Evaluation of the Living Well Multicultural-Lifestyle Modification Program
Final Report

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Abbreviations

AMEP	Adult Migrant English Program
BMI	Body Mass Index
BP	Blood Pressure
CALD	Culturally and Linguistically Diverse
ECCQ	Ethnic Communities Council of Queensland
FECCA	Federation of Ethnic Community Councils Australia
HEAL	Healthy Eating Active Living
HHS	Hospital and Health Service
LWM-LMP	Living Well Multicultural – Lifestyle Modification Program
MDA	Multicultural Development Association
MHW	Multicultural Health Worker
WHtR	Waist Height Ratio

Executive Summary

The Living Well Multicultural – Lifestyle Modification Program (LWM-LMP) is a culturally tailored program for culturally and linguistically diverse communities living in Queensland. The program uses best practice principles and is facilitated by Multicultural Health Workers and delivered by the Ethnic Communities Council of Queensland. The program is an eight week face-to-face program with a face-to-face follow-up six weeks after the program finished and a telephone follow-up at four months post-program. This evaluation reports on 49, eight week programs with relevant follow-up delivered between 2015 and 2017.

The program was evaluated using a combination of the Program Logic and REAIM frameworks in which the Results Based Accountability (RAB) Framework was embedded. These frameworks were used as a checklist to inform the evaluation questions and to assist with reporting. Data collected were based on previously validated tools in the Australian community, however these tools have not necessarily been validated for the individual communities targeted in this program.

The program was delivered to 716 Arabic-speaking, Afghani, Bhutanese, Myanmar (Burmese), Pacific and South Sea Islander, Sri Lankan, Somali, Sudanese and Vietnamese participants in seven hospital and health services throughout Queensland. Full data is available for 556 participants. The participants were predominantly female (70.7%). However, they were diverse with respect to age, education, length of time in Australia, employment status and household living arrangements. The LWM-LMP successfully targeted adults at highest risk of chronic conditions. Those with only a primary school level of education were represented by over three-quarters of the Bhutanese and Somali groups, one-half of the Sudanese group, and nearly one-third of the Afghani and Myanmar (Burmese) groups.

Completion of the program was taken as completing seven to eight sessions out of a possible eight. Of those commencing the program 58% completed the program (that is 7-8 sessions out of a possible 8). For those participants for which there is full data available (n=556), 74.6% completed the program. There was no statistically significant difference in outcomes between those who completed (7-8/8) the sessions and those who did not (≤6/8).

The impact of the program was measured via changes to knowledge, changes to confidence, meeting physical activity guidelines, meeting fruit and vegetable intake guidelines, reducing consumption of

discretionary food items, and decreasing consumption of full fat milk and processed meats. In addition, for those who drank alcohol, changes to safe drinking practices, and for who smoked, quitting or attempting to quit, were also recorded. Overall changes and changes within each community are reported.

The LWM-LMP produced statistically significant improvements in:

- Overall knowledge: increased from an average score of 1.96 (SD 1.38) prior to the program to a score of 5.0 (SD 1.33) after the program. This increase was significant ($p<0.001$, 95%CI 2.89 – 3.19);
- Confidence: for confidence in reducing risk, the mean score increased from 5.98 to 7.63 at the end of eight weeks (paired t-test; $p<0.001$). With respect to confidence in managing a chronic condition, mean scores increased from 6.07 to 7.80 at the end of the program ($p<0.001$). Confidence in both areas continued to improve post program rising to 8.4 for both, four months post-program.
- Self-reported physical activity: 66.5% participants were classified as active at the beginning of the program increasing to 89.8% of participants at the end of the program ($p<0.001$);
- Fruit consumption: The proportion of participants meeting the fruit guideline increased from 52.5% to 73.3% ($p< 0.001$);
- Vegetable consumption: The proportion of participants meeting the guideline for vegetable consumption increased from 5.7% to 17.1% ($p< 0.001$). In addition 18.0% of participants increased their vegetable intake by one serve, 21.9% increased by two serves and 25.8% increased by more than three serves. In total 65.7% participants increased their vegetable intake, with the remainder of participants either unchanged or slightly reducing their intakes;
- Milk and processed meat consumption: participants drinking low fat milk increased significantly from 27.3% to 65.8% by the end of the program ($p<0.001$). While processed meat consumption decreased from 20.2% to 5.9% ($p<0.001$);
- Discretionary food item consumption was categorised as fast food/takeaway, hot chips, salty snacks, sweet snacks, and sugar-sweetened beverages. There were significant improvements in all these groups:
    - Those eating fast food/takeaway rarely or never increased from 25.1% to 35.7% (χ^2 $p<0.001$);
    - The number of participants having hot chips two or more times per week dropped almost two-thirds, from 26.0% to 9.9% (χ^2, $p <0.001$);
    - The proportion of participants having salty snacks less than once a week increased from 63.7% to 82.7%; those having salty snacks 1-3 times per week reduced from 26.4% to 13.9%;

and those having these items four or more times per week dropped from 9.9% to 3.4% ($p < 0.001$);

- Those having sweet snacks less than once a week increased from 44.3% to 65.9%; those consuming sweet snacks 1-3 times per week reduced from 33.0% to 28.5%; and those having these items four or more times per week also decreased from 22.7% to 5.6% ($p<0.001$);
- A majority of participants (61.3%) consumed SSBs less than once a week at baseline and this significantly increased to about four-fifths of participants (79.3%) at the end of the program ($p<0.001$). Participants consuming these beverages four of more times per week also significantly decreased from 12.7% to 2.7% ($p<0.001$).

At the first follow up physical activity was maintained with 90.5% and 92.1% meeting the guideline at weeks 8 and 14 respectively.

Nearly all eating behaviours continued to improve after completion of the program, with the exception of takeaway/fast food and processed meat consumption, where the frequency of consumption slightly increased. Those consuming takeaway at least twice per week increased from 5.4% to 7.2% and processed meat consumption three or more times per week decreased from 5.9% to 4.3%. Overall, the proportion of participants meeting the fruit and vegetable guidelines increased from 72.9% to 82.5% ($p<0.001$) and from 16.5% to 20.7% of participants, respectively. It would appear that reducing intake of fast foods and processed meats are more difficult behaviours to sustain.

Nearly one-quarter of participants (21.4%) drank alcohol and of these over one-quarter were not meeting the guidelines for safe drinking. By the end of the program 65% were practising safe drinking. At baseline 7.5% of participants identified as smokers and by the end of the program over one-quarter (26.8%) had quit smoking, another quarter (26.8%) had reduced smoking, and 14.6% had not reduced smoking but had tried to quit. By the final follow-up a further 7.3% had quit smoking.

The LWM-LMP effectively increases knowledge and confidence and elicits behaviour changes that will actively reduce the risk of chronic conditions.

With respect to outcomes the LWM-LMP facilitated:

- A weight loss of an average 0.7Kg over the eight weeks which was clinically but not statistically significant (pair t-test, p=0.5);
- A statistically significant decrease in mean BMI (Kg/m^2) from 29.1 Kg/m^2 to 28.8 Kg/m^2 (SD 7.1; n=553) at week eight (paired t-test, $p<0.001$);
- A statistically significant decrease in mean waist circumference from 95.6 cm to 94.2 cm (pair t-test, p-value < 0.001);
- A decrease in the number of participants with cardiometabolic risk (Waist:Height ratio >0.5) from 85.1% to 83.1 % .
- A statistically significant decrease in participants with elevated blood pressure from 25.9% to 19.7% ($p<0.05$).

These changes appear to be sustainable after the program with weight, waist circumference, cardiometabolic risk and blood pressure continuing to decrease after the program was completed.

In conclusion, the LMW-LMP has been effective in:

- Identifying and engaging the required community groups to participate in the program;
- Providing a services to a broad range of community members from different backgrounds;
- Increasing knowledge around risk factors associated with chronic disease;
- Improving confidence to reduce risk and manage chronic conditions;
- Decreasing weight, waist circumference and high blood pressure as risk factors for chronic disease;
- Improving eating behaviours with an increased consumption of fruit, vegetables and low fat milk and a decreased consumption of discretionary food items in the short term but more work needs to be done to sustain these behaviours;
- Increasing physical activity.

The program appears to be able to maintain, in the short term, positive eating behaviours and physical activity with concomitant ongoing decreases in waist circumference and blood pressure.

Introduction

The Ethnic Communities Council of Queensland (ECCQ) is providing under Request for Offer No: 2013-14-014 a culturally specific lifestyle modification and education group program for priority and emerging Culturally and Linguistically Diverse (CALD) communities living in Queensland, utilising the Living Well Multicultural Lifestyle Modification Program (LWM-LMP).

The resources for the LWM-LMP were initially developed with funding from the Australian Better Health Initiative, Australian Government Department of Health and Ageing. The original version of the program was compiled using a variety of resources: Living Strong©, Lighten Up©, Go for 2&5© and Reset Your Life©. Modifications and additions were made to make the material more appropriate for CALD participants. This original resource included three components: Health Screening; Nutrition; and Physical Activity. In 2014 when ECCQ was funded by Queensland Health to deliver a "Multicultural Healthy Lifestyle Program" to CALD communities in Queensland using the Living Well Multicultural resources, information on alcohol consumption, smoking cessation and the Australian healthcare system were added. The content was reviewed by relevant professionals and/ or disease specific organisations with final approval from Queensland Health.

For each of the originally identified communities, the program was developed and tailored after consultations with the communities and bicultural Multicultural Health Workers (MHW) to identify the needs and specific areas for modification. This consultation process also identified and confirmed key cultural considerations for the delivery of the content.

There are two objectives of the LWM-LMP:

1. Increase client knowledge and capacity to self-manage chronic disease and chronic disease risk factors, and achieve or maintain positive lifestyle changes;
2. Support and increase the reach and community awareness of key public health messages including reducing obesity, smoking cessation and safe alcohol consumption by partnering with stakeholders and linking with relevant local community events and activities.

Program Environment

The LWM-LMP is located within the Ethnic Communities Council of Queensland (ECCQ) in the chronic diseases program. ECCQ is a state-based voluntary, not-for-profit peak body affiliated with the Federation of Ethnic Communities Council (FECCA). ECCQ provides support and advocacy for migrants and refugees and

the entire multicultural sector. One of the key strategies for the organisation as a whole is the development of partnerships to ensure the health and wellbeing of Queenslanders from CALD backgrounds. Key objectives are to empower individuals and communities, provide information and to collect data in order to influence policy and advocate.

The LWM-LMP has targeted nine CALD communities across ten Hospital and Health Services (HHS) in Queensland. These communities were; Afghani, Arabic-speaking, Burmese (Myanmar), Pacific and South Sea Islander, Sri Lankan, Somali, Sudanese, and Vietnamese. This document reports on all data collected as of the 30th of June 2017.

The report is divided into four sections. The first section provides background information on lifestyle modification programs in CALD communities and an outline of the evaluation framework and methodology. The second section provides brief information on the inputs into the program, recruitment processes, and reach of the program. The third section covers the impact of the program on dietary and physical activity behaviours, as well as smoking and alcohol consumption. This includes the results at the end of the eight week program and at the follow up six weeks later. The final section reports on the outcomes of the program at the end of the program and six weeks later. The sustainability of outcomes are then discussed with results presented from the second follow up at Week 26. Finally, conclusions and recommendations are made.

Section 1: Background

Chronic Disease Programs for CALD populations

Migration from a low-middle income country to an industrialised, high income country has a detrimental impact on chronic condition risk factors. The longer the duration of residence the higher the prevalence of risk factors that lead to morbidity and mortality from chronic conditions [1]. Within CALD communities living in high income countries there are significant disparities in morbidity and mortality [2]. There is however, little up-to-date data at the community level identifying risk factors for and morbidity and mortality from, chronic conditions. Data from Queensland Health indicates that mortality from total avoidable deaths is higher in the Oceania group (which includes Pacific and South Sea Islanders) and within this group the Samoan communities have the highest death rates [3]. Deaths from diabetes are higher in the Oceania and SE European cohorts [3] Those originating from North Africa, Middle East, SE Asia and Oceania have higher rates of morbidity associated with diabetes and cardiovascular disease respectively [3]. A study among newly arrived Sudanese refugees in Queensland identified that more than half were overweight and obese indicating the need for programs to prevent excessive weight gain and to reduce risk factors for diabetes and cardiovascular disease [4]. Despite the increased risk of hypertension, cardiovascular disease, diabetes, overweight/obesity, members of CALD communities are less likely to be proactive in accessing health care or in seeking preventative measures [5].

