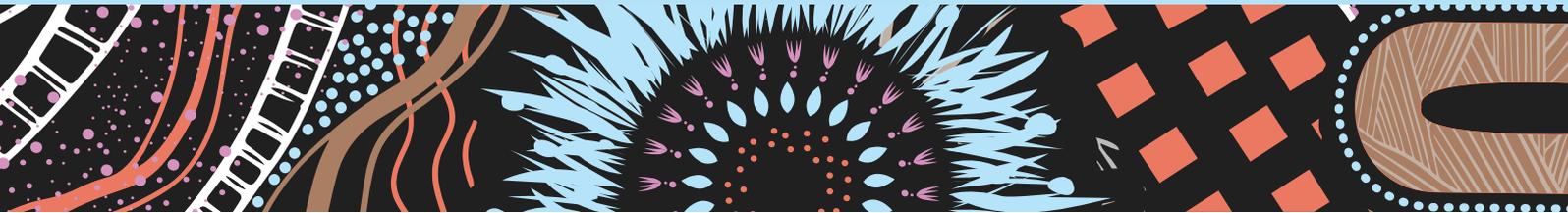




# Connection between food, body and mind

## Summary paper



This paper is a summary of the *Connection between food, body and mind* publication by Scott Teasdale, Wolfgang Marx, Molly Warner, Flavia Fayet-Moore and Skye Marshall. This publication was commissioned by and published on the Australian Institute of Health and Welfare Indigenous Mental Health and Suicide Prevention Clearinghouse. It can be accessed online at [www.indigenousmhspc.gov.au](http://www.indigenousmhspc.gov.au).

**Some people may find the content of this report confronting or distressing.** If you are affected in this way, please contact **13YARN (13 92 76)**, **Lifeline (13 11 14)** or **Beyond Blue (1300 22 4636)**.

## Key findings

This paper explores the effectiveness of dietary and nutritional interventions on mental health and suicide prevention in Aboriginal and Torres Strait Islander people.

- Prior to colonisation the traditional diet of Aboriginal and Torres Strait Islander people consisted of locally available, seasonal, whole foods. There is a strong relationship between traditional foods, hunting and gathering, culture, and social and emotional wellbeing (Crowe et al. 2017; Waterworth et al. 2015).
- Colonisation saw traditional dietary patterns and hunter-gatherer traditions disrupted.
- Contemporary population surveys indicate that the majority of Indigenous Australians are consuming a diet of low nutritional quality. Indigenous populations have less access to locally available, seasonal whole foods.
- The rates of mental illness experienced by Indigenous Australians is a major health care concern. Suicide is the fifth leading cause of death for Indigenous Australians.
- There is growing evidence that a high-quality diet and adequate nutrition can improve mental health. Conversely, low-quality, nutrient-poor diets have been linked to a higher risk of depression (Li et al. 2017).

- Analysis of nutrition interventions for Aboriginal and Torres Strait Islander people finds they work well when they are:
  - culturally appropriate and community-endorsed
  - co-designed with Elders
  - facilitated by an Aboriginal health worker and supported by visiting specialists
  - delivered in a safe community environment
  - delivered in a group program to reap the benefits of social connections
  - practical workshops based on traditional foods that have high diet quality
  - flexible in their delivery with transportation provided.
- Many programs include nutrition interventions alongside other lifestyle interventions, such as physical activity – so the effectiveness of individual nutrition interventions on mental wellbeing in Indigenous communities is not well understood.
- The evidence for nutrition-focused interventions to treat suicide and suicidal thoughts is lacking.

## What we know

The rates of mental illness experienced by Indigenous Australians are a major health care concern. Psychological distress – an indicator of poor mental health, and a sign of stress, anxiety or depression – occurs at rates 2.5 times greater than for non-Indigenous Australians. Hospitalisations for mental and behavioural disorders are 1.7 times the rate of that for non-Indigenous Australians (ABS 2019).

There is growing evidence to suggest that diet quality and adequate nutrition could improve mental health (Firth et al. 2019).

Adequate food supply and a high-quality diet are essential for health and wellbeing (WHO 1998). Shortages in food supply and variety lead to issues of nutrient deficiencies (under-nutrition) and effect growth and development. Over-nutrition drives chronic diseases such as cardiovascular disease and diabetes (WHO 1998). Both under- and over-nutrition are linked to poorer mental wellbeing (WHO 1998).

