eating among women with a history of being overweight in childhood [24]. Obesity and disordered eating share many common characteristics and are risk factors for each other [20].

5.1.3 Socio-cultural expectations & body image

Poor body image is associated with dangerous dietary practices and weight control methods [25]. A survey of over 50,000 young Australians aged 11-24 years found that body image is the most frequently rated issue of highest personal concern for both boys and girls [26]. A recent survey of over 15,000 Australians over 18 years of age found that 50 per cent of women who are not overweight wish to lose weight, and women are twice as likely as men to purchase weight loss products and meal replacements [27].

Research indicates that socio-cultural pressures for women in Western society to achieve a thin body ideal have harmful effects on an individual when they become internalised. Thin ideal internalisation predicts increased body dissatisfaction [28]. This process of internalisation may also be observed in women elsewhere in the world. A Chinese study of 376 women undergraduates established that restrained eating was affected directly by body dissatisfaction, with a woman's self-esteem mediating the degree of this effect [29].

Women of migrant and refugee backgrounds are influenced by the prevailing norms of the predominant culture and accessibility of food types. Pre-existing (and possibly health protective) attitudes, beliefs and behaviours about diet, food and body image may be changed as a result. One South Australian study of students from Australia, Malaysia and Samoa found Malaysian and Samoan female students newly living in Australia were influenced by Western ideals of weight and shape, but the Australian students exhibited the most negative attitude to their body image [30].

Emerging research has found that lesbian women report less body dissatisfaction and a larger body size ideal than heterosexual women. [31]. More research is required to investigate socio-cultural influences on lesbian body image.

Women with high expectations for themselves (which are reinforced by sociocultural expectations) may feel dissatisfied with their bodies, relationships and achievements. This can lead to lowered self-esteem, dietary restriction and a depressive (negative) affect, increasing the risk of binge eating and weight gain over time [20]. Interventions which address poor self-esteem and/or body image, as well as sociocultural appearance pressures, may help decrease the risk for body image concerns and disordered eating for early adolescent girls [32].

Internalisation of a thin-body ideal can lead to body dissatisfaction and eating disorders in women through gender-related practices such as body surveillance (chronic self-objectification), self-silencing (suppression of own expression of thoughts and feelings, putting other's needs first), and anger suppression [12]. In women with lower levels of emotional awareness, self-silencing is unrelated to disordered eating, whereas women with higher levels of emotional awareness who also employ self-silencing report higher levels of disordered eating behaviours. These observations indicate that women may employ disordered eating behaviours as a means to cope with the tension created where there is dissonance between actual and expressed thoughts or feelings [33]. Supporting women to value and express their own thoughts, feelings and experiences would seem to be fundamental to promoting healthier eating behaviours .

5.1.4 Role of the media

Adolescent girls and young women's repeated exposure to media pressure to be thin is a risk factor for body dissatisfaction, weight concerns and disordered eating behaviours. This includes indirect media pressure via media's effects on peers, parents, coaches, physicians, etc [34].

Media and mass cultural representations have homogenised and normalised ideal female images so that both men and women critically view women's bodies (objectification) [35]. The ideal female body type portrayed in the media is very thin, a body size that is thinner than 98 per cent of women, and possible to attain by only 5 to 10 per cent of the population [20]. Women learn to be insecure about their bodies, to monitor for signs of imperfection, and to continually undertake self-improvement to fit the ideal [35].

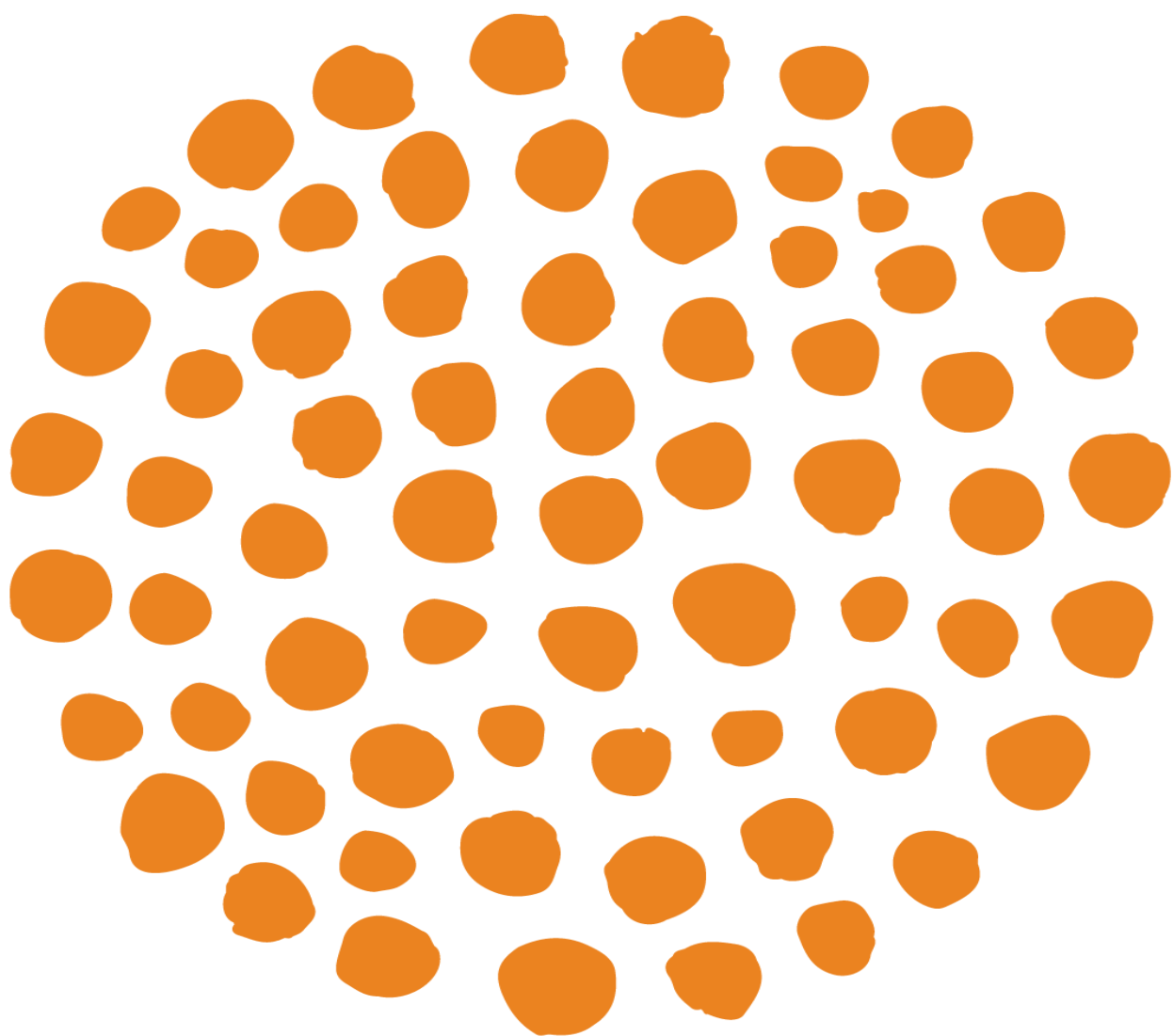
5.1.5 Risk factors by population group

Young women in Australia are at risk of developing disordered eating patterns that affect their quality of life. Australian healthy weight adolescent females commonly adopt weight control behaviours such as dieting, skipping meals and inducing vomiting [36]. The Australian Longitudinal Study on Women's Health measured the impact of disordered eating on women with a mean age of 24 years over a period of 12 years. This research found that even apparently minor symptoms are associated with significant and far-reaching deficits in well-being [26].

Older women also experience disordered eating, with higher body mass index, the perception of an ideal weight lower than their current one, lower body satisfaction and physical quality of life as predictors [37]. However, Australian research has found that older women have higher levels of body appreciation than their younger counterparts, suggesting that women come to value health and functionality over physical appearance as they age [38].

**Experiences of racism
are associated with
binge eating behaviour**

A study in the U.S. found that emotional distress, stress related to racism, and lifetime experiences of racism are positively associated with binge eating behaviour, indicating that Indigenous women may have additional risks for disordered eating [39]. Similarly, the discrimination and other stressors of being an oppressed group experienced by lesbian and bisexual women are associated with social isolation, negative affect and binge eating [40].