Reviews of combined diet and physical activity programs targeting those at higher risk of diabetes indicate that they are effective in reducing cardiometabolic risk [6]. Studies that examine the effectiveness of culturally adapted or culturally tailored lifestyle modification, or diabetes prevention programs are rare. Rarer still are studies investigating the effectiveness of programs in specific cultural groups who have relocated to high income countries. A review of interventions tailored specifically to immigrant groups in high income countries, designed to reduce the risk of obesity and obesity-related diseases identified key success factors. Even though only a small number of studies were included, the more successful programs utilised a cultural competence framework and used community participants' expertise and social networks to tailor the intervention and recruit participants [7]. A second review undertaken in 2011 identified five key strategies influential in improving the effectiveness of programs designed to prevent or manage chronic conditions. These were:

1. The use of community-based bilingual health workers;
2. Provision of cultural competency training for health workers;
3. Use of interpreter services;
4. Using multimedia and culturally sensitive audio-visual material to promote health; and

5. Establishing community point of care services [5].

The use of multicultural health workers in the delivery of lifestyle intervention programs has also been undertaken as a separate review, concluding that the use of MHWs may provide one of the most useful targeted interventions for CALD communities [8].

The majority of lifestyle intervention programs for migrants to high income countries have taken place in the USA. The high risk of diabetes and heart disease among the South Asian population has seen a number of specific adapted programs. The South Asian Health Lifestyle Intervention study in the US included six interactive group classes with follow-up phone calls focused on increasing physical activity, healthful diet, weight and stress management. There were no significant differences in physical activity or saturated fat intake between the intervention and control groups; however, the intervention group showed a significant weight loss [9]. No details are given on who facilitated the group or any cultural tailoring that may have of occurred. Another program aimed at Gugarati Indians living in the United States was facilitated by a Gujarati American with orally translated materials adapted to Gujarati cultural practices. There were 12 sessions with physical activity included in eight of these. To improve retention rates, a text messaging app was used and weekly email communication was made. There were no significant changes in most anthropometric or behavioural characteristics but the program effectively reduced Hb1Ac [10]. A more generic program including a broader range of cultural groups was the Live Well, Be Well program. This program compared an intervention group with a wait-list group and examined program effectiveness of telephone counselling program at six and 12 months with a predominant focus on African-American, Latino and Asian adults. The program demonstrated small but statistically significant decreases in weight, and triglycerides but no statistically significant decreases in fasting glucose, LDL or HDL cholesterol, waist circumference and systolic BP [11].

Very little is known about the dietary and physical activity patterns of migrants and refugees living in Australia. There are small studies investigating individual groups in small geographical areas but these are neither recent nor representative [12-15]. International literature reports improvements in some practices for example, consumption of fruit and vegetables and decreased deep frying but also increases in more detrimental practices such as increased consumption of red meat, convenience foods, sugar sweetened beverages and dining out [16]. That food habits change on migration is without question, however, the nature of those changes and their impact on health, is less clear [17, 18].

Significant barriers to undertaking physical activity have been identified in CALD communities, and are outlined in Table 1. Some of these are generic and apply across population groups and others relate

specifically to CALD communities. Researchers identified that providing detailed yet simple sessions, using interpreters, and developing social networks were all important in overcoming these barriers (Caperchione et al 2009). LMW covered off on all of these aspects providing information on the benefits of physical activity, encouraging physical activity and developing a social network (Healthy Eating Active Living exercises).

Table 1: Barriers for physical activity in CALD populations

Individual	Environmental	Cultural	Religious
Lack of education about benefits Lack of motivation Family commitments Physical and health limitations Fear of injury Lack of finances Social support	Safety of physical environment Lack of facilities and transport Weather Programme costs Lack of familiarity with environment	Cultural isolation Lack of culturally specific activities Language barriers Cultural insensitivity Cultural attitudes and beliefs Fear of racism Prayer times	Religious fatalism Gender issues

The Living Well Multicultural: Lifestyle Modification Program

The Living Well Multicultural: Lifestyle Modification Program (LWM-LMP) has utilised what is known about best practice for lifestyle intervention programs targeting CALD communities. However, at the same time, it needed to balance available resources and logistics. LWM-LMP uses Multicultural Health Workers to deliver group-based, culturally-specific sessions for CALD communities on five key areas; healthy eating, physical activity, chronic disease prevention and self-management, alcohol consumption and smoking cessation. It utilises a self-management framework and adult learning principles to facilitate behaviour-change, and promote health and wellbeing by focusing on the delivery of an integrated healthy lifestyle program.

The LWM-LMP is an eight week program with two follow-up sessions; the first follow-up session is at week 14 and is face-to-face and the second follow-up session is at 26 weeks via phone. Each session is 120 minutes and includes a physical activity component. Sessions are usually held in a local community venue convenient to the participant group. The content of each session is outlined in Table 2.

Table 2: Content of LWM-LMP program

Session	Topic
1	Introduction and pre-program screening
2	Physical activity education, tobacco cessation and alcohol consumption + HEAL home exercise
3	Culturally tailored nutrition session 1+ HEAL home exercise
4	Culturally tailored nutrition session 2+ HEAL home exercise
5	Culturally tailored nutrition session 3+ HEAL home exercise
6	Chronic disease (choose one from: Type 2 diabetes, asthma and COPD, chronic kidney disease, cardiovascular disease) + HEAL home exercise
7	Australian healthcare system+ HEAL home exercise
8	Post- program screening
Follow up 1	Face to face at week 14 from the starting date
Follow up 2	Telephone at week 26 from the starting date

Evaluation Framework

The program was evaluated using a combination of the Program Logic and REAIM frameworks in which the Results Based Accountability (RAB) Framework was embedded. These frameworks were used as a checklist to inform the evaluation questions and to assist with reporting.

The RE-AIM framework has been widely used in the evaluation of public health programs [19]. The framework includes the following constructs to evaluate public health impact (those constructs used in this evaluation have been asterixed):

- ***R**each into the target population: the absolute number, proportion, and representativeness of individuals who are willing to participate in a given initiative;
- ***E**ffectiveness or efficacy: the impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes;
- **A**doption by target settings, institutions and staff: the absolute number, proportion, and representativeness of settings and intervention agents who are willing to initiate a program;
- ***I**mplementation - consistency and cost of delivery of intervention: this includes consistency of delivery as intended and the time and cost of the intervention;
- **M**aintenance of intervention effects in individuals and settings over time: at the individual level, maintenance has been defined as the long-term effects of a program on outcomes after 6 or more months after the most recent intervention contact.

Logic models are a useful tool for program development and evaluation planning for several reasons. They serve as a format for clarifying what the program hopes to achieve; are an effective way to monitor program activities; can be used for either performance measurement or evaluation; help programs stay on track as well as plan for the future; and are an excellent way to document what a program intends to do and what it is actually doing.

Finally the evaluation framework incorporates the Results Based Accountability Framework, outlined in Table 3.

Table 3: Results Based Accountability Questions

	QUANTITY	**QUALITY**
EFFORT	How much did we do? **(QTY/EFO)**	How well did we do it? **(QLY/EFO)**
EFFECT	How well did we do? **(QTY/EFE)**	Is anyone better off? **(QLY/EFE)**

Based on these frameworks and in consultation with key stakeholders the following evaluation questions underpinned this evaluation. These are outlined in Table 4 (Process evaluation) and Table 5 (Impact and Outcome evaluation).

Table 4: Key evaluation questions - process

Key question	**Key performance indicators**	**Methods** **Responsibility**
Process		
What has been the program reach?	• Number of programs delivered (QTY/EFO) • Number/demographics/geographical location of CALD clients attending (QTY/EFO) • Number of programs and location in relation to targets (QTY/EFE)	Monthly reporting data *ECCQ* *QUT*
How has the program been promoted? (QTY/EFO)	• Number of partnerships formed • Diversity of partnerships formed • Number and origin of referrals • Number and type of communications	Monthly reporting data *ECCQ*
Who is facilitating the programs? (QLY/EFO)	• Number of staff employed • Qualifications and skill set of workforce • Staff turnover	Six monthly data *ECCQ*
Are the participants satisfied with the program? (QLY/EFO)	• Post program satisfaction by participants • Post program reflection by facilitators	Post program question Reflection tool QUT – participants ECCQ - facilitators
Was the program delivered as it was intended? (QLY/EFO)	• Fidelity of program degree of variance from documented delivery	Observation of % of sessions ECCQ
What are the key barriers and enablers to the delivery? (QLY/EFO)	• Description of key barriers and enablers.	Interviews with facilitators and key stakeholders ECCQ
How many participants completed the program? (QTY/EFE)	• Number of participants enrolled • Number of participants attending each week • Number of participants completing all eight weeks	Bimonthly reporting QUT

Table 5: Key evaluation questions - impact and outcome

Key question	Key performance indicators	Methods
Impact		
Has there been a change in knowledge, skills and awareness? (QLY/EFO)	• Measurement of change in knowledge, skills, awareness of participants regarding physical activity, healthy weight, fruit and vegetable consumption and safe alcohol consumption	Data collection at Week 1and Week 8 of the program using validated questions
Have participants improved their capacity to manage their chronic condition or disease risk? (QLY/EFO)	• Assessment of self-management practices	Data collection at Week 1, Week 8.
Outcome		
Have participants changed or maintained healthy lifestyle behaviours? (QLY/EFE)	- Increase in fruit and vegetable consumption - Decrease in takeaway food consumption - Decrease in softdrink consumption - Decrease portion sizes - Increase in physical activity - Decrease in smoking - Decrease in risky alcohol intakes	Data collection at Week 1, Week 8, Week 14 (face to face follow up) and week 26 (telephone follow up).
Has there been a change objective health measures? (QLY/EFE)	- Changes in mean diastolic and systolic blood pressure - Changes in BMI - Changes in waist circumference	Mean decrease in BP Mean decrease in BMI Mean decrease in waist circumference Mean weight loss

Methodology

This section outlines the methodology used for this evaluation framework. This evaluation utilises a non-experimental pre- post-test design with data collection points at: baseline (prior to the commencement of the intervention); the end of eight weekly sessions; the first follow up session (collected data at week 14); and the second follow up session (limited self-report data). This design was chosen for a number of reasons including:

- The difficulty in engaging participants from each community. These communities are generally hard to reach and have poor access to health services, to randomise participants into a control group where they would have received no or very little information was not ethical.
- Resources available. The evaluation relied on data collection from MHWs and data cleaning from the auspicing agency. Including an experimental design would have required double the resourcing for data collection, which was not available.

Development of evaluation tools

The evaluation tools located in Appendix A were developed after consultation with the MHWs, communities and ECCQ. The tools needed to strike a balance between cultural appropriateness and understanding and being able to compare the results with the general Australian population. A majority of validated tools used in the Australian context for dietary intake and physical activity have not been validated in specific CALD communities in Australia. The starting point was therefore measures or tools that have been previously used and validated at a population level within the Australian context and were of interest based on the content of the program. The measures and tools were all compiled into one document that assisted the MHW in ensuring all the relevant data was collected.

Section 1 – About you and your household

This section collected demographic information and variables that would be used to account for any potential confounding factors related to weight status, health outcomes, and healthy behaviours. These variables included: gender, age, education, employment, length of time in Australia, postcode (as a proxy for socio-economic status using the Australian Bureau of Statistics' Socio-economic Index for Areas), and living arrangements.

Section 2 – About you and your health

This section included the measurements taken by the MHWs, including weight, height, waist circumference and blood pressure.

Weight and BMI

Height and weight were measured according to WHO guidelines and used to calculate the Body Mass Index (BMI) as an accepted measure of adiposity at the population level. BMI was calculated using the formula weight (Kg)/height^2 (m) and was categorised using the World Health Organization (WHO) cut-offs – see Table 6 [20]. However, for Asian populations chronic disease risk is known to occur at lower BMIs, due to the higher percentage of body fat. Using the WHO BMI cut-offs would fail to detect a large proportion of the population at risk of chronic conditions. Consequently, the WHO has recommended the use of lower BMI cut-offs. These Asian cut-offs were used in this evaluation for the Bhutanese, Sri-Lankan, Vietnamese and Myanmar (Burmese) populations.

There are also indications that BMI cut-offs should also be varied for Pacific and South Sea Islanders. Pacific Islanders have a lower body fat percentage at the same given BMI compared to Europeans [21]. For a Melanesian population obesity was associated with a BMI of 27.9 Kg/m^2 for men and 27.8 Kg/m^2 for women [21]; for a mixed group of Pacific Islander men living in New Zealand a BMI of 33.0 Kg/m^2 was equivalent to a BMI of 30.0 Kg/m^2 for European men [22]; another study found no differences in BMI cut-offs for predominantly Polynesian Maori men and women compared with their European counterparts [23]. Based on the limited evidence and its variability the standard WHO cut-offs were used for Pacific and South Sea Islander participants.

Table 6: BMI cut-offs

Classification	BMI (kg/m^2) Cut-offs General	BMI (kg/m^2) Cut-offs Asia
Underweight	<18.50	<18.50
Healthy weight	18.50-24.99	18.50-22.00
Overweight	≥25.00	≥23.00
Obese	≥30.00	≥27.50

Waist circumference

Waist circumference is used as a measure of central body fat accumulation; a large waist circumference is linked to an increased risk of metabolic complications (Janssen et al 2004). However, disease risk related to waist circumference cut-off points varies amongst ethnic groups, and there is very little data available for certain cultural groups around diagnosing excessive abdominal fat deposition (Crowther & Norris, 2012). AUSDIAB indicates that measurements in excess of 102cm for men and 88cm for women are indicative of increased risk of chronic conditions. For Asian participants there are indications that risk increases at lower

measurements: 90cm for men and 80cm for women. These are the figures that have been used to indicate risk.