### **Box 1: Diet quality of Indigenous Australians**

In general, Indigenous Australians as a population group are consuming a diet of low nutritional quality that does not meet the Australian Dietary Guidelines. Data from the 2012–13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey revealed that Indigenous Australians have:

- poor diet quality
- an insufficient intake of nutrient-dense foods from the 5 core food groups in the Australian Dietary Guidelines. Indigenous Australians consumed an average of 1.8 serves of the core food group 'vegetables and legumes/beans' per day; much lower than the recommended 5–6 serves per day
- excessive consumption of discretionary foods and beverages that are high in added sugars, salt and fat. Alcohol and soft drink were the most consumed discretionary foods (ABS 2016).

A growing body of research demonstrates that improving diet quality can improve not only chronic disease outcomes but mental health (Firth et al. 2019; Lassale et al. 2019). Healthy dietary patterns have been consistently linked to a lower risk of mental illness, particularly depression (Lassale et al. 2019). In contrast, a low-quality 'Western dietary pattern' of energy-dense but nutrient-poor fast foods and drinks has been linked to a higher risk of depression (Li et al. 2017).

Several studies and randomised controlled trials indicate that an intervention that improves diet quality could directly reduce depressive symptoms (Opie et al. 2017; Francis et al. 2019; Jacka et al. 2017; Parletta et al. 2019). Only a small number of studies have explored the relationship between food, eating and mental health in Indigenous Australians. For example, a study in urban New South Wales found that Aboriginal children and adolescents who ate at least 2 serves of vegetables each day were twice as likely to have good mental health than those who ate less than 2 serves of vegetables each day (Williamson et al. 2016).

## Disruptions to traditional diet

Indigenous Australians have described the link between dietary patterns, diet quality and mental health as the strong interrelationship between traditional foods, hunting and gathering, culture, and social and emotional wellbeing (Crowe et al. 2017; Waterworth et al. 2015).

Indigenous Australians' concept of health is holistic. It encompasses connections with food, body, mind, community, family, and kinship (Crowe et al. 2017; Waterworth et al. 2015). Before colonisation, dietary intake consisted of locally available, seasonal whole foods such as native land animals, birds, fish, seafood, insects, fruits, berries, roots, plants, seeds and nuts (Gracey 2000). These are beneficial to both mental and physical health (O'Dea 1984; Samson and Pretty 2006). The mental health and diet quality of many Indigenous Australians is negatively influenced by:

- the drastic and purposeful disruption to dietary patterns
- disconnection from Country
- deskilling as hunters and gatherers
- the changed environment for cooking and mealtimes (Reading and Wien 2009).

Traditional foods should also be recognised in holistic lifestyle programs for Indigenous Australians. Re-establishing the connection with food, body and mind is likely to be an important factor in the prevention and treatment of mental illness in Indigenous Australians (Gracey 2007).

## Relevant policies, programs and initiatives

Guidelines, strategies and policies at all levels of government have attempted to improve dietary quality for Australians generally and for Indigenous Australians specifically. There are also national and state-level policies and frameworks that target mental health and suicide and include a role for nutrition. Important dietary guidelines include:

- The Australian Dietary Guidelines (NHMRC 2013), along with specific recommendations by the National Health and Medical Research Council for Indigenous populations. In particular, the guidelines encourage the consumption of traditional bush foods.
- The National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan, endorsed in 2001, was designed to build on existing efforts to make healthy food choices easier choices for Indigenous Australians (Strategic Inter-Governmental Nutrition Alliance 2001).

Programs examined by this paper included a nutrition or dietary component; reported a mental health outcome; and were delivered to Indigenous Australians, or the indigenous people of Canada, the United States, and other Pacific regions. Outcomes of 11 Australian based programs were examined, along with 5 programs in Canada and the USA. Of the Australian programs, 8 were Indigenous-specific, including one which had been adapted to be suitable for Indigenous Australians (Table 1). Four out of the 5 United States and Canadian programs were Indigenous-specific (Table 2).