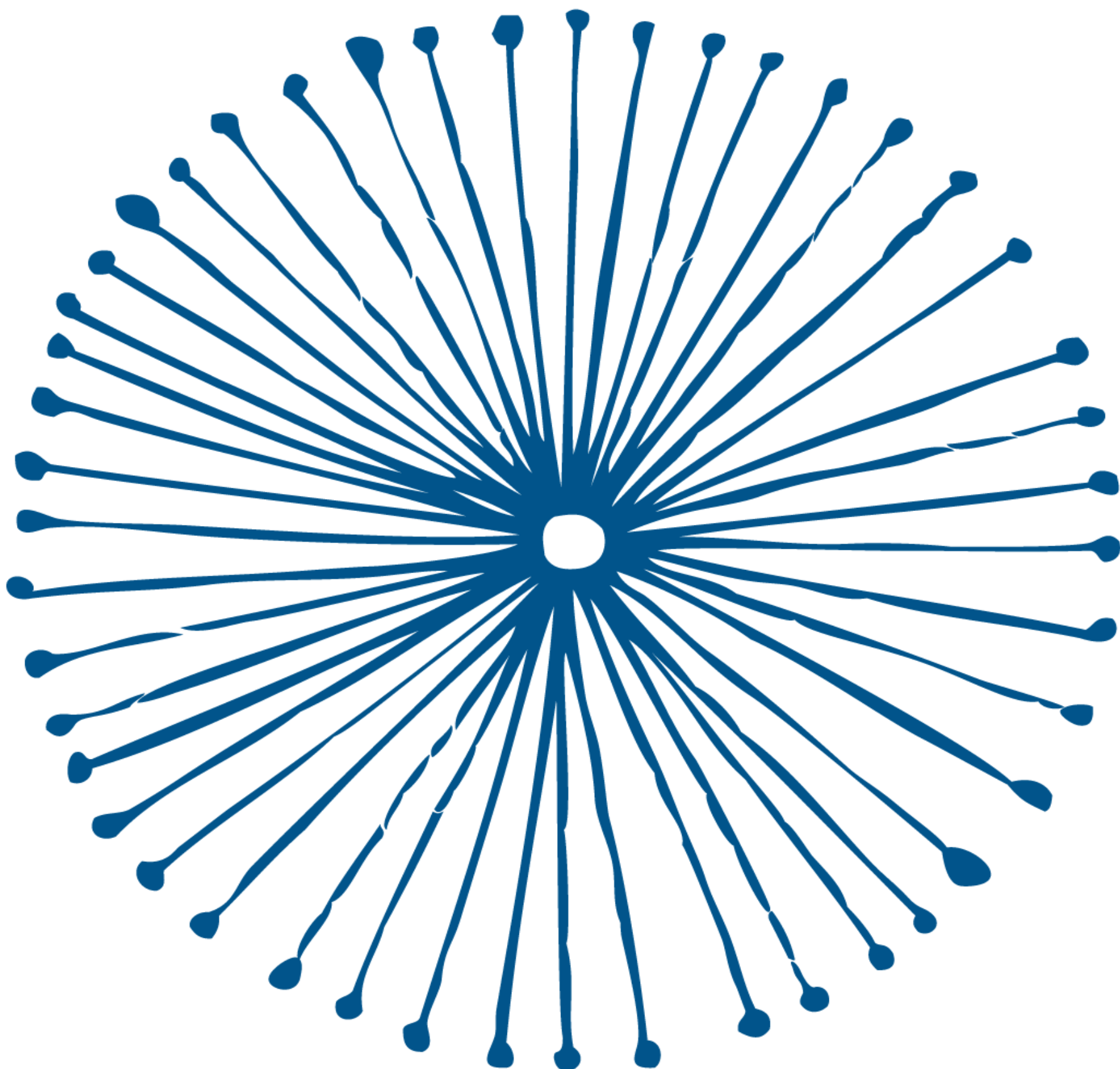
5.2 FOOD & DEPRESSION

Better diet quality in adult Australian women is associated with a lower likelihood of depressive and anxiety disorders and with fewer psychological symptoms [41]. This association is independent of age, socioeconomic status, education, physical activity and other lifestyle factors [41].

Older women in Victoria aged 55-65 years with better quality diets report better quality of life, including emotional wellbeing [42]. For midlife women, depressive symptoms are positively associated with fast-food intake [43] and high energy sweets [44]. A positive association exists between depression and food addiction behaviours for low-income women of reproductive age from diverse cultural backgrounds [45]. The causal pathway is unclear, but the association may be bidirectional, in that depression contributes to the development of certain eating patterns and consumption of certain foods is a risk factor for depression [43]. Appetite changes are a common feature of depressive illness [43].

5.3 EATING & POST TRAUMATIC STRESS DISORDER

Unhealthy eating and weight loss behaviours may be used by women experiencing post-traumatic stress disorder symptoms to decrease symptoms or to control how the memory of the trauma makes them feel [46]. There is an established link between the ingestion of fast food and soft drinks and post-traumatic stress disorder symptoms that persists after accounting for disparities in race, ethnicity, marital status, education, income level and body mass index [46]. Women experiencing post-traumatic stress disorder symptoms may be using certain types of food to self-medicate a depressed state [47]. Food and classic addictive substances, such as nicotine, compete for the same brain pathways and may serve the same purposes psychologically [47].



5.4 IMPLICATIONS FOR PUBLIC POLICY & HEALTH PROMOTION

Both dietary practices and diet quality have links to women’s mental health and emotional well-being. In health promotion, there is potential for interventions that aim to promote healthier eating practices to concurrently improve women’s mental health, and vice versa. For example, mindfulness is a growing area of interest in treatments for eating disorders as individuals who regularly binge-eat have been found to have more difficulty in regulating their emotions than individuals who do not* [20].

Women with eating disorders may be reluctant to raise this with health practitioners. However, they report that they would welcome non-judgmental direct questions about their eating behaviours when seeking help for overweight or other health issues [48]. Listening to and valuing of women’s thoughts, feelings and experiences would seem to be fundamental to promoting women’s mental health and healthier eating behaviours.

Health promotion programs which both challenge social norms and behaviours (such as perfectionism and media exposure) and promote healthy living strategies may have positive synergistic effects [20]. An Australian systematic review of eating disorder prevention found that population approaches involving media literacy demonstrated long term reduction of risk. Secondary students who participated in a media literacy classroom intervention experienced stronger, positive changes in eating disorder risk factors, such as self-esteem, weight and body shape concern, body satisfaction, and dieting compared to their counterparts [25]. Frequency of participation in family meals may be protective against mental health disorders in teenagers, with a reduced risk for disordered eating patterns among adolescent girls [49].

The experiences of women who face discrimination and other stressors associated with being an oppressed group, for example Aboriginal women and lesbian and bisexual women, should inform tailored health promotion programs.

* Mindfulness is the ability to maintain non-judgmental attention to and acceptance of present-moment experiences, and has a role in emotion regulation (Lavender, Gratz and Tull 2011).



SOCIO-ECONOMIC DETERMINANTS

Women's food access, behaviours and health outcomes in Australia are strongly influenced by the socio-economic determinants of income, education and location [1]. In 2014-15, more women living in areas of most disadvantage in Australia were overweight or obese (61.1 per cent) than women living in areas of least disadvantage (47.8 per cent). Interestingly, this correlation is only apparent/observed for women. For men there were no significant differences in overweight or obesity observed between socio-economic areas [2].

The environment in which food is prepared, shared and consumed significantly shapes women's nutritional experience, with some groups particularly vulnerable to poor diet.

6.1 FOOD INSECURITY

Women are at higher risk of food insecurity globally. Gender inequality is linked to poverty, hunger and poor health for women, impacting on their children and the well-being of the community as a whole [3]. The Australian Health Survey estimates that four per cent of adults in Australia have insufficient food [4], however in some disadvantaged communities as many as 25 per cent of households are affected [5]. In an Australian National University poll on food security in 2011, eight per cent of respondents reported that food had often or sometimes run out and they didn't have enough money to buy more [6].

Food insecurity is not simply a lack of food. It means that one is unable to access safe, nutritionally adequate and culturally appropriate food regularly [7]. It also describes a situation in which access to and consumption of nutritious food has been limited in some way, for example by having to rely on emergency food relief.

Food security is based on four pillars:

-  **ACCESS** - having physical and economic access to food, including the ability to produce or purchase food.
-  **AVAILABILITY** - including domestic production, imports and food stocks.
-  **FOOD QUALITY / UTILISATION** - food safety is integral to food security. This refers to hygienic production, harvesting, storage and cooking of food in production, retail and the home. There must be enough food to prepare safely for the household from a nutritional, sanitary, and socio-cultural point of view.
-  **STABILITY** - in terms of availability, accessibility and quality. This fourth pillar incorporates issues of price stability and securing incomes for vulnerable populations [8] [9].

Certain groups experience much higher rates of food insecurity. The prevalence of food insecurity in Western countries has been consistently found to be higher in females than in males [10]. Income has been established as one of the most important determinants of food security [10]. The risk of food insecurity is higher among people who are unemployed, single parent households and those in the two lowest wealth quintiles, and this has remained constant over time [11]. 23 per cent of single-parent families are food insecure [12].

Food insecurity rates are higher for Aboriginal and Torres Strait Islander women than non-Aboriginal and Torres Strait Islander women, and remoteness plays a role. In 2012-2013, more than one in five (22 per cent) Aboriginal and Torres Strait Islander people in Australia were living in a household that, in the previous 12 months, had run out of food and had not been able to afford to buy more, with people living in remote areas even more likely to be food insecure using this measure (31 per cent) [13].

Food insecurity is associated with both nutritional deficiency and obesity in women. Micronutrient deficiencies associated with the food insecurity of women in Western countries (such as the US and Canada) include calcium, iron, magnesium, zinc, folate and Vitamins A, B1 (thiamin), B6, B12, C and E [14]. Food insecurity is also associated with poor pregnancy outcomes, including low birth weight and gestational diabetes [14].