Waist-height ratio

Waist (cm): height (cm) ratio (WHtR) was used as an indicator for cardiometabolic risk [24, 25]. Waist-height ratio is being considered as a better indicator of risk than other anthropometric measures and appears to be reasonably consistent across gender and cultural groups [26]. A review of waist-height ratio indicated that WHtR appears to be superior to BMI in detecting incident cardiovascular disease, cardiovascular disease mortality, and all-cause mortality. The usefulness of WHtR appears to be better in Asian than in non-Asian populations [27]. A WHtR of greater than 0.5 is indicative of increased risk [24].

Smoking and alcohol

The original questions regarding smoking were derived from the WHO smoking surveillance questionnaire [28]. These questions included both current smoking and volume of smoking. Under-reporting of smoking is expected due to social pressure and, in CALD communities, under-reporting among women is expected to be higher. The original questions were adjusted after the first rounds of the LWM-LMP programs due to significant under-reporting. The program was interested in smoking behaviour at each time point and so to reduce participant burden the question was simplified. Smoking yes or no was recorded at each time point. At Week 8, 14, and 26 whether a smoker had quit smoking or had attempted to quit smoking was also recorded.

Questions regarding alcohol were drawn from the National Drug Household Survey [29]. The questions were designed to elicit lifetime risk of drinking alcohol, types of alcohol consumed, and alcohol consumed at a single sitting (binge drinking). Based on feedback these questions were simplified. Under-reporting has been noted for migrant communities in particular amongst cultural groups practicing religions which prohibit alcohol consumption and amongst women [30]. Alcohol consumption was conflated to whether alcohol was consumed and if so how often and how much.

Section 3 – about what you eat

This section includes short dietary intake questions which are used in the Australian National Health Survey [31] and the Queensland Self-reported Health Status Survey. These questions were modified to give examples that would be relevant for each cultural group. For example: fried taro, cassava and sweet potato

were added to the potato chips, fries, or wedges question; baklava, oil cakes, wattappam and sticky rice cakes were added to the sweets section.

Section 4 – how active are you?

The questions on physical activity were based on the Active Australia survey and are designed to measure physical activity and sedentary behaviour and have been used in a range of ethnic groups in Australia [32, 33]. The tool however, has not necessarily been validated in different CALD populations. Slight wording changes were made and examples were extended to include more culturally appropriate activities. It should be noted that participants did have some difficulties in understanding the intent of these questions and the subtle differences between moderate and vigorous.

Physical activity was analysed by indicating whether the participant met the Australian guideline, that is, undertook:

- 150 minutes or more of moderate activity; OR
- 75 minutes or more of vigorous activity; OR
- 112 minutes or more for a combination of moderate and vigorous activity.

Section 5 – have you heard about these?

Seven knowledge questions were developed that directly related to the content of the sessions provided within the LWM-LMP program. These were designed used best-practice principles for multiple choice questions. The question relating to physical activity was removed from the analysis this was due to the MHWs indicating that the question was confusing and a high percentage of missing data. This question has been altered for the 2017-2018 version of LWM-LMP. In addition, to the knowledge questions two questions were asked to elicit confidence about preventing risk of and managing chronic conditions. These were on a sliding scale from one (not at all confident) to ten (totally confident).

Other questions

In addition to the main questionnaire that focussed on behaviours associated with diet and physical activity, as well as confidence and on outcome measures, additional questions were asked after each session. These questions focussed on what the participant learnt and the key actions after each session. At the end of the program (at week 8) participants were asked what they liked the most and what they would change. These results are presented under satisfaction.

Development of database and training of MHWs

In order to facilitate the timely and accurate entry of data for analysis a database was custom built. This database relied on drop-down lists that were pre-populated. MHWs were required to enter the data from paper questionnaires after session one, session eight, week 14 and week 26. The data was checked by the LWM-LMP coordinator, and missing data or data did not fall within parameters were followed up.

MHWs received training in evaluation with a focus on general evaluation principles, the rationale for the questions that were being asked and the importance of accuracy. There was considerable debate regarding the length of the questionnaire and the wording of the questions asked. However, once the importance of validity and gathering information that would allow comparison with the rest of the Australian population the MHWs were committed to data collection.

Delivery of questions

All of the questionnaires were translated into five languages - Arabic, Farsi, Samoan, Vietnamese and Myanmar (Burmese). For participants using the translated version for their community the MHW translated qualitative responses back to English. For the remaining four communities –Sudanese, Tamil, Bhutanese and Somali the English version was used. The Sudanese community use many different languages and dialects making it difficult to choose a language for the translation. The Bhutanese and Somali participants were illiterate in their first language therefore there was no benefit in translating the questionnaire. Sudanese and Tamil participants had basic English literacy and were able to use the English version with assistance of the MHW. The MHW read out the questions for the Bhutanese and Somali participants and wrote down responses for each participant.

Statistical analyses

For quantitative analysis, all continuous data (age, BMI, waist, weight) is summarised and described in terms of mean with standard deviation (SD) and 95% confidence intervals (CI). For categorical data such as gender, risk, a sample frequency was reported. To compare the data between cultural groups and between time points, several statistical tests including one-way ANOVA, paired sample t-test, two samples t-test (or independent samples t-test) and Chi-Square test of independence have been conducted, depending on the data type.

For continuous data, the two samples t-test is often used to compare the mean difference between two independent groups, for example comparing mean waists between male and female. For some factors, when there are more than two groups then a one-way ANOVA is used instead of the two-sample t-test, for example comparing BMI between the five cultural groups at baseline. When the continuous data at baseline was compared with the corresponding data after the program week 8, the paired sample t-test is the appropriate test to use.

The Chi-Square test of independence was used to assess whether there was association between two categorical variables. Since this test is sensitive for small sample sizes, when it is applicable, the Fisher exact test was used as an alternative test.

All of the test assumptions were validated prior to the analysis. For reported p-value, all of the statistical tests use a threshold significant level of 0.05. We noticed that some tests provide extremely significant results, thus we reported using p-value at 0.001.

Where relevant, due to low numbers, the Somali group was combined with the Sudanese group for statistical purposes.

Section 2: Facilitation, Recruitment, Reach and Satisfaction

What programs were delivered?

By June 30th 2017 a total of 49, eight week LWM-LMPs have been completed, with 716 participants enrolled across nine communities: Afghani; Arabic-speaking; Bhutanese; Pacific and South Sea Islander; Myanmar (Burmese); Somali; Sudanese; Sri-Lankan, Vietnamese. Full data is available for 556 participants (80.6%). One hundred and sixty participants (160) were removed from the analysis (one participant did not have any data, 139 dropped out, 12 participants were younger than 18 years old and eight participants were underweight).

These programs and their locations are outlined in Table 7. Programs were run in seven hospital and health services. Most of the programs occurred in the South Metropolitan HHS and given this is where a majority of migrants and refugees settle in Queensland this was appropriate.

Ideally, to determine reach, the number of participants in each hospital and health service should be compared to the number of adults living in the catchment area. However, this information is not readily available. Available statistics for hospital and health services report on total number of persons. Breakdowns in age, country of origin or language spoken are available but these are not specific for the communities participating. Bhutanese, Somali and Sudanese are still considered emerging communities and demographic statistics are limited. For Pacific and South Sea Islanders, the statistics do not reflect the numbers in each HHS as the diversity of cultural groups is not identified. In addition, many Pacific Islanders came to Australia via New Zealand, highlighting total numbers of New Zealanders again does not take into consideration the diversity of cultural groups.

Table 7: Location of LWM-LMP programs

Community	Location	HHS	Community	Location	HHS
Arabic Speaking	Carindale (8)	Metro South	Sudanese	Bray Park (21)	Metro North
	Algester (10)	Metro South		Zillmere (14)	Metro North
	Runcorn (13)	Metro South		Acacia Ridge (17)	Metro South
	Robertson (11)	Metro South		Ipswich (18)	Metro South
	Gold Coast (23)	Gold Coast		Inala (13)	Metro South
	Zillmere (11)	Metro North	Sri-Lankan	Sunnybank (11)	Metro South
	Loganlea group 1 (12)	Metro South		Logan (14)	Metro South
	Loganlea group 2 (21)	Metro South		Mt Ommaney (12)	Metro South
	Strathpine (14)	Metro North		Forest Lake (11)	Metro South
Pacific and South Sea Islander	Logan (12)	Metro South		Rockhampton group 1 (10)	Central Queensland
	Deception Bay (12)	Metro North		Rockhampton group 2 (17)	
	Cairns (15)	Cairns & Hinterland		Fitzgibbon (24)	Metro North
	Manoora (13)		Vietnamese	Inala group 1 (15)	Metro South
	Acacia Ridge (18)	Metro South		Inala group 2 (12)	Metro South
	Strathpine (22)	Metro North		Inala group 3 (12)	Metro South
	Townsville (21)	Townsville		Darra (13)	Metro South
	Rockhampton (12)	Central Queensland		Durack (9)	Metro South
	Sandgate (22)	Metro North		Goodna (11)	Metro South
	Deception Bay (10)	Metro North		Wooloowin (10)	
	Mackay (11)	Townsville	Bhutanese	Zillmere group 1 (18)	Metro North
Myanmar (Burmese)	Logan group 1 (27)	Metro South		Zillmere group 2 (12)	Metro North
	Logan group 2 (19)	Metro South		Cairns (16)	Cairns & Hinterland
Somali	Townsville group 1 (12)	Townsville	Afghan	Holland Park (10)	Metro South
	Townsville group 2 (18)	Townsville		Springwood (15)	Metro South
				Woolloongabba (13)	Metro South

Who facilitated the programs?

The LMW-LMP is based on best practice principles that acknowledge the importance of using bicultural members of the community to facilitate the program. It is essential though that these facilitators are appropriately trained. The qualifications of the MHWs are listed in Table 8. Three MHWs were working towards the Cert IV in Primary Health and Community Care (Multicultural). In addition to formal qualifications MHW undertook training in a range of areas that added value to their roles as facilitators of a chronic disease prevention and management program. The general areas of training are listed in Table 9.

There was very low staff turnover which ensured the consistency of program delivery and the continuing successful engagement with stakeholders and communities to June 2017.

Table 8: Qualifications of Multicultural Health Workers

Bachelor of Medicine, Master of Community Health; Certificate IV in Primary Health and Community Care (Multicultural)
Bachelor of Agriculture, Master of Agricultural, Certificate IV in Primary Health and Community Care (Multicultural)
Bachelor of Human Services, Certificate IV in Primary Health and Community Care (Multicultural)
Diploma of Nursing
Bachelor of Nursing
Bachelor of Environmental Studies, working toward achieving Cert IV in Primary Health and Community Care (Multicultural)
Certificate IV in Community Service Work
Bachelor of Health Science (Nutrition), Certificate I in Nursing

Table 9: Training undertaken by Multicultural Health Workers

Personal Development	
Cultural awareness- working effectively across cultures	ECCQ – Diversicare Division
Muslim faith awareness	ECCQ – Diversicare Division
Personal Productivity	Designer Life
Evaluation and Communication	
Program evaluation and data collection (3)	Queensland University of Technology
Presentation skills	Carson Australia
Developing community communication strategies	The Ethnic Communities Council of Queensland
Focus group discussions and in-depth interviews	The Ethnic Communities Council of Queensland
Community Café Facilitation Skills	Peace and Conflict Studies Institute Australia
Visual Story Telling through Digital Technology	Activate Entertainment
Australian Healthcare System	
Introduction to National Disability Insurance Scheme	Ampro Advocacy and ECCQ
Australian healthcare system	The Ethnic Communities Council of Queensland
Introduction to Health Literacy	The Ethnic Communities Council of Queensland
Risk Behaviours	
Smoking cessation	Queensland Network of Alcohol and other Drug Agencies
Quit line Service Information	Health Contact Centre, Queensland Health
Alcohol consumption	Queensland Network of Alcohol and other Drug Agencies
Physical activity	The Ethnic Communities Council of Queensland
Home exercise program	The Ethnic Communities Council of Queensland
Cooking demonstration	The Ethnic Communities Council of Queensland
Basic nutrition and fad diets	Queensland University of Technology
Aqua Safe Education, CPR and community engagement	Royal Life Saving Society Qld
Chronic Conditions	
Asthma/ COPD	The Asthma Foundation/ The Lung Foundation
Type 2 diabetes	Diabetes Queensland
Cardiovascular disease	Heart Foundation
Cardiovascular Disease Risk Assessments and Self-Management	Heart Foundation
Chronic kidney disease	Kidney Health Australia
Bone health	Arthritis Foundation Queensland and ECCQ
Rheumatic Heart Program QLD	Cairns and Hinterland Hospital and Health Service

Recruitment

A range of strategies were adopted to recruit participants into LWM-LMP including distributing printed materials in each community language and English (~2000 distributed in total), via the ECCQ website and newsletters, advertisements in ethnic community newspapers and on ethnic radio channels such as 4EB (~20 sessions), referrals, and word of mouth. The program was also promoted through relevant organisations working with CALD communities such as the Multicultural Development Association (MDA), ACCESS and Loganlea and Ipswich TAFE Adult Migrant English Program (AMEP), individual community association's websites, as well as through doctor's surgeries, hospitals and other medical services. The effectiveness of these strategies varied depending on the target group for the program.