**Table 1: Details of Australian nutrition programs and evaluations**

Name and brief description	Location / Indigenous-specific?	Evaluation
<p><b>Social Emotional Wellbeing (SEWB) and suicidal ideation Program</b></p> <p>1-hour weekly education sessions on SEWB and 1-hour exercise each session, with nutrition education included healthy lifestyle topic.</p>	<p>Inala, Queensland</p> <p>Indigenous-specific – yes</p>	<p>Skerrett et al. 2018</p>
<p><b>Waminda’s Wellbeing Program</b></p> <p>Holistic healthy lifestyle program with physical activity and healthy eating education sessions.</p>	<p>Waminda, Nowra, New South Wales</p> <p>Indigenous-specific – no</p>	<p>Firth et al. 2012</p>
<p><b>Work it Out</b></p> <p>Holistic 12-week chronic disease self-management program including 2 2-hour sessions, 1-hour ‘yarn’, and 1-hour exercise per week. ‘Yarn’ sessions include a dietitian led session.</p>	<p>Multiple sites in New South Wales</p> <p>Indigenous-specific – no</p>	<p>Youth on Track Evaluation Social Outcomes (CIRCA 2017)</p>
<p><b>Aunty Jean’s Good Health Team</b></p> <p>Group-based intervention including weekly day-long sessions. Included are sessions with a non-Indigenous dietitian. Two nutrition topics are included: ‘Talking Tucker’ information session and ‘In the Kitchen’ cooking demonstration.</p>	<p>Illawarra, New South Wales</p> <p>Indigenous-specific – yes</p>	<p>Curtis et al. 2004; and Browne et al. 2016</p>
<p><b>Deadly Choices</b></p> <p>Group-based sessions including a 90-minute session per week delivered by young Indigenous healthy lifestyle workers who were considered role models in the community.</p>	<p>South-east Queensland</p> <p>Indigenous-specific – no</p>	<p>Malseed 2013</p>
<p><b>EON Thriving Communities Program</b></p> <p>Community and school group sessions including: education about healthy lifestyle choices, nutrition, food</p> <ul style="list-style-type: none"> <li>• hygiene and the value of each in preventing disease and maintaining good health;</li> <li>• practical hands-on food preparation, cooking workshops in garden-based ‘bush kitchens’, school kitchens and other community spaces.</li> </ul>	<p>24 communities in Western Australia and Northern Territory</p> <p>Indigenous-specific – yes</p>	<p>EON Foundation 2017</p>
<p><b>Girls Academy</b></p> <p>Sessions and mentoring by at least 2 accomplished Indigenous Australian women from the local community. Program components include:</p> <ul style="list-style-type: none"> <li>• wellbeing (relationships, self-esteem, resilience, mental health)</li> <li>• cultural knowledge and understanding (includes nutrition and traditional cook-ups).</li> </ul>	<p>New South Wales, Queensland, Western Australia and Northern Territory</p> <p>Indigenous-specific – yes</p>	<p>Girls Academy 2020</p>

Name and brief description	Location / Indigenous-specific?	Evaluation
<p><b>Healthy Eating and Active Living Indigenous Groups HEALInG</b></p> <p>Weekly group-based sessions provided by a qualified health professional. These included exercise, lunch and a learning session. Five sessions targeted healthy eating principles.</p>	<p>Northern New South Wales</p> <p>Indigenous-specific – yes</p>	<p>NSW Health Department 2004; and North Coast Area Health Service 2005</p>
<p><b>Jamie’s Ministry of Food</b></p> <p>Aimed to provide an engaging community-focused program teaching basic cooking skills, nutrition knowledge, and improved self-efficacy and social connectedness.</p>	<p>Mossman Gorge; Cherbourg; and Ipswich</p> <p>Indigenous-specific – no</p>	<p>Flego et al. 2014; The Good Foundation 2016; Jamie’s Ministry of Food Australia 2015, 2016</p>
<p><b>My Health for Life</b></p> <p>Six group health coaching or individual telephone health coaching by a trained allied health practitioner.</p> <p>Key topics: living and coping well, eating healthier, enjoying physical activity, smoking, alcohol, and healthy weight.</p>	<p>Queensland</p> <p>Adapted by Queensland Aboriginal and Islander Health Council to be suitable for Indigenous Australians</p>	<p>Queensland Health 2018</p>
<p><b>Tucka-time</b></p> <p>Learning program about healthy eating choices on a budget, goal setting, self-esteem, resilience and decision-making.</p> <p>Facilitated by trained local Aboriginal Medical Service workers with a nutritionist or dietitian.</p>	<p>Schools in Queensland</p> <p>Indigenous-specific – yes</p>	<p>Informal process evaluation; formal evaluation unavailable at time of publication.</p>