The experience of food insecurity in Australia is gendered

The experience of food insecurity in Australia is gendered. Single parent families face higher risks of poverty and food insecurity; in Australia, 88 per cent of single parent families are headed by women [15]. Women living in areas of most disadvantage and women experiencing food insecurity are more likely to be obese and this relationship is not observed in men [2]. The risk of obesity is estimated to be 20 per cent to 40 per cent higher for women who experience mild to moderate food insecurity [11]. The relationship between women's food insecurity and weight is complex and not clearly defined [14].

In cross-sectional studies in the United States, food insecurity has been associated with obesity among women, but the direction of the association and its causality are unclear [14].

Food insecurity impacts psychosocial wellbeing and is associated with higher levels of stress, anxiety and depressive symptoms. These associations are stronger for women than men [16], however the direction of associations and causality between food insecurity and anxiety and depression in women is not clear [14]. A clear association has been established between food insecurity and poor coping strategies [14].

For single women on a low income, the challenges of poverty may set up a cycle of food insecurity and nutritional deprivation involving an inability to purchase healthy foods; weight gain in the context of food insecurity, eventually becoming obesity; ongoing and increasing stress due to myriad factors, including lone parenting and social isolation; reduction in well-being; and experiences of chronic illness in which it is increasingly difficult to access healthy food [17].

6.2 DIETARY BEHAVIOURS & SOCIO-ECONOMIC GRADIENT

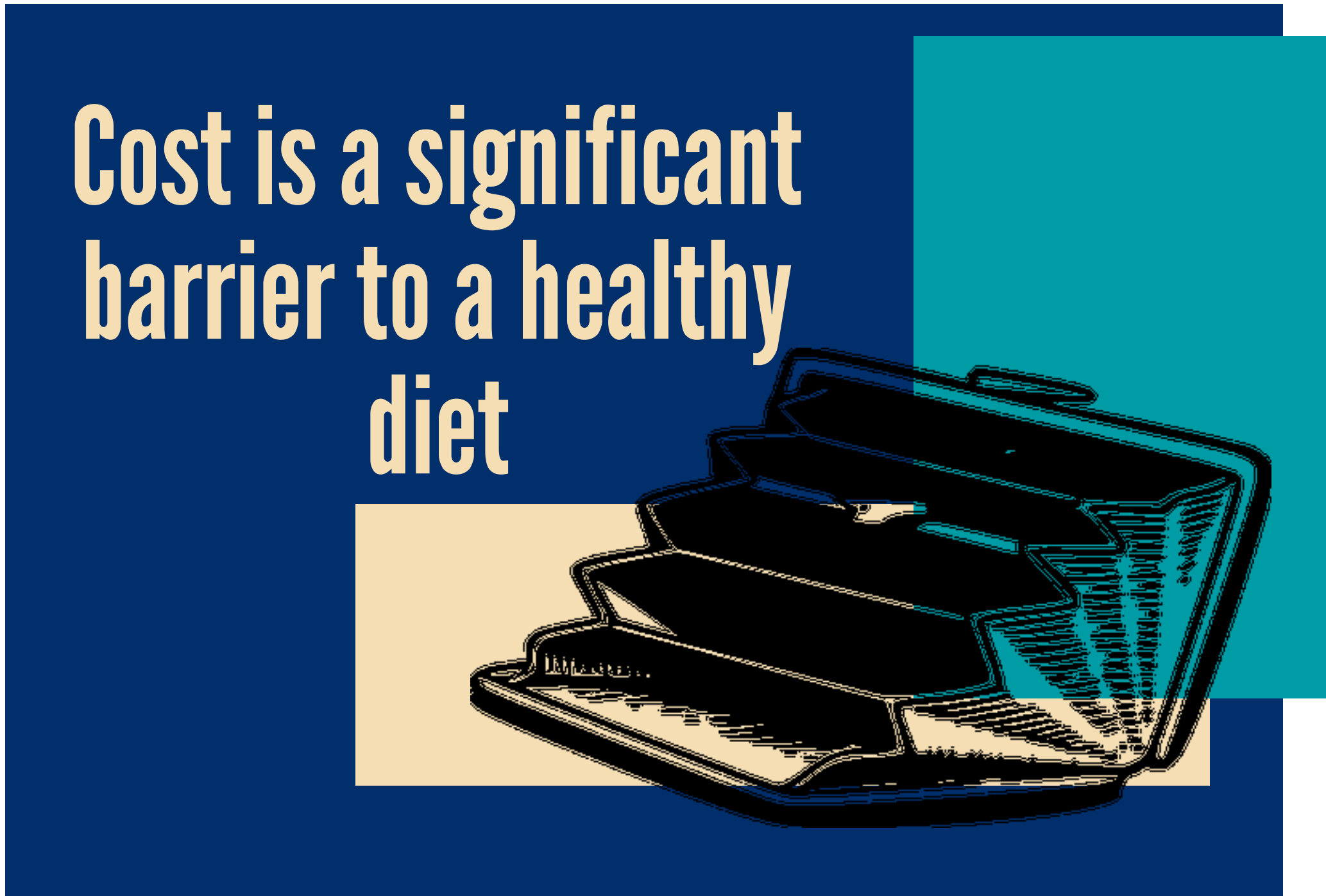
In Australia, women of low socio-economic status are less likely to adopt dietary practices consistent with the Australian dietary guidelines due to individual, social and environmental factors [18] [19]. Patterns of distribution of social assistance play a role in shaping women's spending power and food choices [17].

A healthy diet can be unaffordable for low income families. In 2009-10, Australian households in the highest income group spent an average of \$389 per week on food and beverages, or 18 per cent of their total household expenditure, while households in the lowest income group spent \$113, or 20 per cent of total household expenditure [20]. That is, those in the lowest income group spend three times less but a higher proportion of income on food and beverages than people in the highest income group. Low income households spent \$17 (15 per cent) on vegetables and fruit, compared with \$38 (10 per cent) spent by high income households [20]. The findings of a 2016 food basket study in Brisbane reflect this difference in proportional spending on a healthy diet consistent with Australian dietary guidelines. It found that a healthy diet is affordable for families on a median income costing approximately 18 per cent of disposable income, but is much less affordable for low income families, costing around 28 per cent of their household disposable income [21]. Another study reported that households in the lowest income quintile would have to spend over 40 per cent of their weekly income to purchase a healthy food basket [22].

Australian urban women of low socio-economic status have historically been shown to value traditional and familiar dietary practices, report time constraints for food preparation due to work, experience lack of support from family members to eat healthier options and are exposed to more fast food outlets in their local area at higher rates than women from higher socio-economic status groups [18].

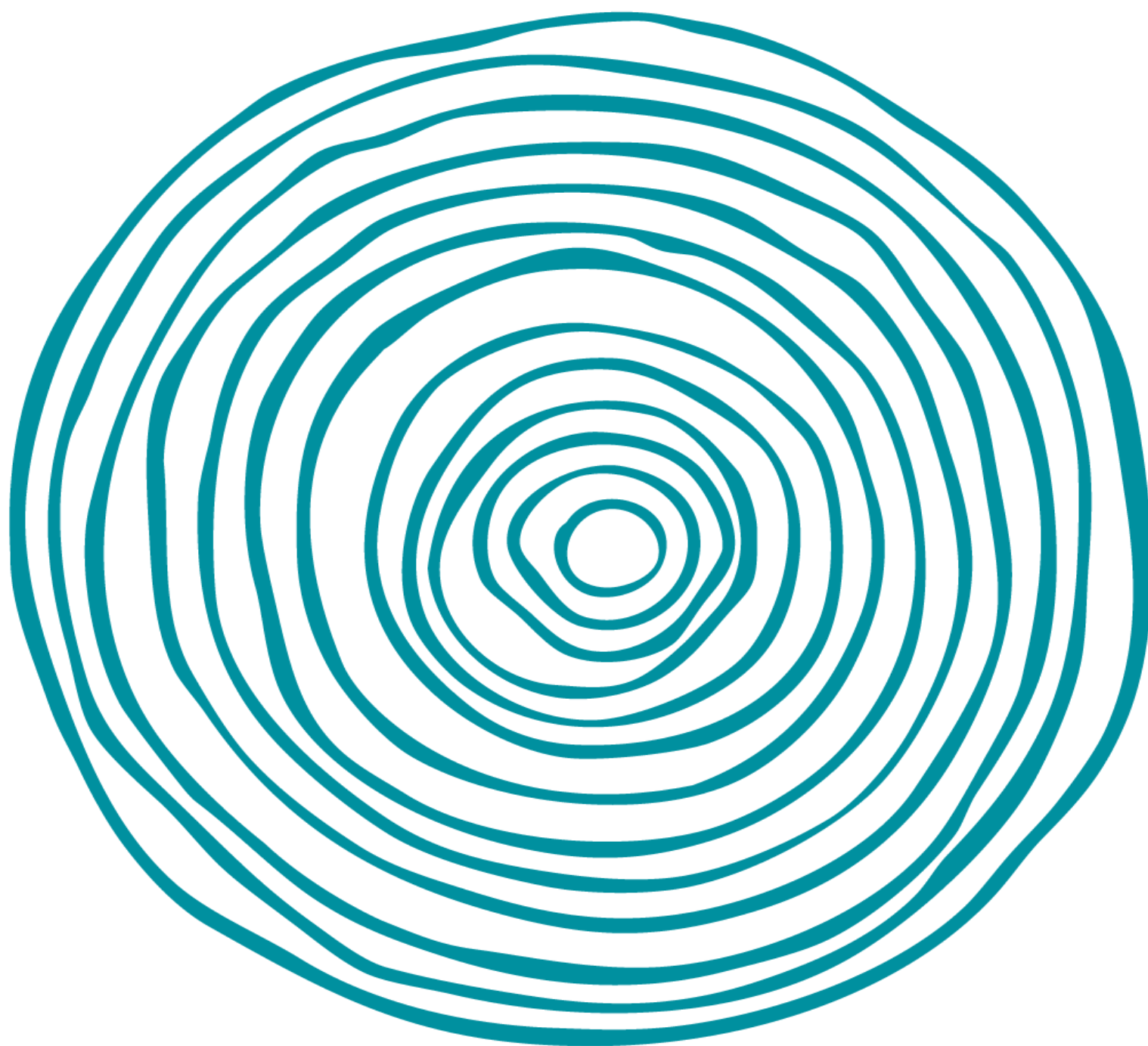
Low socio-economic status shoppers purchase significantly more non-core foods, especially chips and sugar sweetened drinks [23]. Low-income women may know how to choose better food but be unable to do so due to cost [17]. Using generic instead of market brands can improve affordability, however healthy options are not always readily available or affordable [24].