Based on responses to the question "how did you hear about the LWM-LMP", 55% of the participants were recruited by a member of their community and word of mouth, another 33% by the MHW. Word of mouth was one of the most common recruitment strategies and relied heavily on the networks of the MHWs. Some MHWs indicated that they did not need to undertake formal advertising through print media as their communities were predominantly illiterate in their first language and/ or English. Word of mouth often alerted community members to the benefit of LWM-LMP program and personal recommendations from friends and/or family further encouraged people to join program cycle. The other popular strategy utilised by MHWs was face-to-face recruitment. Potential participants were targeted through community events/festivals and religious services at Mosques, Churches, and Temples. MHWs utilised these events to give short presentations about the program in their community language. Figure 1 provides a breakdown of referral sources for the program.

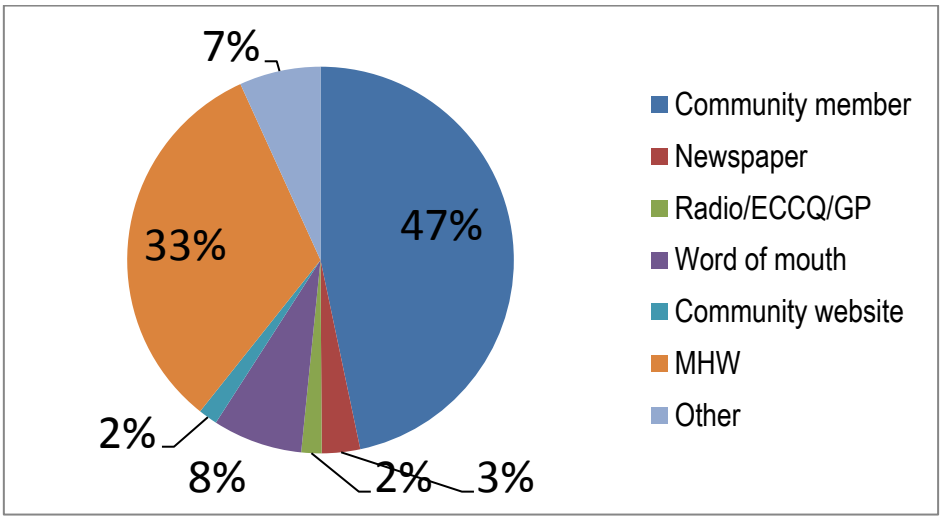

Figure 1: Referral sources for the LWM-LMP

MHWs created a link with community organisations working with different cultural groups such as MDA, ACCESS, AMEP, and other community organisations to advertise for their program cycles to the targeted communities. MHWs identified that these organisations had assisted in the recruitment process by providing access to potential participants through existing databases, as well as via groups currently meeting for other projects.

Printed materials (e.g. flyers, brochures, and the Living Well brochure “How to Get Active, Eat well, Live Well) have been translated into Arabic, Samoan, Vietnamese, and Sri Lankan/Tamil language and distributed to participants and businesses. Flyers for some of the program cycles were translated into Arabic, Farsi, and Vietnamese and distributed via community festivals, community halls and GP surgeries to target specific populations in order to raise awareness of programs within the communities.

The success of the LMW-LMP is also predicated on the development and nurturing of a range of partnerships. Approximately 60 partnerships were formed across a diverse range of areas and these are outlined in Table 10.

Table 10: Partnerships formed for the development and implementation of LWM-LMP

Type of organisation	Organisations
Chronic disease specific organisations	Asthma Foundation Queensland Lung Foundation Queensland Heart Foundation Kidney Health Australia Diabetes Queensland Cancer Council Queensland National Stroke Foundation
Community and multicultural service organisations	Central Queensland Multicultural Development Association Mackay Yamadi Lera Yumi Meta Assoc Inc. My Pathway and Centacare in Cairns Access Services Inc Townsville Multicultural Support Group Ampro Advocacy ECCQ's Diversicare Division Royal Life Saving Society QLD Goodna Neighbourhood Centre Nubah Women Group Anglicare Caboolture Neighbourhood Centre Tamil Community and School in Toowoomba Vietnamese Senior Association Settlement Council of Australia Multicultural Development Australia Pacific Islander Networks MultiLink Community Services Federation of Ethnic Communities Council Australia Logan Central Uniting Church Congregational Christian Church of Samoa
Education institutions	Queensland University of Technology The University of Queensland Royal College of Healthcare Carson Training Designer Life Peace and Conflict Studies Institute Australia TAFE Loganlea, TAFE South West, TAFE Queensland Brisbane
Ethnic media	Radio 4EB SBS Tamil 1197AM SS Newspaper Sri-Lankan e-newsletter
Local government agencies	Brisbane City Council Logan City Council Toowoomba Regional Council Cairns City Council Townsville City Council

Type of organisation (continued)	Organisations
Health and Hospital Services **Primary Health Networks** **Other primary health care services**	The Good Start Program Primary Health Care Network Brisbane South Check Up Australia Queensland Aboriginal and Islander Health Council Salisbury Medical Clinic Metro South Health and Hospital Services Metro North Health and Hospital Services Mediprac Medical Centre Logan Community Interface Services, Royal Brisbane Women Hospital Central and Eastern Sydney Primary Health Network Primary Health Network Darling Downs and West Moreton Brisbane North Primary Health Network Ipswich Hospital Rheumatic Heart Disease Program Queensland

Key Finding

Culturally specific pathways for recruitment, including Multicultural Health Workers and their networks, are essential for the recruitment of CALD programs into interventions.

Fidelity of the programs

This section answers the question “was the program delivered as it was intended?”. Fidelity of the program is important in order to ensure that the aims of the program and the quality and veracity of the material presented is maintained. Twenty-eight (7%) of the sessions were observed by the coordinators of the chronic disease program at ECCQ. At least one session up to 7 sessions were observed for each cultural group except for the Somali program. Sessions were checked for how close they were to what was prescribed and the timing of the sessions. The observations were used as an opportunity to provide feedback to the facilitators.

All sessions were delivered according to the prescribed content. The Pacific and South Sea Islander MHW modified one activity in the Healthy Heart session to make it more interactive. For the session length, the pre-screening session, where there were more than 15 participants took longer than two hours. Table 11 outlines the feedback provided to facilitators.

Table 11: Examples of feedback provided to Multicultural Health Workers

Facilitators were very confident in delivering the session contents
Great effort in creating a friendly and light-hearted atmosphere
Participants appeared highly engaged
Consider sitting participants closer when having small group and large venue
Meaningful interaction in relatively difficult conditions
Excellent delivery of content and use of venue space
Content covered very well
When being asked difficult questions and facilitators responded appropriately
Could summarise key messages at the to reinforce the information if necessary
Session was very participatory, many questions asked by participants, making it difficult for facilitator to stick to the time. Facilitator could work on time management

Key barriers and enablers to delivery

Discussions with and reflections of facilitators revealed a number of key enablers and barriers to the delivery of the LWM-LMP program. The key enablers identified were:

- Free venues in which the sessions took place;
- Community networks were supportive of program goals;
- Community organisations had excellent facilities to deliver programs including kitchens and connected spaces for children to play;
- Some community groups have strong leadership, once the leaders were committed the program, community participants followed.

Key barriers to delivering the program included:

- Community commitments: participants had many commitments including their commitments to family and relatives in Australia and overseas. Prioritising attending a program for an individual can be difficult in communities with a more collective cultural approach;
- Scattered communities: community members do not necessarily live in one geographical area making it difficult to get together in one venue for the program;
- Health is a low priority for community members, leaders and stakeholders;
- Faith-based organisations have many social commitments making it difficult for them to prioritise supporting the program;
- Transport and child-minding;
- Difficulty in finding suitable venues in some areas.

Reach

This section answers the question "how much did we do?". Table 12 and Figure 2 provide a summary of the programs and the number of participants in each cultural group. The largest group of enrolled participants is the Pacific and South Sea Islander with 168 participants (23.5%), followed by the Arabic-speaking groups (123 – 17.2%), the Sri Lankan group (99 – 13.8%), the Sudanese (83 – 11.6%), the Vietnamese (82 – 11.5%), Bhutanese (46 – 6.4%), Myanmar (46 – 6.4%), Afghani (38 – 5.3%) and the Somali group (30 – 4.2%).

The ranking of the communities according to number of participants completing the program were the Pacific and South Sea Islanders (132 – 22.9% of total number completing), the Arabic-speaking (119 – 20.7%) Sri-Lankan (74 – 12.8%), Vietnamese (71 – 12.3%), Sudanese (67 – 11.6%), Afghani (36 – 6.3%), Myanmar (Burmese) (31 – 5.4%), Bhutanese (27 – 4.7%) and Somali (19 – 3.3%). The Arabic-speaking groups had the lowest attrition rates followed by the Afghani group. The highest attrition was among the Bhutanese group followed by the Somali and the Myanmar (Burmese) communities.

Table 12: Number of participants at baseline and post program week 8 by community

Community	Baseline	Week 8 (%)	Drop out (%)
Afghani	38	36 (94.7%)	2 (5.3%)
Arabic-speaking	123	119 (96.7%)	4 (3.3%)
Bhutanese	46	27 (58.7%)	19 (41.3%)
Myanmar (Burmese)	46	31 (67.4%)	15 (32.6%)
Pacific Islanders	168	132 (78.6%)	36 (21.4%)
Sri-Lankan	99	74 (74.7%)	25 (25.3%)
Somali	30	19 (63.3%)	11 (36.7%)
Sudanese	83	67 (80.7%)	16 (19.3%)
Vietnamese	82	71 (86.6%)	11 (13.4%)
Total	**715**	**576 (80.6%)**	**139 (19.4%)**

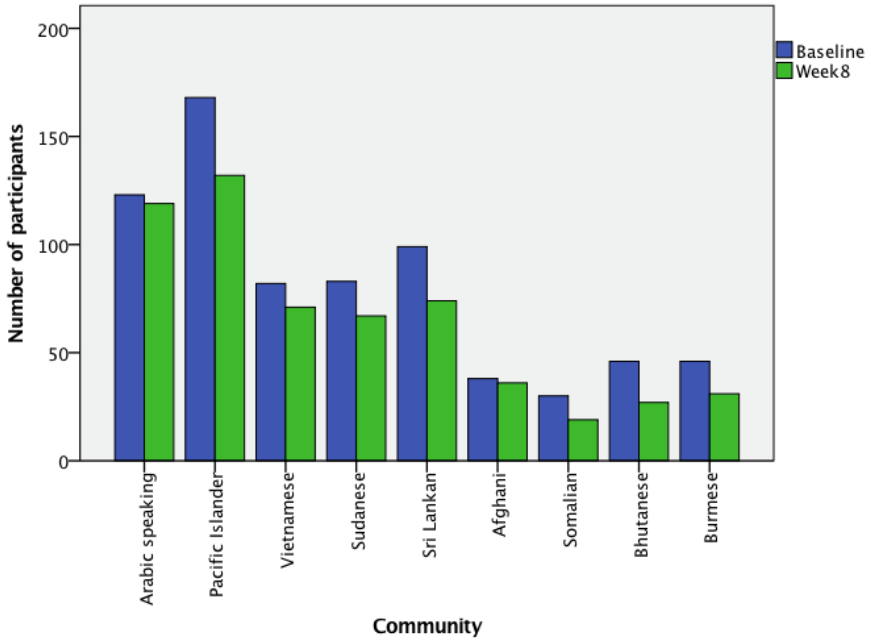

Figure 2: Number of LWM-LMP per community

Characteristics of participants

There were 716 participants who enrolled in the program, 575 who completed eight weeks and 432 who completed week 1, week 8 and week 14. Table 13 provides a summary of the social demographic characteristics of all participants for whom there is baseline and program completion (week eight) data (575 participants). There were no statistically significant differences in the demographics of participants who enrolled, completed and were followed up at week 14. Visual representations of these characteristics are available in Appendix B.