**Table 2: Details of international nutrition programs and evaluations**

Name and brief description	Location / Indigenous-specific?	Evaluation
<p><b>Belcourt Youth Activities Program/National Youth Sports Program</b></p> <p>Summer group education prevention program. Components include exercise, suicide prevention, tobacco prevention, drug and alcohol prevention and career outlook. Includes a nutrition guide for healthy food.</p>	<p>Chippewa, North Dakota, USA</p> <p>Indigenous-specific – yes, American Indian</p>	<p>Martin 2015</p>
<p><b>Healthy Children, Strong Families</b></p> <p>Trial 1 – Intervention: families received mentoring and social support</p> <p>Control: mailed healthy lifestyle toolkit.</p> <p>Trial 2: – Intervention: Families received Wellness Journey healthy lifestyle toolkit with social support</p> <p>Control: Safety Journey child safety toolkit.</p>	<p>Wisconsin, USA</p> <p>Indigenous-specific – yes, American Indian</p>	<p>Tomayko et al. 2016, 2019</p>
<p><b>Kahnawake School Diabetes Prevention Program KSDPP</b></p> <p>Prevention Program (KSDPP) Community/ culturally-based diabetes prevention program. Included lectures on nutrition and health eating, traditional foods, and other lifestyle components; and Haudenosaunee Food Cooking Workshops (general and traditional cooking skills).</p>	<p>Kahnawake, Mohawk territory, Canada</p> <p>Indigenous-specific – yes, Indigenous peoples in Canada</p>	<p>Murdoch-Flowers et al. 2019</p>
<p><b>Together on Diabetes</b></p> <p>Individualised health intervention, with regular lessons then monthly maintenance sessions. Sessions included nutrition.</p> <p>Developed and implemented in partnership with tribal communities.</p>	<p>South-western USA</p> <p>Indigenous-specific – yes, American Indian</p>	<p>Kenney et al. 2016</p>

Name and brief description	Location / Indigenous-specific?	Evaluation
<p><b>Wellness coaching program</b></p> <p>Women from the respective communities were trained as community wellness coaches to focus on obesity and depression.</p> <p>High- versus low-intensity motivation interview based health coaching, with focus on fruit and vegetable intake.</p>	<p>Salt Lake, USA</p> <p>Indigenous-specific – no</p>	<p>Sunada 2018</p>

## What works

Nutrition interventions that worked well in Indigenous communities were:

- culturally appropriate and community-endorsed
- co-designed with Elders
- facilitated by an Aboriginal Health Worker and supported by visiting ‘specialists’
- delivered in a safe community environment
- delivered in a group program to reap the benefits of social connections, noting that separate men’s and women’s groups should be considered
- inclusive of practical workshops based on traditional foods that have high diet quality
- flexible in their delivery and have transportation provided.

Learnings about evaluations of these programs were also flagged:

- Collecting data is challenging; assessment tools need to be culturally appropriate.
- Important outcome measures included: self-efficacy, referrals to health professionals, emotional wellbeing, confidence, social connectedness, quality of life, leadership ability, food choices, food knowledge, mental health symptoms.
- Partnering with research institutions and groups facilitates data which is more transparent and interventions which are more replicable.
- Evaluations completed by facilitators and staff as well as participants.
- Evaluate early and adjust program delivery as appropriate.
- Health checks to be completed prior to program conclusion.

## Conclusions

The evidence presented for the effect of diet on mental health should be considered preliminary because:

- few of the programs have been rigorously evaluated for mental health and suicide outcomes, and few used control groups for comparison
- most programs were rated as having neutral (neither strong nor weak) methodological quality
- the quality of the interventions delivered by the identified programs was also limited.

The programs delivered to Indigenous people of Canada and the USA have not been studied for potential use in Indigenous Australian communities.

The effect of diet on the risk of suicide and suicidal thoughts has also not been well researched.

To ensure the successful delivery of nutrition interventions that address mental health challenges in Indigenous Australians, there is a need to systematically evaluate the design, delivery and efficacy of nutrition interventions in this population. Strengthening the evidence for community-based nutrition and lifestyle interventions on mental health, wellbeing and suicide prevention in Indigenous Australians, should occur, as follows:

- Examine link between dietary intake and mental health and suicide, both before and after interventions using valid dietary intake assessment and mental health measures.
- Assess quality of life, which is an important aspect of mental health.
- Use culturally sensitive and relevant assessment measures.
- Qualitative evaluation should occur alongside the collection of quantitative data.
- Community and government organisations should collaborate to ensure community-driven research that is culturally appropriate.

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