The Australian Longitudinal Study on Women's Health has found that binge eating by women aged 18-23 years is associated with low education, not living with family and perceived financial difficulty [25].



Eating behaviour, as well as food type consumed, may play a role in the prevalence of high body index in low income women. Studies in high income countries, such as the U.S., Australia, U.K. and Sweden, show an inverse association between adult socio-economic position (SEP) and body mass index (BMI), whereby higher socio-economic position is associated with lower BMI and lower socio-economic position is associated with higher BMI, across the life course, using education and occupation measures [26].

Not all women of lower socio-economic status eat poorly. Women who are resilient to poor dietary behaviours report higher confidence and self-efficacy for eating a healthy diet and avoiding fast food, preferring fruit and vegetables and using meal planning strategies [27]. These women also report having more support from family and friends and having fresh food available in their neighbourhood [27].



In reproductive aged low-income women in the U.S. nutrition knowledge is positively associated with engaging in healthy dietary behaviours such as eating more fruits/ vegetables and less sugar [28]. Although food affordability is important, efforts to improve women's diet also need to address underlying food literacy and skills that influence food choices.

6.3 GEOGRAPHIC BARRIERS TO A HEALTHY DIET

‘Food deserts’ are areas where there is limited access to healthy food choices. In remote parts of Australia, Aboriginal communities have less choice over their food supply and up to 31 per cent of people could be considered food insecure [13]. A recent study found that in some remote communities, fresh food and vegetables can cost up to 41 per cent more than in urban centres [29]. Community stores operate as small businesses rather than as essential services and are therefore subject to commercial pressures. The result is the sale of low-nutrition food often with high profit margins. In addition, community housing may not provide the necessary facilities to prepare, cook and store fresh foods [30].

Healthy food access in the urban environment may be more related to affordability and access to private transport, rather than distance itself. South Australian research has found that living in an urban food desert in Adelaide did not, by itself, impose food access difficulties. It suggested that food access problems were not so much the product of geographic distance between home and shop, as the social or welfare networks that allowed people to access private transport [31].

The cost of food in rural Victoria varies in a manner that appears unrelated to remoteness, population, socioeconomic status or distance from the metropolitan centre. The price of vegetables and legumes varies more than cereals, non-core foods and unhealthy foods [32].

6.4 IMPLICATIONS FOR PUBLIC POLICY & HEALTH PROMOTION

The experience of food insecurity in Australia is gendered, with women at higher risk than men. An equity approach for public policy to address food insecurity recognises that differences in health status between population groups are socially produced, systematic in their unequal distribution across the population, avoidable and unfair [33].

Such an approach should acknowledge gender as a key underlying social determinant of health, intersecting with other key indicators of social position such as socio-economic status, race/ethnicity, migration status, ability, Aboriginality and neighbourhood characteristics.

A wide range of social and economic policies and actions have the potential to indirectly reduce inequity in access to a healthy diet, many of which are implemented outside the food and health sectors. In their evidence summary *Promoting Equity in Healthy Eating* (2015), VicHealth notes that such actions include improving living and working conditions (including providing paid parental leave and flexible working hours), increasing access to education, promoting healthy local food environments (e.g. through nutrition-sensitive trade and planning policies), and providing stronger income and social protection [33].

Approaches to addressing food insecurity should include ensuring women have the same economic opportunities & power as men

A multifaceted approach is required to address food insecurity for women – one which provides both short-term assistance and longer-term strategies. Such strategies should encompass: acknowledging the impacts of food insecurity on mental health, challenging gender norms (as discussed in section 4) and ensuring women have access to the same economic opportunities and power as men [14] [33].

Cost is usually the most important factor determining the food-purchasing decisions of lower-income households, and the cost of fruits, vegetables and other healthy foods in Australia has been rising faster than the cost of less nutritious foods and the Consumer Price Index. Emerging research indicates that subsidising the price of healthier food is more effective than nutrition education [34]. Price subsidies on healthy food have been found to increase the purchase and consumption of healthy food, however long term impacts on consumption and cost effectiveness need to be examined [35]. Policy packages of taxes on unhealthy foods, in combination with subsidies for healthy foods, are considered to offer the greatest potential from a health equity perspective [33]. However, these policies must take into account the skills, resources, time and food literacy required to prepare the subsidised 'healthy' foods.

Increasing access to a healthy diet also involves changes to the local food environment, for example, regulation of retail planning to restrict the density and proximity of fast food outlets, while making access to healthy food easier [36]. Emerging research has found food hubs to be a feasible model to improve supply and access to fresh produce in local communities. They do, however, require a coordinated approach from local and state governments as well as adequate time and resources to get established [37]. Frequent use of food labels is associated with healthy weight loss behaviours in women with low incomes [38]. A Victorian pilot study investigated reaching socioeconomically disadvantaged women through hand-held mobile technology to promote healthy food planning, shopping and eating behaviours. It found this was a promising approach, however further research establishing the effectiveness of mobile phone apps in health promotion is needed [39].

The timing and type of health promotion programs targeting girls and young women need further consideration. Behavioural characteristics and health knowledge commonly associated with higher levels of education may differentiate women's different dietary and weight outcomes much earlier than previously thought [26]. Early life factors and personality traits may influence both education and weight outcomes. These factors include: personality traits related to weight management; early life food/flavour preferences; and modelling of parental physical activity and nutritional patterns. Understanding how education may influence diet may help to identify girls and young women at increased risk of an unhealthy weight life course [26].



PERSPECTIVES ON WOMEN, WEIGHT & HEALTH PROMOTION

This section explores different perspectives on women, obesity and implications for health promotion relating to food and diet. Health promotion policies and programs that operate within the current weight-centred health paradigm have the potential to negatively impact on the health and wellbeing of individuals and communities, through dissatisfaction, dieting, disordered eating, discrimination and, potentially, death [1]. An alternative is the 'health at every size' paradigm which aims to move the focus away from weight and towards health for all people, irrespective of body size or weight [1].

7.1 THE 'WAR ON OBESITY' & STIGMATISATION

The most simplistic understanding of overweight and obesity is that it is caused by an overconsumption of energy from food and a lack of energy expenditure through physical activity by an individual. Current government public health strategies to reduce overweight and obesity are often based on this same formula – reduce consumption of certain (energy dense) foods, increase the consumption of nutrient rich foods (such as fruit and vegetables), increase physical activity and reduce time spent sitting. With some notable exceptions (such as food reformulation to reduce salt or fat content), the interventions often target individuals or specific groups by employing social marketing campaigns and information provision to raise awareness of a healthy waistline and better food choices. By adopting this approach, we shift the onus onto the individual to wisely adopt health behaviours without recognition of the myriad social and economic factors at play.

However, the awareness of environmental and social drivers in behaviour is increasing. For example, introduction of healthy food rating and menu labelling systems and considerations of a “soft drink tax” reflect knowledge of obesogenic environments.

For many overweight or obese women, the public health ‘war on obesity’ message has become personalised as the ‘fight against fat people’. By focusing on body size and appearance in public health messages and interventions, there is a risk of further stigmatisation of women who are overweight or obese. In a systematic review of lifestyle interventions for reducing obesity, the National Eating Disorder Collaboration found that studies rarely considered the impacts of weight-loss interventions on psychological and eating disorder outcomes and overly relied on BMI as a measure of treatment success [2]. There is increasing evidence that weight stigma can negatively impact an individual’s mental health and result in behaviours like disordered eating [3]. Discourses stating that weight loss equates to health compound a woman’s sense of failure when she is unable to achieve an ‘ideal’ weight [4]. Recent research has indicated that higher levels of weight bias internalisation and the associated chronic stress are associated with increased risk for cardiovascular disease [5].