Table 13: Socio-demographic characteristics of participants

Community	Gender	Age	Length of time in Australia % (n)				Living arrangements % (n)		Education level** % (n)			Employment status***		
	% female (n)	Average (range)	<12 mo	1-5 yrs	6-20 yrs	>20 yrs	Couple with children	Other*	1^0	2^0	Post 2^0	Paid	Not work	Stud
Afghani	100 (40)	40.6 (18-72)	8.3 (3)	38.9 (14)	50.0 (18)	2.8 (1)	52.8 (19)	47.2 (17)	30.6 (11)	25.0 (9)	44.4 (16)	25.0 (9)	63.9 (23)	11.1 (4)
Arabic-speaking	75.6 (90)	35.4 (18-70)	51.7 (61)	25.4 (30)	22.9 (27)	0	68.4 (80)	31.6 (37)	10.3 (12)	29.1 (34)	60.9 (71)	9.3 (11)	35.2 (43)	54.2 (64)
Bhutanese	59.3 (16)	42.9 (22-82)	16.0 (4)	52.0 (13)	0	16.0 (4)	70.8 (17)	29.2 (7)	76.0 (19)	12.0 (3)	12.0 (3)	24.0 (6)	60.0 (15)	16.0 (4)
Myanmar (Burmese)	67.7 (21)	49.5 (23-77)	10.3 (3)	27.6 (8)	51.7 (15)	10.6 (3)	63.0 (17)	37.0 (10)	30.0 (6)	40.0 (8)	30.0 (6)	37.9 (11)	34.4 (10)	27.6 (8)
Pacific Islander	60.6 (80)	50.5 (19-86)	2.5 (3)	17.2 (21)	42.6 (52)	37.7 (46)	63.6 (77)	36.4 (44)	9.0 (11)	45.9 (56)	45.1 (55)	58.1 (71)	35.2 (43)	0.8 (1)
Somali	78.9 (15)	42.5 (21-70)	11.1 (2)	61.1 (11)	22.2 (4)	5.6 (1)	55.6 (10)	44.4 (8)	77.8 (7)	11.1 (1)	11.1 (1)	22.2 (4)	55.6 (10)	22.2 (4)
Sri Lankan	50.7 (37)	44.5 (19-83)	6.9 (5)	38.9 (28)	37.5 (27)	16.7 (12)	76.4 (55)	23.6 (17)	0	0	100 (59)	55.7 (39)	37.2 (26)	7.1 (5)
Sudanese	77.6 (52)	35.6 (18-68)	17.9 (12)	14.9 (10)	67.2 (45)	0	44.6 (29)	55.4 (36)	50.0 (32)	20.3 (13)	29.7 (19)	42.4 (28)	36.4 (24)	21.2 (14)
Vietnamese	84.5 (60)	58.3 (27-88)	1.5 (1)	9.0 (6)	17.9 (12)	71.6 (48)	37.9 (25)	62.1 (41)	7.7 (5)	47.8 (31)	44.6 (29)	26.9 (18)	73.1 (49)	0

*Other: Single, living alone; Single, living with family or friends; Couple no children; Single Parent

**Education: 1^0 – up to primary school; 2^0- up to secondary school; post 2^0 – certificate/trade/bachelor/postgraduate

***Employment: Paid, in paid employment; not work, not in paid employment, includes house duties, unable to work, retired; Stud= student

In summary, of the 576 participants, 407 or 70.7% were female. Generally, the Afghani, Vietnamese, Somali, Sudanese and Arabic-speaking groups were more likely to attract females, while the Bhutanese and Sri Lankan groups had a more even spread of males and females. Indications are that the LMW-LMP will need to continue to develop strategies to attract more men to participate in the program. This may in part due to men and women's business and that the majority of MHWs are female. It is worth noting that the Pacific and South Sea Islander, Sri Lankan and Bhutanese groups are facilitated by male MHWs.

Of the nine communities who participated in the program, the three youngest groups are Arabic-speaking, Sudanese and Afghani with an average age of 35.4 years (Range 18 – 70), 35.6 (Range 18 – 68), and 40.6 years (19 - 72) respectively. The Vietnamese group is the oldest with an average age of 58.3 (Range 27-88), which is significantly higher than the average ages of all other communities ($p < 0.001$). This indicates that the LWM-LMP was targeting primarily participants in the age range that are at high risk of developing chronic disease or who may be managing a chronic disease.

Out of the sample of 556 participants, 94 (16.9%) participants had been in Australia for less than 12 months. Nearly half (45.2%) had been living in Australia for between 1 and 10 years and 37.6% had been in Australia for longer than 11 years; with one-fifth (20.7%) having lived in Australia for greater than 20 years. The Vietnamese tend to have been in Australia the longest with 78.5% living in Australia for longer than 20 years. While the Arabic-speaking and Somali groups had the highest proportions of participants who had been in Australia for less than 12 months, 46.7% and 10.5% respectively.

The majority of participants were in a relationship and living in a household with children (59.4%), 12.9% were single parents living with children and 12.6% were single and living with friends/relatives. Only 4.1% were living alone. The remaining 9.4% were couples living without children. The Vietnamese, Somali and Afghan had the highest number of participants who were single parents.

Indications are that participants in the LWM-LMP have a broad range of education backgrounds. 18.5% of participants had up to a primary school education, this represented over three-quarters of the Bhutanese and Somali groups, one-half of the Sudanese group, and nearly one-third of the Afghani and Myanmar (Burmese) groups. 29.7% had up to six years of high schooling. About half of participants (46.6%) have a post-school qualification with 25.7% of these having a bachelor or a postgraduate qualification. The level of education has implications for these communities where a requirement to read and write may be a serious barrier for active engagement and learning. Consideration needs to be given to increasing the number of experiential activities.

When looking at employment status just over one-third (35.8%) of participants are in paid employment. The remainder are not working, retired or studying and therefore potentially have more flexibility with respect to attendance.

Key Finding

The LWM-LMP program successfully targeted a broad range of participants. A wide age range participated in the program, successfully targeting those at risk of chronic conditions but also those for whom chronic disease could be prevented. A majority of participants were female. Participants had a range of living and employment arrangements and education backgrounds. Consideration should be given to strategies to increase the engagement of men with the LWM-LMP and to design educational materials with less reliance on reading and writing given the low levels of education in some community groups.

Dose

This data is referring to the eight week program where completion has been taken as completing seven or eight of the eight sessions. Of those commencing the program 58% completed the program (that is 7-8 sessions out of a possible 8). For those participants for which there is full data available (n=556), 74.6% completed the program. There was a statistically significant difference in completion rates between communities ($p<0.001$). 96.6% of Myanmar (Burmese) participants completed the program, followed by 90.7% of the Arabic-speaking, 77.6% of the Vietnamese, 75.4% of the Pacific South-Sea Islander, 71.6% of Sudanese, 66.7% of Afghani and 57.5% of the Sri Lankan participants. Only half of the Somali and Bhutanese groups had completed the program.

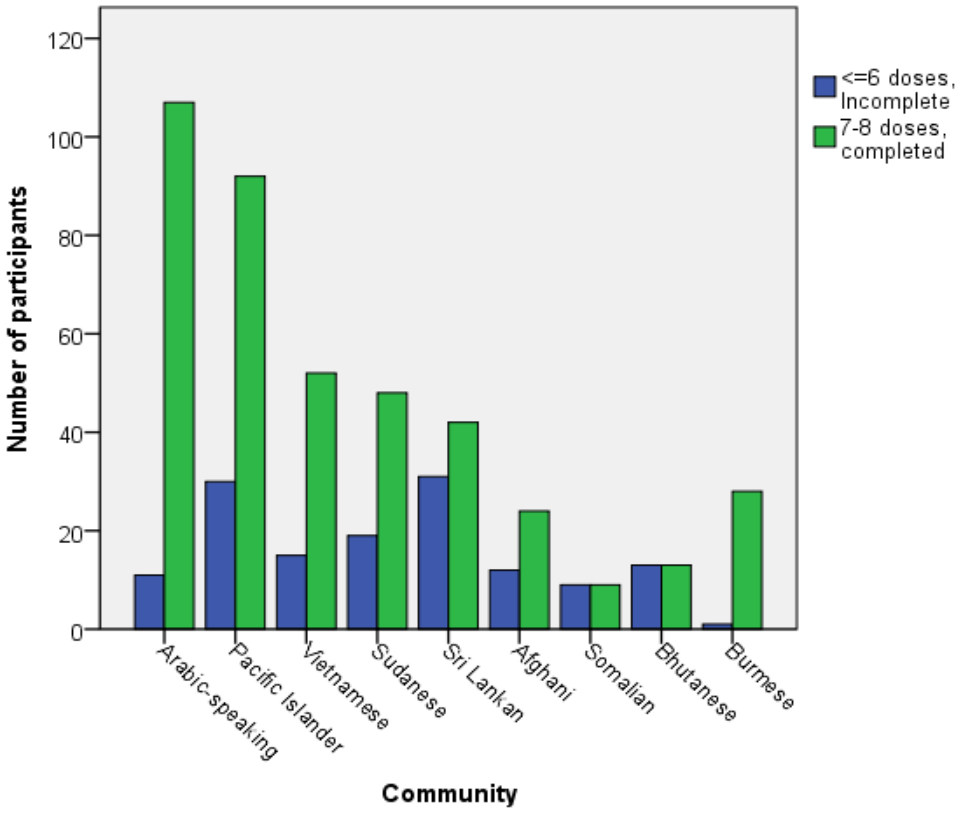

Figure 3: Completion of the program by community

Attendance

Looking at Figure 3, there appears to be drop in attendance at week three and again at week seven. The retention rates for the eight week program however, are good.

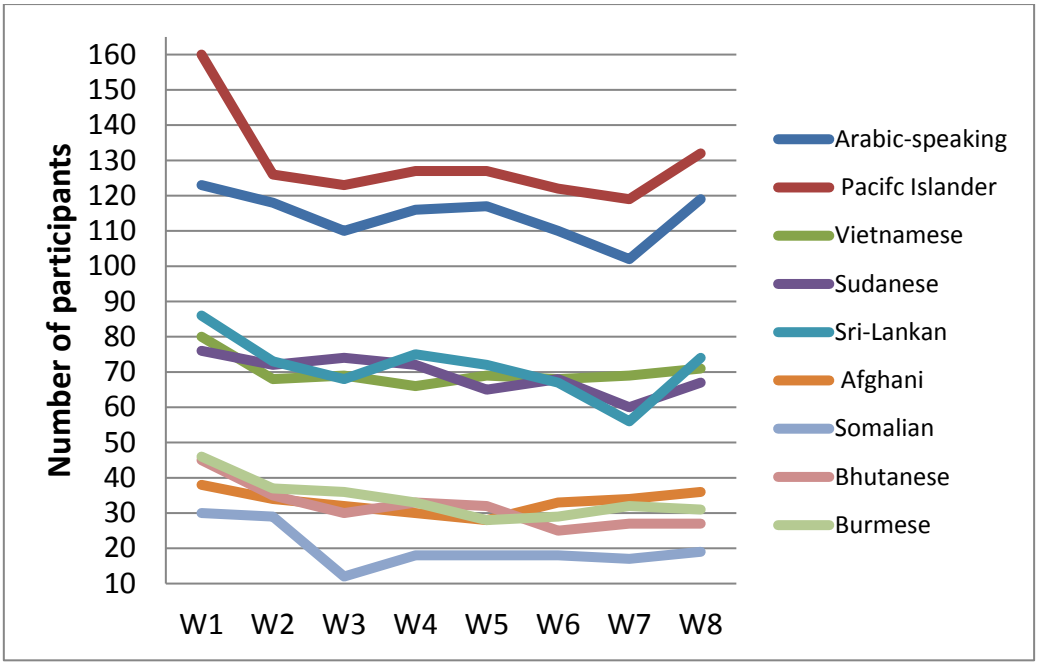

Figure 4: Weekly attendance by community (49 groups)

Attendance at follow up

Table 14 provides information on the groups and participants that completed both follow up sessions at weeks 14 and 26. At June 30, 2017 there was still outstanding data from a number of groups.

Table 14: Community groups for which there is follow up data

Community	Number of groups	Number of participants
Afghani	3	36
Arabic-speaking	8	104
Bhutanese	1	11
Myanmar (Burmese)	0	0
Pacific Islander	9	108
Somali	2	18
Sri-Lankan	7	73
Sudanese	3	42
Vietnamese	7	67

Figure 5 summarises the attendance at all the sessions including the first and second follow up. The first follow up was a face-to-face and it was obviously difficult for participants to attend; the reasons why need to be followed up. The second follow up was a phone call and more participants were able to be followed up using this method. The exception is the Vietnamese community.

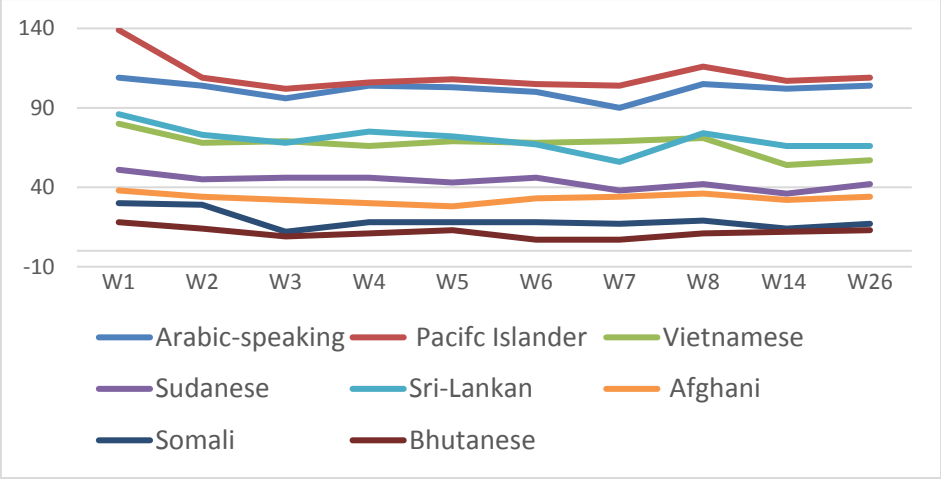

Figure 5: Attendance at the program and follow up sessions for 40 programs

Satisfaction

This part of the report answers the question "How well did we do it?" After session eight participants were asked to respond to two questions "what did you like best about the program?" and "what could be changed about the program?" These questions were asked instead of how "satisfied" participants were with the program as in different cultural groups this question can be interpreted in a variety of ways and is subject to social desirability bias. Based on these questions a brief thematic analysis has been undertaken to highlight the respective areas. Tables 15 and 17 summarise these comments. In addition, facilitators were asked after each session what worked well and what could be changed. These are summarised in Tables 16 and 18.