In addition, emerging explanations of the obesity epidemic position food as an illicit substance and overeating as an addictive behaviour, for which an individual’s neurobiology is responsible. Given the negative associations of addiction and compulsivity, this explanation of obesity further pathologises the overweight person [6].

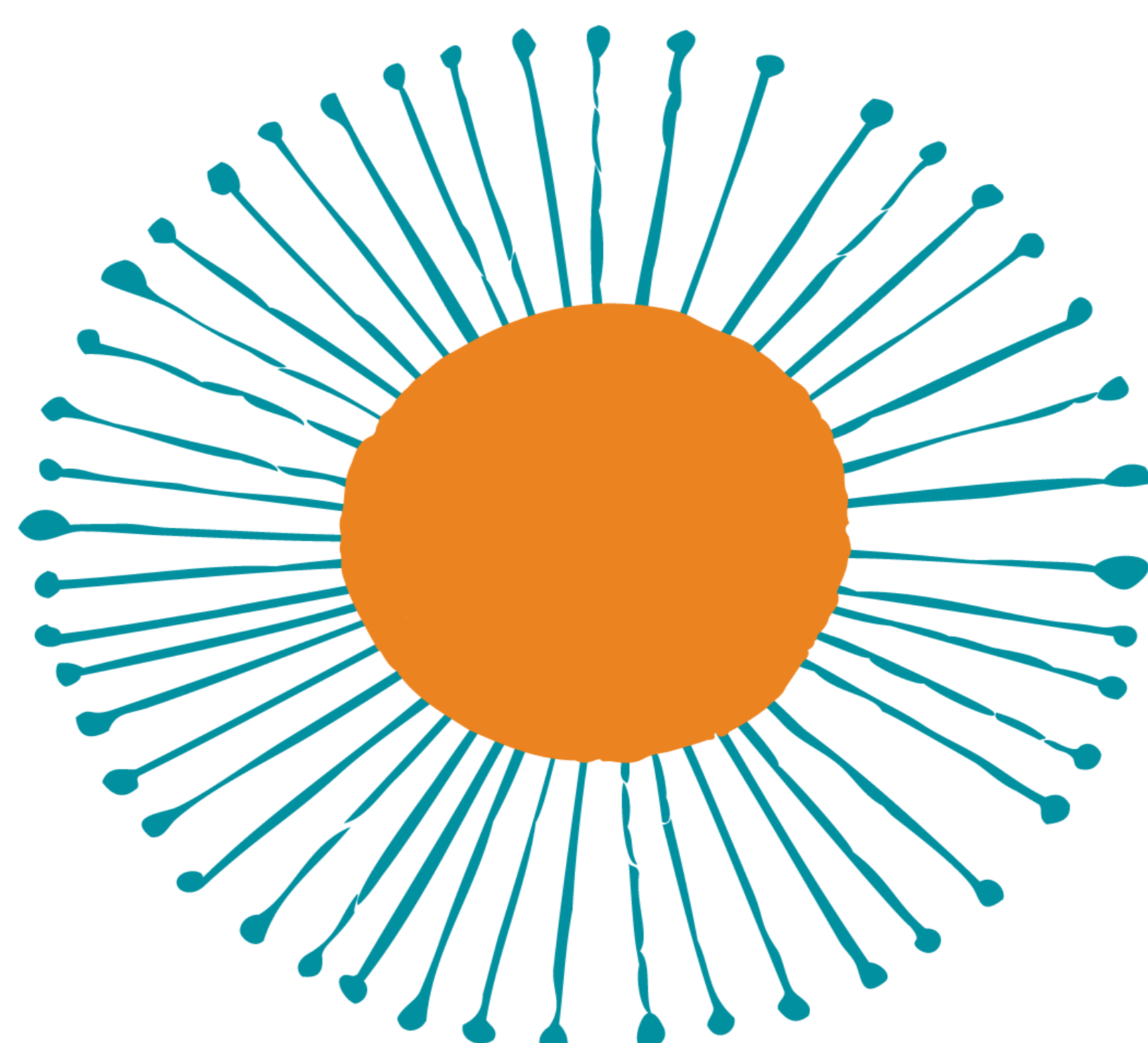
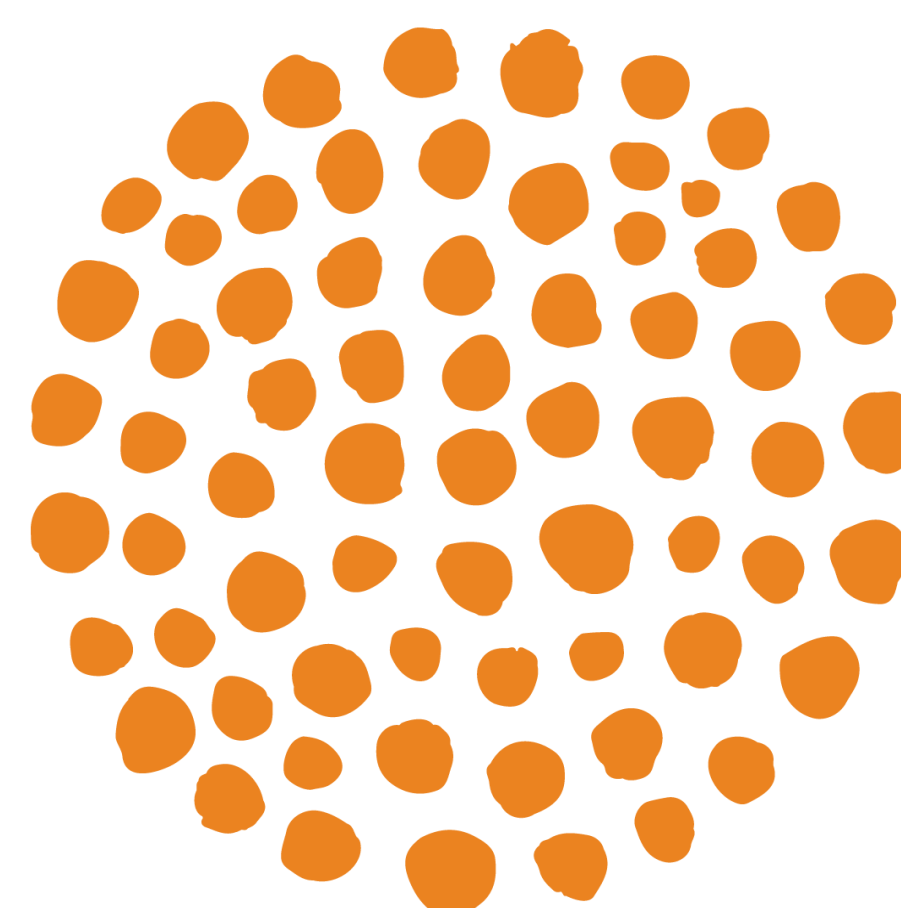
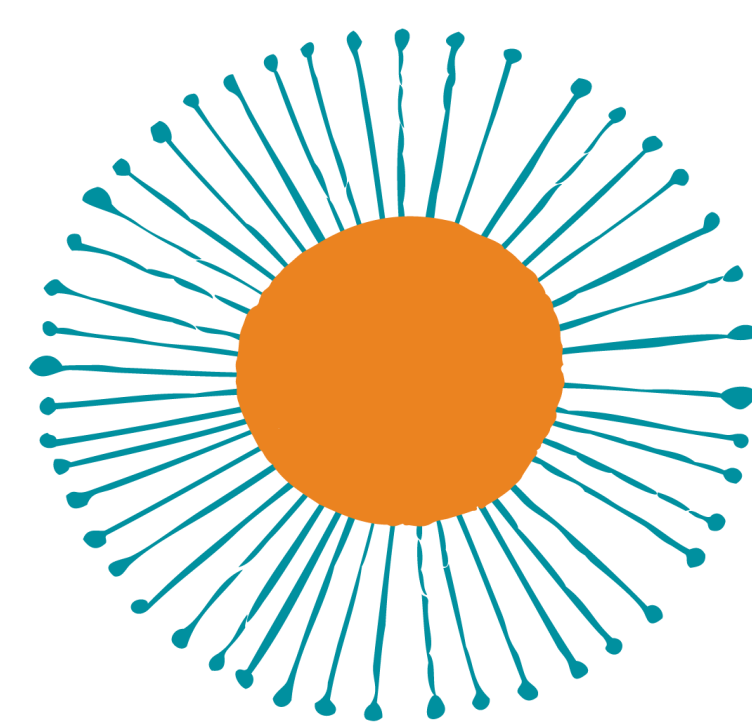
7.2 HEALTH AT EVERY SIZE

Fat prejudice is likely to become an increasingly common psychosocial problem in light of the increase in global obesity [7]. The entrenched nature of anti-fat bias poses a challenge for health promoters to challenge weight bias, reduce stigma and promote acceptance of diversity in body size [7]. Health professionals are not immune to implicit and explicit anti-fat bias and should be aware how these attitudes may affect care delivered to overweight patients [8].

There is increasing evidence that weight stigma can negatively impact an individual's mental health and result in behaviours like disordered eating

The health at every size approach emphasises self-acceptance and healthy day-to-day practices, regardless of whether a person's weight changes [9]. A person's health will improve simply by engaging in healthy behaviours, for example through eating a nutritious diet and regularly exercising [10]. The health at every size approach has been misrepresented by some to mean that an individual is healthy at any size, when in fact this is not the message of the movement [10].

A study by researchers from Monash University found that people who belonged to a fat-acceptance community (the Fatosphere) reported improved mental health and wellbeing, and felt supported to engage in healthy activity. The Fatosphere provided a pathway for members to counter and cope with weight-based stigma and was not found to promote unhealthy lifestyles [11].





PRINCIPLES FOR HEALTH PROMOTION & PUBLIC HEALTH

While individual behaviour change approaches, especially those that build food purchasing and preparation skills and confidence, can be effective in improving women's diet, a health promotion approach based on the 'social determinants of health' must also take into account the broader social and structural factors influencing healthy eating.

For example, the "4Ps" approach offers a structured checklist for public health nutrition policies. In order to achieve increased consumption of healthy food and decreased consumption of discretionary foods, it advises a holistic approach to our food systems, and beyond individual behavioural change. The 4Ps recommend addressing:

- Product (reformulation, elimination, new healthier products);
- Price (taxes, subsidies);
- Promotion (advertising, food labelling, health education); and
- Place (schools, workplaces, etc.) [1].

However, most food-related public health frameworks – like the "4Ps" model – do not account for gender-based norms, practices and structures, or consider the intersection between food, gender, eating behaviour, body image, mental health and chronic disease. Health promotion interventions need to be attuned to the gendered norms and practices associated with food and food work, and the burden this can create for women in terms of time and skill. It is also important to avoid using a stigmatising weight-centred health paradigm, focusing instead on individual and structural interventions that promote and support healthy eating.

Health promotion policy and practice exists on a continuum of approaches that either exploit, accommodate or transform gender [2]. At one end of the continuum, policy and practice can be harmful to gender equality ('gender exploitative') and at the other end, gender roles and relations can be positively changed and gender equality improved ('gender transformative') [3]. These different approaches are explored in more detail in section 8.4.

8.1 INDIVIDUAL BEHAVIOUR CHANGE

Differences in values about ‘health’ mean there are competing and often conflicting food-related health promotion messages among stakeholders. For example, are the risks to a women’s mental health in messages that focus on a reduction in body size through weight loss greater or lesser than the risks to a woman’s cardiovascular health posed by messages that focus on body acceptance, given the normalisation of increasingly larger body sizes in the population? An explicit ethical framework would assist in this kind of decision-making [4].

In their paper ‘Evaluating the risk of harm of weight-related public messages’, the National Eating Disorders Collaboration (Australia) applies a framework that may be used to guide evaluation of risk for health promotion or public health programs [5]. It is based on three key principles and assumptions, with implications for the design of individual behaviour change programs:

- 1. Campaigns and programs targeting eating-, physical activity-, and weight-related issues should aim to do no harm.**
Obesity prevention and related interventions should not increase risk of disordered eating or eating disorders, and eating disorder prevention interventions should not increase risk of overweight and obesity.
- 2. Obesity and eating disorders are not opposite ends of the same spectrum.**
A common myth is that anorexia nervosa is the opposite of obesity. Although the weight status of these individuals may differ, eating disorders in general and overweight and obesity have more in common than commonly believed. They do not affect two separate populations per se.
- 3. Integrated, coordinated messages around obesity and eating disorders are possible.**
Although further research is required, conceptually, the optimum path forward involves targeting shared risk and protective factors, and avoiding increasing risk of specific conditions [5].

Building on their 2011 framework, and the principle of ‘do no harm’, the National Eating Disorders Collaboration has also developed a number of evidence-based guidelines for interventions and public health messages aimed at reducing the prevalence of obesity and eating disorders:

- Interventions should focus on health, not weight, and be delivered from a holistic perspective, with equal consideration given to social, emotional and physical aspects of health;
- Weight is not a behaviour and is therefore not an appropriate target for behaviour modification; interventions should focus only on modifiable behaviours, such as physical activity, eating habits or time spent watching television;
- People of all sizes deserve a nurturing environment and will benefit from a healthy lifestyle and positive self-image;
- The ideal intervention is an integrated approach that addresses risk factors for the spectrum of weight-related problems and promotes protective behaviours;
- Interventions should honour the role of parents and carers and support them to model healthy behaviours at home without overemphasising weight;
- Representatives of the community should be included in program planning processes to ensure that interventions are sensitive to diverse norms, cultural traditions and practices, as well as gender;
- It is important that interventions are evaluated by qualified health care providers and/or researchers who are familiar with the research on risk factors for eating disorders [6].

Weight is not a
behaviour & is therefore
not an appropriate
target for behaviour
modification

The NEDC guidelines are useful as they explicitly refer to the need for gender- and culturally-sensitive interventions and do not privilege body size over mental health and wellbeing.

A large scale systematic review has found little evidence to support different weight loss strategies for men and women, and that moderate energy restriction in combination with exercise is most effective [7]. Another systematic review found that weight loss interventions for women can play a role in improving body image [8]. However, earlier research has highlighted the importance of health promotion strategies to address poor body image focusing on socio-cultural protective factors, including:

- Acceptance of body diversity (shapes and sizes);
- Sporting contexts that value performance and not merely physical attractiveness and aesthetics;
- Relationships with others that are not highly concerned with weight and shape; and
- Social support [9].

Behaviourally-focused nutritional skill-building interventions can be appealing to low-income and socioeconomically disadvantaged women [8]. For example, the ShopSmart program involved activities which were designed to foster behavioural skills in budgeting; meal planning; label reading and food selection in the supermarket; meal preparation strategies (including preparing shopping lists prior to getting to the supermarket); and food safety and long-term storage [9]. Materials also included advice on overcoming commonly-reported barriers to increasing fruit and vegetable consumption, such as replacing more expensive fresh produce with frozen/ tinned; and involving children in choosing/shopping for/preparing meals. ShopSmart resulted in a modest but sustained increase of the women’s vegetable consumption [10].



8.2 STRUCTURAL INTERVENTIONS

A comprehensive and multi-sector approach that addresses the broader social, economic and environmental factors influencing and shaping women’s food and lifestyle choices is required to reduce the burden on health and health care systems of obesity and chronic disease. These factors include the food environment (what is available and where), structural influences (food pricing, food taxes and marketing) and whether healthier choices are easier choices (food literacy and food labeling) [12]. The development of a comprehensive new national food and nutrition policy addressing these factors is well overdue, with the last policy released in 1992. The policy should recognise that, to reduce diet-related ill-health, multiple strategies across all sectors are needed, requiring effective partnerships between stakeholders, including all levels of government, the food industry, other industries in the private sector, and relevant non-government organisations [13].

Using personal behaviour change models alone to reduce population obesity have not been successful because complex biological drives such as hunger are largely resistant to behavioural change interventions in environments of abundance. In order to be effective, public health advocacy should maintain and strengthen its work to improve the accessibility and affordability of healthy food as well as addressing the abundance and overconsumption of unhealthy food [14]. Creating healthy food environments also includes improving transport and increasing access to fresh food supplies. Affordable and healthy food, however, still requires skills and resources to select, prepare and store, which not all women possess. It is therefore important to ensure structural interventions that aim to increase access to healthy foods are accompanied by individual behaviour change interventions that equip women with relevant knowledge and skills, such as the ShopSmart program outlined above.

Food-related health promotion and gender equality are intertwined. Individual women’s food choices and dietary practices are strongly influenced by systemic, social and economic factors, including gender inequality. At the same time, women’s food-related roles and social expectations (gender norms and practices) play a part in contributing to and reinforcing gender inequality. For example, expectation of women to adopt the role of carer (including food purchasing and preparation) contributes to women’s time out of the paid workforce, impacting income and contributing to the gender pay gap (15.3% as at May 2017).

This means that strategies to promote gender equity across society, such as promotion of flexible work options for men to encourage them to play a greater role in child care and domestic labour, are likely to impact on food-related gender roles, while interventions that aim to transform food-related gender roles will also promote gender equity more generally.

8.3 AN INTEGRATED APPROACH TO HEALTH PROMOTION

An integrated approach to health promotion acknowledges the need to work in multiple ways across the social ecology to mutually reinforce the efforts made at each of its different levels – the individual, family, community, organisational, institutional, systems and societal. For example, public awareness campaigns acting to influence individuals – knowledge, awareness and behaviours – can play a role in shaping broader cultural and social norms and values, as well as public opinion and public policy over the long term. The role of the family in mutually reinforcing health behaviours should be considered, emphasising that health is not solely the responsibility of women. Awareness-raising campaigns addressing gender norms, social exclusion and socio-economic disadvantage, for example, have the potential to complement and support more nutrition-specific actions, and influence the degree to which these actions are prioritised by government [15].