Table 15: Participant's perspectives on "What did you like best about the program?"

The whole program	The whole program, all the subjects became valuable part of our lives. … (LIY091178) This is a very useful program for our people, everything was just as important… (SLA090750)
Learning about chronic disease	I , love the information about chronic diseases and how it is connected with food and physical activity (MOH241195) Chronic diseases subject covered by Dr X gave us a very extensive knowledge on our body and how they work (LIY091178) The best part for me is the … ways to reduce your risk of getting chronic diseases (FAA210561)
Learning about the Australian healthcare system	I thoroughly enjoyed the Australian Health Care system very much strongly, it being very educative and an important subject for all of us (SAM110953)
Learning about healthy food habits and physical activity	The discussion about the food types and how they are useful to your health, and the changes you need to make such reduced salt and sugar (MEA280251) I was enjoying the physical exercise sessions. The whole program, all the subjects became valuable part of our lives. (LIY091178) The HEAL exercises, the nutrition sessions and the importance of types of foods to health (VAA031164) I really get a lot from physical activity not to reduce weight but to prevent disease (SIV121195) Everything in this program is important, but I especially like the healthy eating sessions which I have learnt a lot of useful things for me and my family, and also the importance of exercise (AIS081064) … I like the sessions on food, since I now know the difference in foods, and the foods I should and should not eat.(ALO170655) as a man I loved the physical activity and chronic diseases and nutrition session more than shopping tips and how to store food…(KAR010363)
The teaching team and the quality of the materials	the way she delivered the information was great and she make it easy to understand… (MOH241195) the facilitator was very engaging and motivating in all circumstances. (FAR261194) I liked the face to face lectures. They reiterated the healthy lifestyle choice for me week after week (FAR261194) … Information provided during sessions such as handouts, overhead and by the teachers. … quality of the lecture materials. (WIC230166) what I liked best was that the sessions were very interactive. L learn best this way as I am hands on. (FAR310892)
Cultural tailoring	visual and example from our tradition foods (ABD010165) information good and easy to understand with cultural examples (MOH010169)
Social interactions	As I enjoyed the program wholly, together with others having lots of fun and joy (LIY091178).

Table 16: Facilitators' reflections on what worked well in the program

Interaction	Participants participated by asking questions The interactions between facilitator and participants and participants with participants Session went well, a lot of discussions generated around food label reading card and the supermarket experience
Practical demonstrations	Practical demonstration Practical examples and amount of hidden fats in food
Practical follow up	Session went well, participants kept their AUSDRISK tests which they could take to their GP
Attendance	I did not anticipate 16 participants to turn up so it is good

Below are testimonials from two facilitators regarding the positive impact of the program.

> *Some participants said this is the first time that they had the opportunity to attend a program like this and that make me happy. I feel that at least I have helped some people making positive life changes. I am also very happy to see that participants can understand the information very well because all the PP presentations and handouts are in their language*."

> *The satisfactory part of my job is actually seeing positive changes happening. Last weekend was my week 8 sessions for Sandgate and the biggest loser was 4.4kgs. I feel happy as I know someone is listening. Often I have this satisfaction at week 8 and week 14 when I see the changes in my participants. If I could get at least half or more than half to make positive lifestyle changes, for me that is very good and that is positive results. I realised that is very hard for some participants to change old lifestyle habits and some don't even change but I can see some people are making small changes and that is encouraging for me in my work*.

What could be changed about the program?

Most of the feedback for changing the program from participants related to increasing the time devoted to topics or making suggestions about topics to be included.

Table 17: Participant's perspectives on "What could be changed about the program?"

No changes required	Everything was awesome. Nothing needs to change (ALH050395) I do not suggest any changes have to be done. I do not feel any changes are required as all the subjects were well balanced through the program. Very interesting and important to good health and well being. (SAM110953)
More information on chronic diseases/losing weight	The program was so good but I think more session on chronic diseases need and the program helped me a lot to change my life style (ARI010170) I think we need more session about chronic diseases such as diabetes and CKD. Over all was very good (ABA200879) the program very useful just need more session on healthy way to lose weight (ARI010170)
Less theory and more practical exercises	Example of diet plan, real life example, video (ARI200260) As I am a hands on person, I would enjoyed more video and real life example of food items for a healthy lifestyle. However the facilitator was excellent and gave a clear and motivational lecture week after week (FAR310892) less theory and more practical exercises FAR240358
Additional topics for inclusion	it was good program but need more session about the most important physical activity for old people (ALK170976) I am not sure, but I think we should learn about the different types of preservatives and chemicals they add to our food, including fruits, veges, meat, milk and canned food. (MEA180546) few more about specialists in skin, eyes, foot etc would be helpful too. (PAR131269)
Timing	100% this program, but maybe next time could we change the time to the evening so the school kids could attend. Otherwise the conduct of this program is a 100%. Thank you very much. (MAG071168) Maybe next time we could change the time to 10am. (FUA150468) Maybe the next we have it we could have it in the evenings or the weekend (SLA090750) Maybe a different day for the next program so more people could attend (SAV140981) the program was a bit long if make one session on physical activity and two on healthy eating and two on different chronic diseases all 7 session ABD150660
Improving access to information	they can put the information on the internet to be able to reaching it every time (ALA090373)

For the facilitators the main areas to be changed are summarised in Table 18.

Table 18: Facilitator's reflections on changes to the program

Evaluation forms	Shorter and fewer evaluation questions
Practical demonstrations	Real serving sizes instead of plastic models Real cooking demonstration More exercises for participants I would use food cards next time
Summaries	Give out a one page summary (main points) with a reminder for the follow up session

Key Findings

Attendance at the eight week program was variable for some communities. This has been ameliorated by introducing four week by four hour program (run fortnightly) in addition to the eight week by two hour program (run weekly). In addition, using telephone and text messaging to keep participants engaged and to consolidate behaviours is another recommendation.

Based on the feedback other recommendations for improvement include:

- **Shortening the evaluation**
- **Providing participants with a one page summary each week**
- **Including more experiential activities**

Section 3: Impact of the program

Impact – knowledge

This part of the report responds to the question "How well did we do?" The pre and post questionnaire asked seven multiple choice questions relevant to each session of the program. The questions were recoded to be correct or incorrect and converted to a summated score. Six of the seven questions were coded giving a total possible score of 6.0.

Overall knowledge increased from an average score of 1.96 (SD 1.38) prior to the program to a score of 5.0 (SD 1.33) after the program. This increase was significant ($p<0.001$, 95%CI 2.89 – 3.19). The most difficult questions prior to the program commencing related to the recommended number of vegetable serves per day (Question 5.4) (18.9% correct); vegetable serve sizes (Question 5.5)(12.2% correct); and labelling (Question 5.6) (16.2% correct). After the program, the proportion of correct answers for these three questions increased significantly ($p<0001$), to 79.7%, 71.5% and 79.7% for questions 5.4, 5.5 and 5.6 respectively.

At baseline, the mean knowledge scores are significantly different across cultural groups (p-value <0.001). In particular, the Sri-Lankan group had the highest mean score of 2.44 (SD 1.42; 95% CI: 2.11 – 2.78), followed by the Pacific Islander with 2.15 (SD 1.31; 95%CI: 1.91 – 2.39), the Arabic-speaking 2.09 (SD 1.49; 95%CI: 1.82 – 2.36) and the Vietnamese groups 2.09 (SD 1.13; 95% CI: 1.82 – 2.36). The Afghani, Bhutanese and Myanmar (Burmese) groups had mean scores below 2, with 1.08 (SD 1.13, 95%CI: 0.70 – 1.47), 1.73 (SD 1.12, 95%CI: 1.28 – 2.18) and 0.63 (SD 0.9, 95%CI: 0.28 – 0.98) respectively.

At week eight, the differences between the knowledge scores between communities were still significant ($p<0.001$). The Arabic-speaking group correctly answered most of the six questions, with a mean score of 5.70 (SD 0.50, 95% CI: 5.61 – 5.79, $p<0.001$), followed by the Vietnamese with 5.57 (SD 0.8, 95% CI: 5.38 – 5.75, $p<0.001$). All eight communities had significant increases in mean scores from the beginning of the program to the end of the program. Post program, the Pacific and South Sea Islanders, the Sudanese/Somali and the Afghani groups had mean scores of 5.06 (SD 1.1, 95% CI: 4.49 – 5.06, $p<0.001$), 4.95 (SD 1.6, 95%CI: 4.56 – 5.27) and 4.92 (SD 1.4, 95%CI: 4.46 – 5.37). The Sri-Lankan group had a mean score of 4.36 (SD 1.5 95% CI: 4.03 – 4.73), which improved by 2 units on average ($p<0.001$). The Bhutanese group had the least increase in knowledge with an increase of 1.1 units on average. See Table 19 and Figure 6 for a summary.

Table 19: Mean knowledge scores pre and post program by community

Community	N	Baseline	Week 8	p-value
		Mean knowledge score (SD)	Mean knowledge score (SD)	
Afghani	36	1.08 (1.1)	4.92 (1.4)	<0.001
Arabic-speaking	118	2.09 (1.5)	5.70 (0.5)	<0.001
Bhutanese	26	1.73 (1.1)	2.81 (1.5)	<0.01
Myanmar (Burmese)	27	0.63 (0.9)	4.41 (0.7)	<0.001
Pacific Islanders	118	2.16 (1.3)	5.06 (1.1)	<0.001
Sri-Lankan	72	2.44 (1.4)	4.36 (1.5)	<0.001
Sudanese/ Somali	83	1.84 (1.4)	4.95 (1.6)	<0.001
Vietnamese	67	2.09 (1.1)	5.57 (0.8)	<0.001

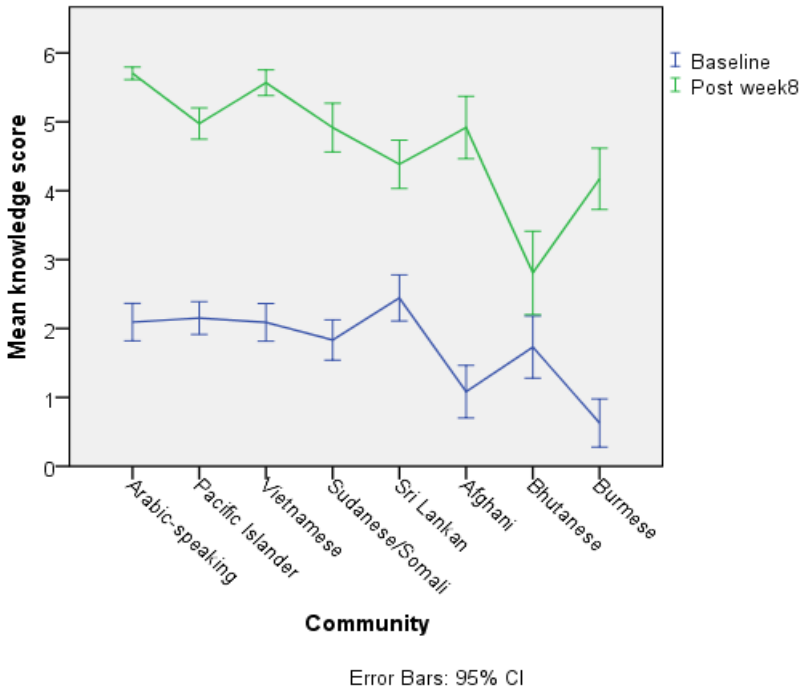

Figure 6: Changes in mean knowledge score

Qualitative responses

Participants were also asked at the end of each session "what did you learn" and then at the end of the program at week 8 and 14 "what is the main thing you learned from the program. The responses at the end of each session reflected the content of the session and reflected accurate, evidence-based information. These responses are summarised in Appendix C.

The participants identified a range of learnings from their participation and these can be broadly divided into eight core themes: chronic disease; a combination of healthy diet and physical activity has positive effects on health; eating a healthy and balanced diet; the benefits of physical activity; the impact of alcohol and smoking on health; self-care but with benefits for the whole family; small changes and short term goals lead to longer term change; and accessing the Australian healthcare system.