8.4 TOWARDS GENDER-TRANSFORMATIVE HEALTH PROMOTION

There are a number of ways that policy-makers and health promotion practitioners might take gender in account in the context of promoting healthy eating, ranging from approaches that exploit gender norms and gender inequality to approaches that recognise, respond to and ultimately transform gender norms, practices and structures.

Gender-exploitative

Gender exploitative policy and practice takes advantage of rigid gender norms, harmful gender stereotypes and unequal power relations between women and men to achieve policy or program goals. Engaging women in (ostensibly) health-promoting behaviours by appealing to their concern about how they look, or their role as family health gatekeeper, are examples of gender exploitive practice.

Gender insensitive

Gender insensitive policy and programs do not take into account gender norms and practices. For example, a tax on processed foods designed to increase consumption of fresh foods may significantly increase the time associated with food work. If this policy does not take into account the fact that food work predominantly falls to women, it is likely to reinforce gender inequality.

Gender analysis

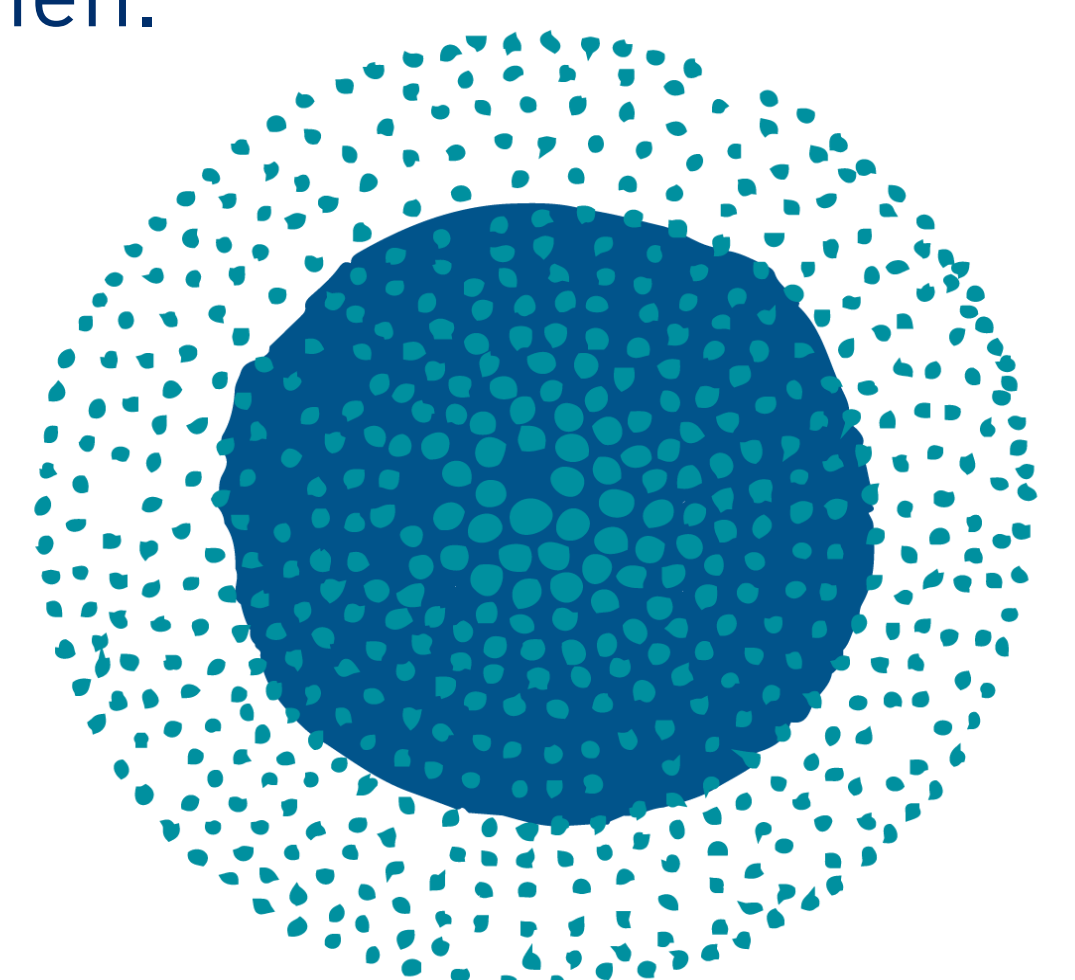
In order to ensure that health promotion planning and program design accommodates and is sensitive to gender, it is important to undertake a gender analysis, to account for women's roles, responsibilities, needs, priorities, power and access to resources [16].

Gender-sensitive

A gender-sensitive or gender-responsive approach builds on a gender analysis by acknowledging and responding to the different experiences, expectations, pressures, inequalities and needs of women, men and gender diverse people. A South Australian multidisciplinary program, Dieting: The Big Con, is an example of an integrated gender-sensitive health promotion approach [17]. It valued women's lived experiences and focused on social and cultural issues, nutrition, mental health and physical activity. It helped women develop skills to critique the impact of dieting messages in the media and the community, and to challenge the nature and focus of their goals, for example, moving from a focus on weight loss to a focus on making better health choices, or seeing success as improved self-esteem rather than attaining a goal weight [17].

Gender-specific

A gender-specific approach is a particular type of gender-sensitive or responsive approach, where an intervention is tailored to the specific needs of women, men or people of diverse genders. For example, clearer direction in the Australian Dietary Guidelines on how women can ensure adequate iron intake would recognise that women (particularly young women) have higher iron requirements than men.



Gender transformative

Gender transformative health promotion aims to examine, challenge and ultimately transform structures, norms and behaviours that reinforce gender inequality, and strengthens those that support gender equality [3]. Gender transformative promotion of women's nutritional and dietary health would:

- Develop programs that encourage critical awareness of gender roles and norms related to food, food practices and body image, including media literacy programs;
- Advocate for policy and legislative change that supports equitable social systems and access to healthy food choices;
- Focus on the function, not form, of women's bodies;
- Ensure that diverse groups of women are involved in the design and implementation of policy, programs and advocacy;
- Challenge the imbalance of power, distribution of resources, and allocation of duties between women and men's food-related and domestic work;
- Address the unequal power relationships between women and healthcare providers;
- Work with men to break down gender norms and stereotypes relating to food work, leading to better health outcomes for both women and men;
- Consider how women and men adjust to and use redefined gender norms through evaluation [3].

The gender transformative approach to health promotion acknowledges gender as the key underlying structural determinant of women's health. Gender in turn intersects with key indicators of social position such as socio-economic status, race/ethnicity, migration status, ability, Aboriginality and neighbourhood characteristics (rurality), magnifying the degree of disadvantage and discrimination experience by different women. Therefore, an intersectional gender lens needs to be applied at all levels of the social-ecology in planning for health promotion. For example, research shows that health promotion initiatives targeting Aboriginal and Torres Strait Islander women are more successful if they embrace women's relationships or connectedness to land, community or family and understand the complexity of food work and food budgets [18].

An intersectional approach

An intersectional gendered approach to health promotion acknowledges gender as the key underlying structural determinant of women's health. Gender in turn intersects with key indicators of social position such as socio-economic status, race/ethnicity, migration status, ability, Aboriginality and neighbourhood characteristics (rurality), magnifying the degree of disadvantage and discrimination experience by different women. Therefore, an intersectional gender lens needs to be applied at all levels of the social-ecology in planning for health promotion. For example, research shows that health promotion initiatives targeting Aboriginal and Torres Strait Islander women are more successful if they embrace women's relationships or connectedness to land, community or family and understand the complexity of food work and food budgets [17].

Gender transformative health promotion aims to examine, challenge and ultimately transform structures, norms and behaviours that reinforce gender inequality



RECOMMENDATIONS

Our research makes clear that individual women's food choices and dietary practices are strongly influenced by social and economic factors, including gender inequality, and that gendered norms and practices relating to food also contribute to and reinforce gender inequality.

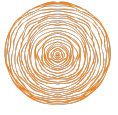
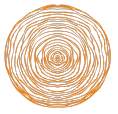

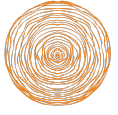
Recognising the relationship between gender, food and health promotion, Women's Health Victoria recommends that policy-makers and health promotion practitioners aim to take a gender-transformative approach to food-related policy, programs and practice. In addition, Women's Health Victoria makes the following recommendations:

1

Develop a comprehensive, gender-sensitive national food and nutrition policy, which aims to enable all Australians to understand, choose, consume and enjoy a high quality diet comprised of safe, nutritious, affordable and environmentally sustainable food from a prosperous food system.



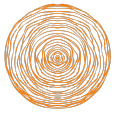
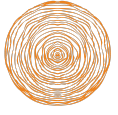

2

Increase access to and affordability of healthy food, while also reducing the overabundance of unhealthy food by:

-  Addressing structural inequalities that impact on food access and affordability, particularly income inequality;
-  Utilising regulatory levers to influence food formulation (for example, food rating systems), affordability (for example, further subsidies for healthy food) and access (for example, local food hubs);
-  Supporting positive individual behaviour change, including through robust and effective food labelling schemes and individual skill development;
-  Ensuring nutritious and affordable food is available in settings outside the home, particularly residential services.