Chronic disease

Participants identified learning about chronic disease generally and more specifically about prevention, risk factors and causes, and the impact of diet and physical activity.

> *I have learn many important things. Mainly to reduce the risks that would affect you from chronic diseases. (ALO050952 Week 8)*
>
> *I know how to live now. I know the causes of chronic non-communicable diseases, and ways to prevent myself from getting them. (AUT220666 Week 8)*
>
> *I understand that I need to look after myself in term of healthy eating, exercise and prevent chronic disease (NGU 201243 Week 8)*
>
> *how can I protect my self and family from chronic diseases (HUS101278 Week 14)*
>
> *how … to prevent future health risks by eating clean and being active (ALI010766 Week 14)*

A combination of healthy diet and physical activity has positive effects on health

Participants identified that physical activity and healthy eating were the cornerstones of a healthy lifestyle.

> *that physical activity and healthy food have significant impact on health and with managing those two can control our health (ARI200260 Week 8)*
>
> *the main thing that I have learned is that a combination of physical activity and good diet is way of healthy lifestyle. So one food type or healthy food is not enough but physical activity is also required (FAR261194 Week 8)*
>
> *Combine healthy eating and physical activity will give to you a good health status… (DO 080537 Week 8)*
>
> *Food is the main killer. Be very careful and aware of your diet and how it will affect your health (SIO150848 Week 8)*
>
> *I start looking after my health by following a healthy diet and stop soft drink (ALA040879 Week 8)*
>
> *The importance of a balanced diet, and trying not to be overweight. (FUA150468 Week 14)*
>
> *achieving a healthy lifestyle involves a good diet and adequate physical activity (FAR080695 Week 14)*

Eating a healthy and balanced diet

Participants identified a range of aspects regarding a healthy, balanced diet. This included incorporating more fruit and vegetables, limiting fat and salt intake, eating balanced meals, and reducing food portions. This also included food safety, reading food labels, healthy cooking and planning meals.

> *eating food that have less fat as well as amount of the food and it is type (less fat little red meat (MAH020982 Week 8)*
>
> *I learn many new things from this program. I learn about the foods to avoid and the foods me and my family should eat more of. My kids used to complain about the changes I made (wholemeal bread, and more veges in school lunches) , but now they seem happy. (LEF310155 Week 8)*
>
> *I know the types of food to eat more of and the types of food to avoid. (SAV140981 Week 8)*
>
> *The advice I have received on types of food.. and cutting down on food portions (MUA280351 Week 8)*
>
> *Better to eat healthy food every day/eat more vegi and fruits also nuts/avocado is good cholesterol food and it will help to remove the bad cholesterol from our body (PIR 201181 Week 8)*
>
> *Being aware of the amount of sugar, salt, and fat content in foods, and more conscious when choosing foods while shopping. Portion control at meal times (MAT080365 Week 8)*
>
> *… how to prevent … food poisoning (HAS030277 Week 8)*
>
> *… information, on better dietary and cooking habits (THO100869 Week 8)*
>
> *Healthy shopping habits. We … understand the correct food from nutrition panel/labelling (LIY091178 Week 8)*
>
> *The important thing for me is I learn what foods to eat more of, and the foods I should avoid (LEI151160 Week 14)*
>
> *always buying wholemeal and brown products including vegies, fruits, carbs, drinks etc in my diet and learning about serving size (HAS010185)*
>
> *I am absolutely certain of the importance of planning your diet and meals properly, so you could achieve good health (SAM210156 Week 14*)

The benefits of physical activity

Participants identified the positive effects of physical activity, the importance of increasing physical activity and maintaining its regularity.

> *… Exercise make your muscle, bone and joint stronger (VO 160956 Week 8)*
>
> *I learnt a lot. Basically I learn to … do some exercise (AIS081064 Week 8)*
>
> *… Exercise 60 minutes/day (VO 241168)*
>
> *…exercise to be active always (SIV 280575 Week 14)*
>
> *… exercises is considered any activity that raises your heart beat (AMI210594 Week 14)*
>
> *you don't need to go to gym to be healthy 30 minutes is also effective (SIT121195 Week 14)*

The impact of alcohol and smoking on health

The advice I have received on … cutting down on … alcohol consumption (MUA280351 Week 8)

Impacts of smoking and alcohol (BAK120184 Week 8)

Don't smoke alcohol and reduce alcohol intake (BUI 041071 Week 8)

… the impact of smoking and alcohol on the immune system (MOH241195 Week 14)

Self-care but with benefits for the whole family

Participants identified the importance of self-care generally and more specifically the importance of managing asthma, stress and blood pressure and the importance of sleep on health. There was also recognition that looking after yourself, extended to family and community.

I understand that self care is important. I need to look after myself in term of nutrition, chronic disease management (NGU 080650 Week 8)

It has generated good thoughts for me to look after my health (ALO050952 Week 14)

I learn how to look after myself… (SIO070648 Week 14)

How to deal/cope with asthma attack (HOA 290779 Week 8)

How … to have good sleep (SAM110953 Week 8)

how to … maintain my blood pressure (SAM110953 Week 8)

manage your stress (ATU230467 Week 8)

how can I protect my self and family from chronic diseases (HUS101278 Week 14)

… share with my family, church and community (LEA300851 Week 14)

Small changes and short term goals lead to longer term change

Some of the participants articulated the importance of making small changes that were doable to lead to bigger, long term changes.

Setting short term goals - weekly - is helpful in achieving my goals - easier and makes time fly (MAT080365 Week 8)

Accessing the Australian healthcare system

I also understand about the health systems and what specialist doctors do (MEA280251 Week 8)

… benefits of health card/where to get help in case of emergency (SAT160176 Week 8)

I learnt … my rights (ABD 010187 Week 8)

Key Findings

The LWM-LMP significantly increased knowledge of health behaviours across all cultural groups.

Impact - behaviours

This part of the report also responds to the question “How well did we do?” and investigates changes to specific behaviours.

Physical activity

Overall the eight week program increased participants’ self-reported physical activity with 66.5% participants classified as active at the beginning of the program increasing to 89.8% of participants at the end of the program (p<0.001). At baseline, 33.5% participants were classified as non-active (did not meet the guideline) and after the program, this figure decreased to 10.2%. See Figure 7.

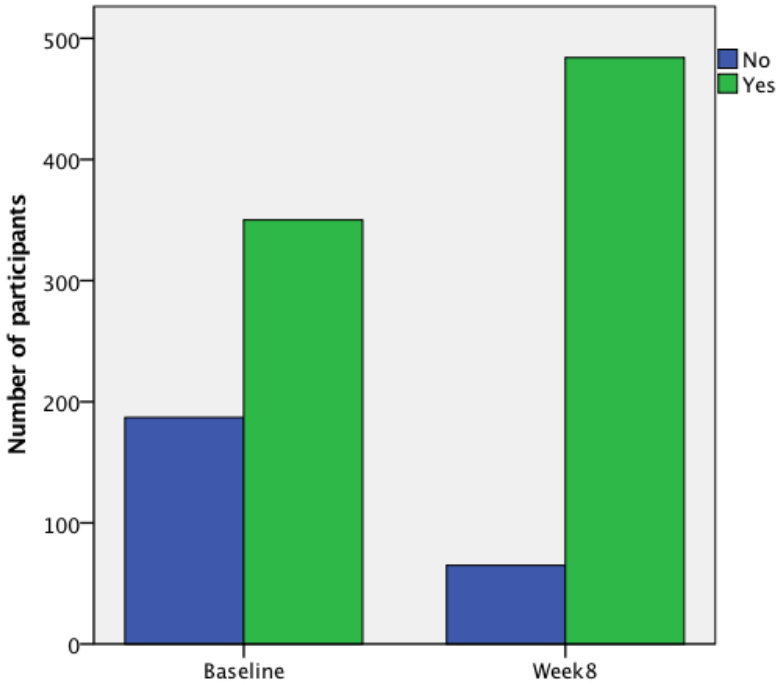

Figure 7: Physical activity at baseline (n=537) and at the end of program (n=549)

Activity levels at baseline varied significantly between communities (p<0.001) (see Figure 8). The most active participants were the Vietnamese with 83.6% meeting the physical activity guideline. This was followed by the Sudanese/Somali, the Bhutanese and the Afghan participants where 74.1%, 72.7% and 72.2% were identified as active, respectively. Myanmar (Burmese) participants were the least active with 37.0% meeting the guidelines.

After the program, Arabic-speaking (p<0.001), Pacific and South Sea Islander (p<0.001), Vietnamese

(p<0.01), Sri-Lankan (p<0.001), Afghani (p<0.05), Bhutanese (p<0.01) and Myanmar (Burmese) (p<0.05) participants had significant increases in physical activity. The Sudanese/Somali group did not show a significant increase – there were nine participants (11.1%) indicating they were active at the start of the program but not active at the end of the program. This could be due to an initial lack of understanding regarding the physical activity questions. The Active Australia questions caused significant confusion among some community groups with the distinction between moderate and vigorous difficult to convey. Further research needs to be undertaken on validating physical activity questions for ethnic communities in Australia to ensure accurate representation of physical activity levels.

After the program at week eight, the proportion of participants being active ranged from 65.5% to 100% for all communities (see Figure 9 and Table 20).

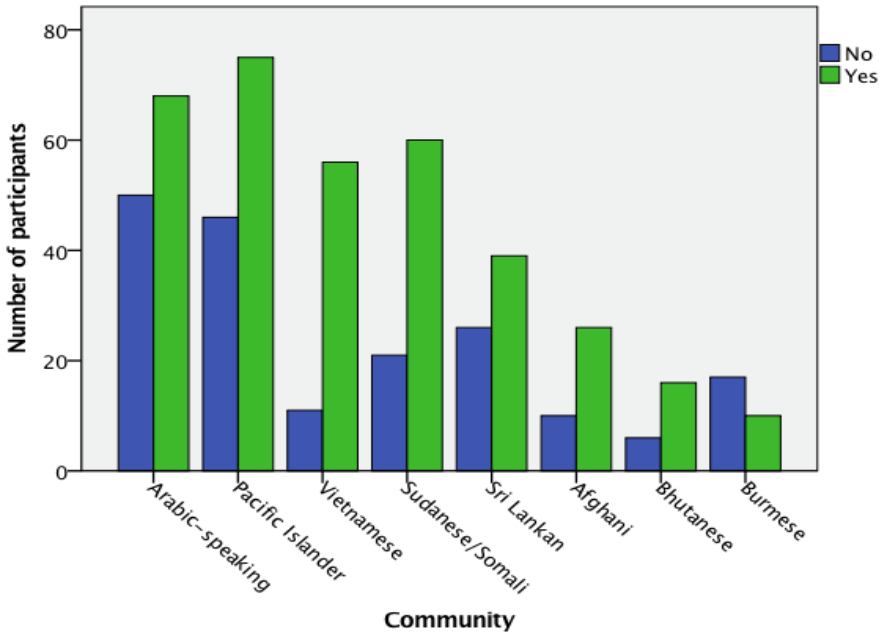

Figure 8: Meeting physical activity guidelines across cultural groups at baseline (n=537)

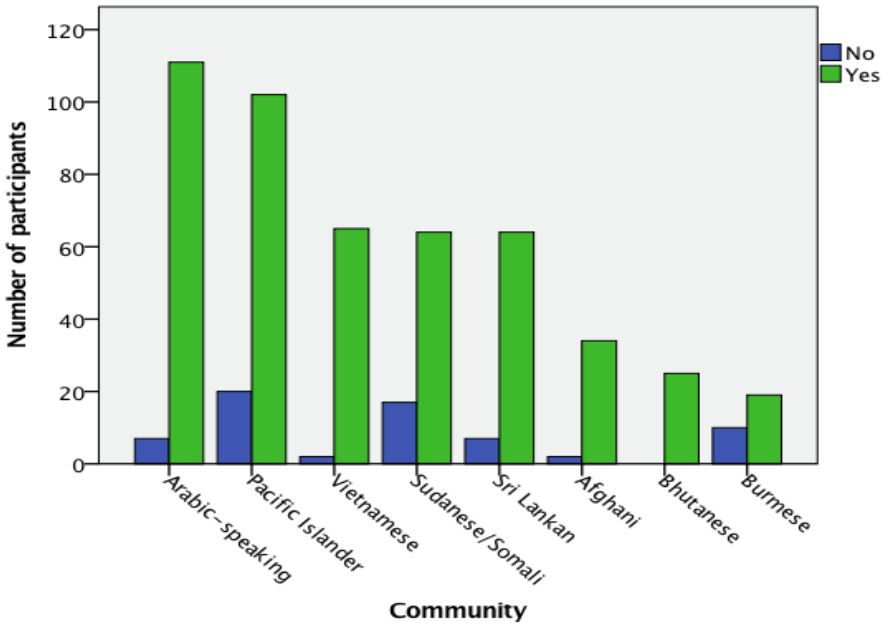

Figure 9: Meeting physical activity guidelines across cultural groups at the end of program (n=549)

Table 20: Changes in proportion of participants being active in physical activity at baseline and week eight by community

Community	Baseline % (n) active participants	Week 8 % (n) active participants	p-value
Afghani	72.2 (36)	94.4 (36)	<0.05
Arabic-speaking	57.6 (118)	94.1 (118)	<0.001
Bhutanese	72.7 (22)	100 (25)	<0.01
Pacific and South Sea Islander	62.0 (121)	83.6 (122)	<0.001
Myanmar	37.0 (27)	65.5 (29)	<0.05
Sri-Lankan	60.0 (65)	90.1 (71)	<0.001
Sudanese/ Somali	74.1 (81)	79.0 (81)	0.45
Vietnamese	83.6 (67)	97.0 (67)	<0.001

Participants were also asked to self-report their perceptions regarding their level of activity through the question “How does your level of activity now compare to 12 months ago?” This allows a comparison with perceived previous activity levels and what changes have been prior to the program and then what was achieved by the program. At baseline, 30.4% of participants indicated they were doing significantly less or a little less than 12 months ago; 41.6% were doing about the same levels of activity; and 28.0% were doing more or significantly more. After the program the proportion of participants indicating they were doing more or significantly more physical activity increased to 77.6% (p<0.001). See Figure 10.