3

Take a holistic and gendered approach to food insecurity, addressing both its causes and impacts, including:

-  Ensuring that women have access to the same economic opportunities and power as men;
-  Providing adequate income support for unemployed people and single-parent families;
-  Increasing access to education, including food literacy and skills;
-  Creating and promoting local healthy food environments;
-  Addressing the impact of food insecurity on mental health.

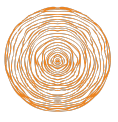
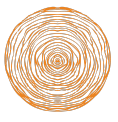



4

Challenge gender norms and practices that position food work as women's work, including by:

-  Encouraging critical awareness of gender roles related to food, food practices and body image, providing non-stereotyped role models and engaging men in action that promotes gender equity;
 -  Promoting critical media skills to challenge the ongoing reinforcement of harmful gender norms that permeate women's relationship with food and food work;
 -  Promoting and increasing access to education and skills training for food preparation, for men as well as women;
 -  Ensuring that initiatives do not inadvertently reinforce gender stereotypes (for example, that cooking and domestic work is women's responsibility).
-





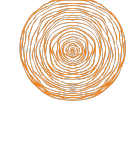
5

Apply an intersectional gender lens to food-related health promotion campaigns and programs by:

-  Involving women with diverse identities and experiences in the design and delivery of health promotion programs and campaigns;
-  Taking into account women's roles, responsibilities, needs, priorities, power and access to resources in health promotion planning and design;
-  Challenging gender norms and practices that position food work as women's work (see recommendations above);
-  Listening to, understanding and responding to the distinct needs and experiences of Aboriginal and Torres Strait Islander women, women with disabilities, women from migrant and refugee backgrounds, lesbian, bisexual and transgender women, and low-income women, particularly single mothers;
-  Focusing on health, not weight, with equal consideration given to social, emotional and physical aspects of health.

6

Address body image concerns, disordered eating and associated mental health issues, including by:




-  Listening to and valuing women's thoughts and experiences when designing programs;
-  Developing interventions for girls in early adolescence which address poor self-esteem/body image as well as sociocultural appearance pressures;
-  Promoting critical media literacy and challenging social norms (such as media exposure and perfectionism);
-  Focusing on health, not weight, and raising awareness of the negative and counterproductive health impacts of anti-fat bias among health professionals and the general public;
-  Undertaking up-to-date research on the dieting habits of, and prevalence of eating disorders among, Australian adolescents.

7

Develop practical guidance for women on the risk of nutrient deficiencies and how to ensure adequate nutrient intake, to accompany the Australian Dietary Guidelines.



8

Address the risk of undernutrition among older women and other vulnerable groups, including by:

-  Identifying and managing factors contributing to undernutrition such as poverty, social isolation and depression;
-  Undertaking targeted screening and early intervention in primary health care and residential care settings;
-  Ensuring adequate access to nutritious food in long-term care settings, including through assistance with feeding and attention to choice of food.

9

Undertake additional research into:

-  The prevalence of dieting and other disordered eating practices in women and girls;
-  The experience of same-sex attracted women, gender diverse and trans individuals in relation to food and eating behaviours, food work and nutrition.



CONCLUSION

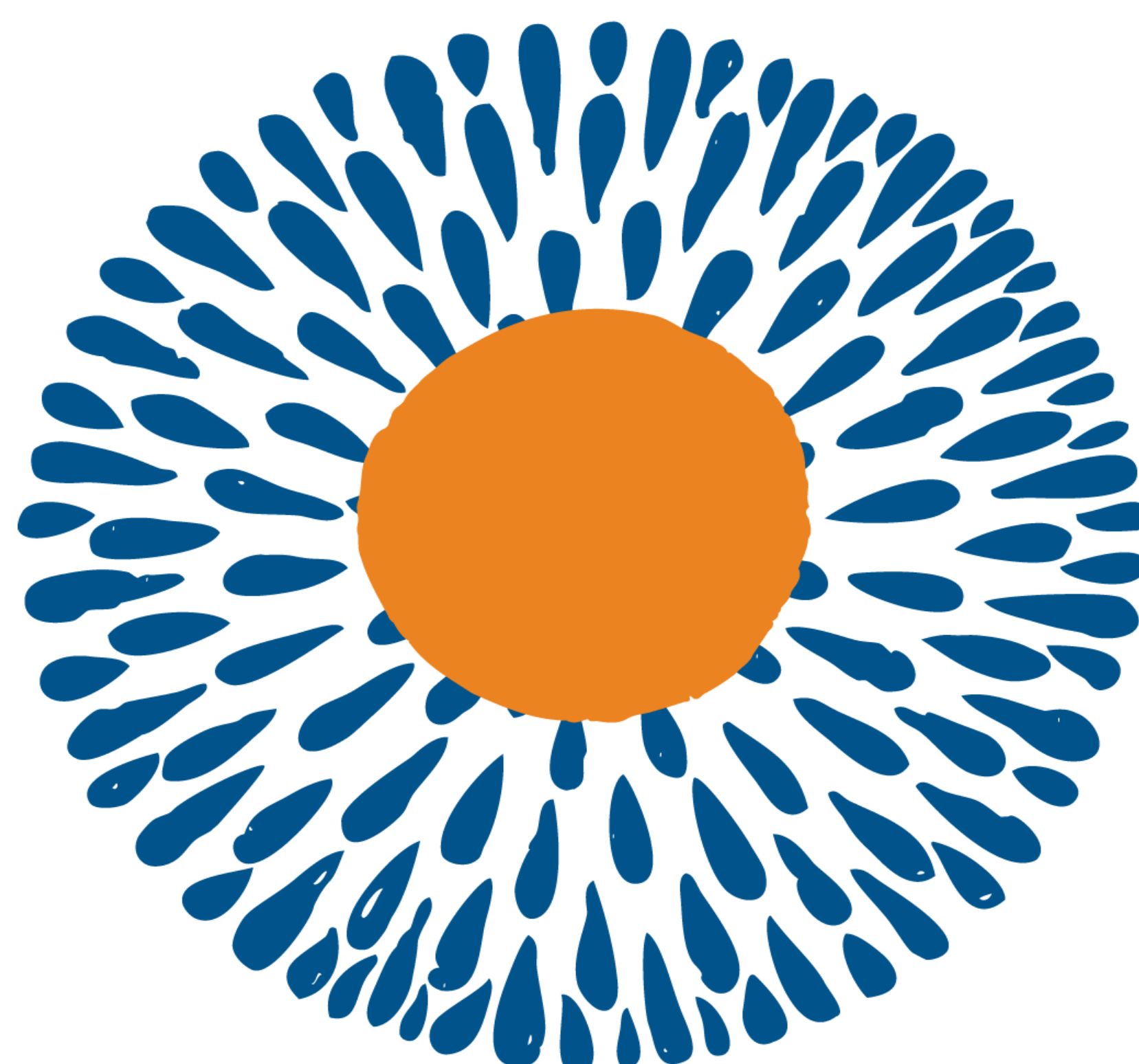
This paper has highlighted some of the complexities of the relationship between food and women's health. Most women in Australia do not eat according to the recommended dietary guidelines and some groups of women are at particular risk of nutrient deficiency. Poor nutrition and excessive energy intake increase women's risk of a wide range of chronic disease, with cardiovascular disease being the number one killer of Australian women [1].

Women's diets are influenced not only by their access to fresh and nutritious food, but also by whether they have the resources, time and skills needed to procure, prepare and store meals. Gender roles around food work mean that women are tasked with these responsibilities irrespective of their schedules, resources or food skills. Inequity causes food insecurity and some groups of women are more disadvantaged when it comes to food access. The distinct needs of Aboriginal and Torres Strait Islander women, women with different abilities and of diverse cultures should inform equity approaches.

Individual women's food choices and dietary practices are strongly influenced by systemic, social and economic factors. Lower socio-economic status has a significant impact on women's access to a nutritious diet and risks of depression, anxiety, obesity and chronic disease. Psychosocial factors are also at play, for example women's food or eating-related behaviours, which are influenced by gender norms and stereotypes and social expectations. Women's food-related roles and social expectations in turn play a part in contributing to and reinforcing gender inequality.

There are strong ethical considerations to take into account in the promotion of women's health arising from the intersection between food, gender, eating behaviour, body image, mental health and chronic disease. Health promotion policies and programs that operate within a weight-centred health paradigm have the potential to negatively impact on the health and wellbeing of individuals and communities, through dissatisfaction, dieting, disordered eating, discrimination and, potentially, death.

Effective public health advocacy should maintain and strengthen its focus on improving the accessibility and affordability of healthy food. Health promotion efforts should aim for gender transformative approaches which examine, challenge and ultimately transform structures, norms and behaviours that reinforce gender inequality, and strengthen those that support gender equality.





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10. CONCLUSION

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