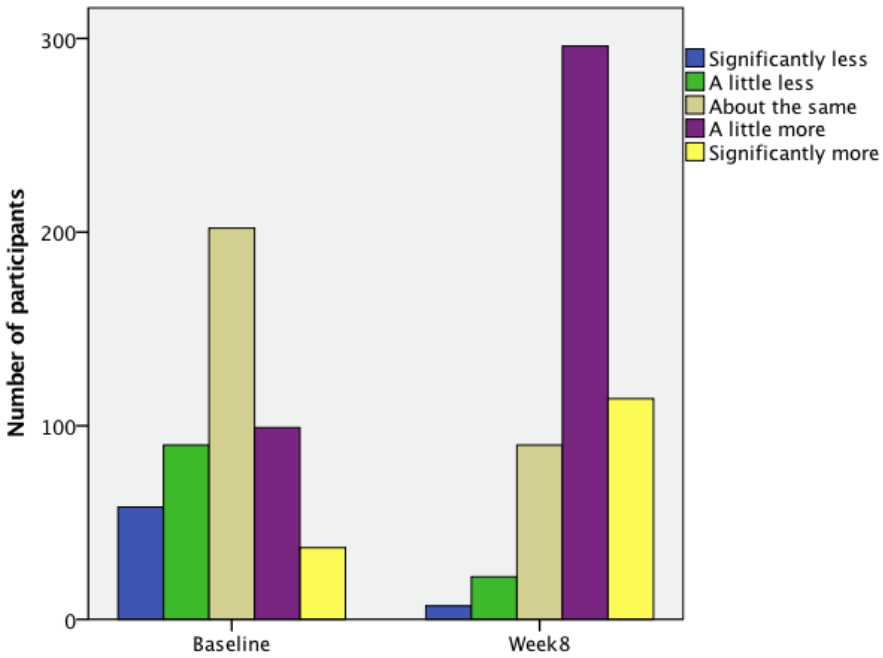

Figure 10: Perception of physical activity levels at baseline (n=486) and at the end of program (n=529)

At baseline, the Pacific and South Sea Islander groups had the largest number of participants who perceived they were less active (42.9%) followed by the Afghani (33.4%), Sudanese/Somali (32.5%), Arabic-speaking (31.4%) and the Bhutanese with 28.6%. After the program, a vast majority of participants perceived that they were doing more physical activity with the Afghani, Sudanese/Somali, Vietnamese, Arabic-speaking and Sri Lankan participants showing the greatest increases in perception of physical activity (p=0.01). There was no participant who identified as being “significantly less active” in the Vietnamese, Sudanese/Somali, Afghani, Sri-Lankan, Bhutanese and Myanmar (Burmese) groups. See Figures 11 and 12.

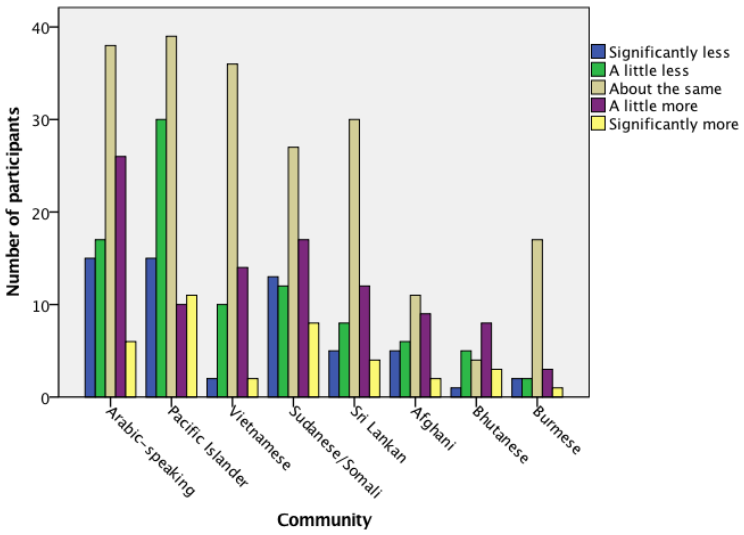

Figure 11: Physical activity perception across cultural groups at baseline (n=486)

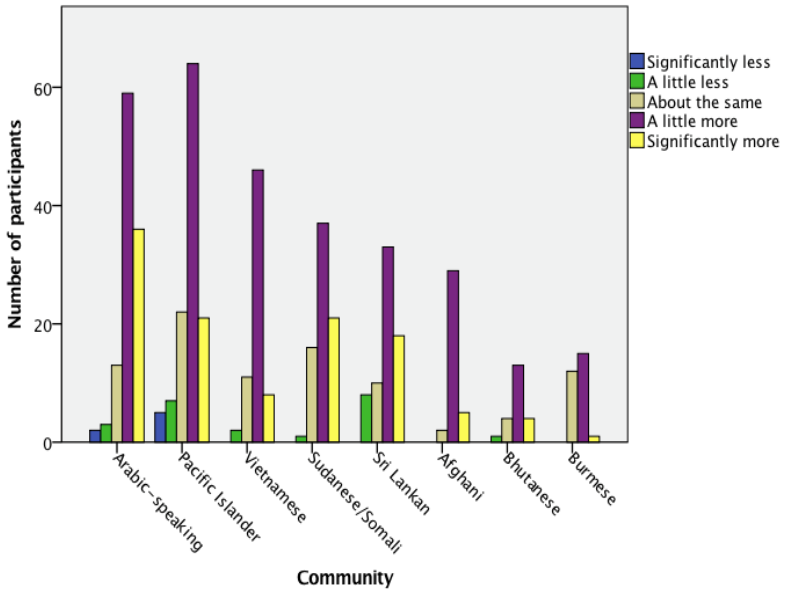

Figure 12: Physical activity perception across cultural groups post-program (n=529)

Were physical activity behaviours able to be sustained?

When exploring if participants were meeting the guideline for physical activity, at the first follow up there was a slight increase but generally physical activity was maintained with 90.5% (n=432) and 92.1% (n=432) meeting the guideline at weeks 8 and 14 respectively. See Figure 13.

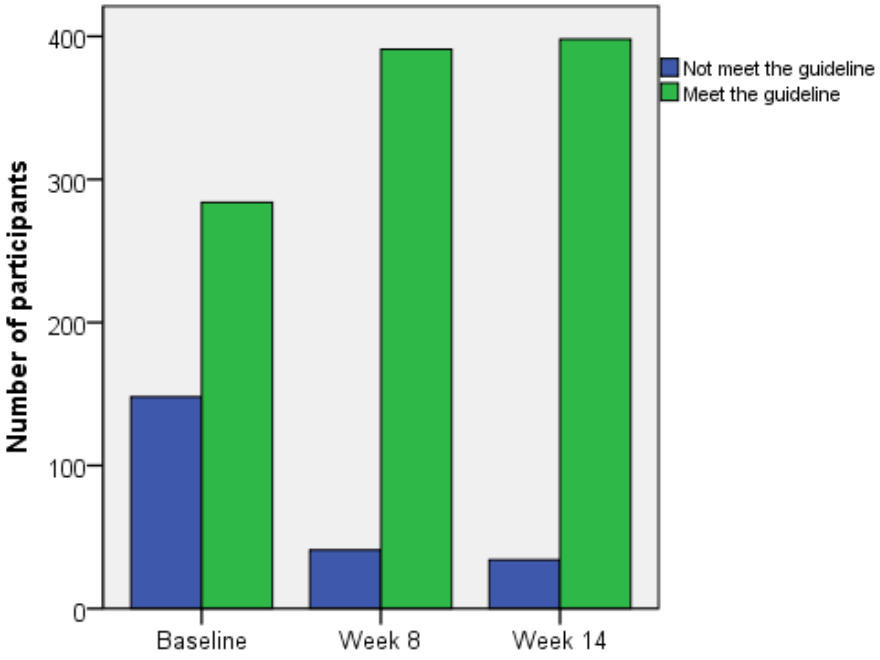

Figure 13: Physical Activity at follow up (%)

Key Findings

Participants were significantly more active at the end of the LWM-LMP with those meeting physical activity guidelines increasing from 66.5% to 89.8% and this increase was sustained at follow up. All communities except the Sudanese/Somali group demonstrated significant increases in physical activity.

Eating behaviours

Eating behaviours assessed included: fruit consumption; vegetable consumption; full fat milk consumption; processed meat consumption; and discretionary food consumption including fast food/takeaway, hot chips/fries, salty snacks, sweet snacks and soft drink. Fruit and vegetable consumption are positive behaviours associated with lower chronic disease. Full fat milk consumption has been used as a proxy for saturated fat intake. Processed meat consumption was included as the intake among some communities is known to be high and there is an association with some cancers. Discretionary food consumption or consumption of energy dense-nutrient poor foods is known to be associated with higher chronic disease risk and incidence.

Fruit consumption

The guideline for fruit consumption is two serves per day. Participants were categorised into two groups – meeting the guideline (two or more serves per day) and not meeting the guideline (less than two serves of fruit per day).

The results indicate that participants' consumption of fruit improved significantly after the program ($p<0.001$). At baseline, the proportion of participants meeting the guideline was 52.5%. After the program, 73.3% of participants met the guideline (See Figure 14o).

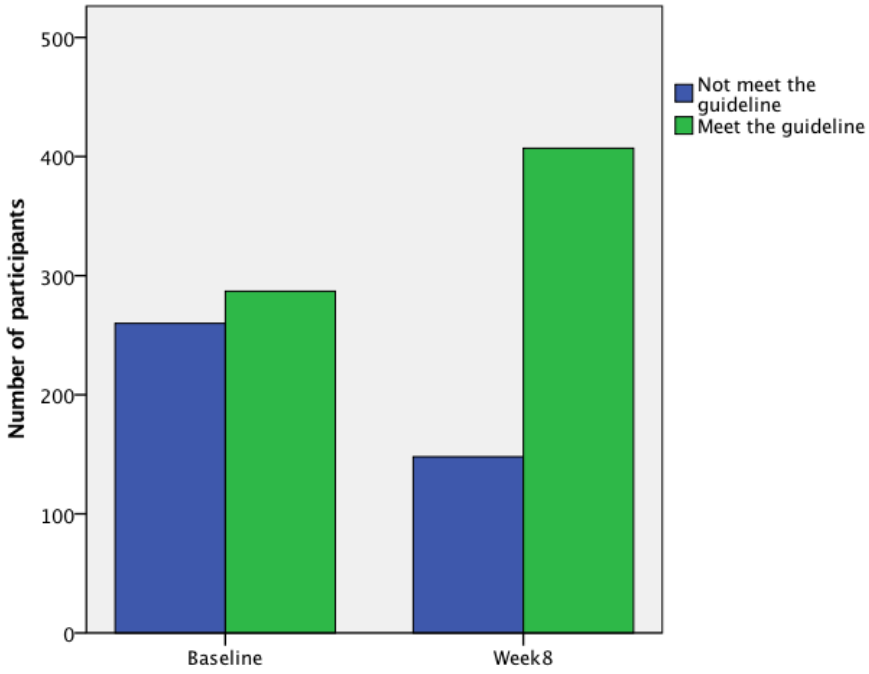

Figure 14: Fruit consumption at baseline (n=547) and at the end of program (n=555 cases)

At baseline, the proportion of participants that meet the guideline is significantly different across the eight cultural groups (χ^2, $p<0.001$). Vietnamese participants are more likely to meet the guideline, 88.1% (59/67), while Sri-Lankan and Sudanese/Somali participants are the least likely, 37.1 % (26/70) and 37.8% (31/82) respectively. More than half of the Pacific and South Sea Islander (54.2%), the Afghani (58.3%), Bhutanese (53.8%) and Myanmar (Burmese) (53.6%) participants met the fruit guideline. After the program, at week eight, the Arabic-speaking ($p <0.001$), Pacific and South Sea Islander ($p <0.01$), Sudanese/Somali ($p<0.05$), the Sri-Lankan, the Bhutanese ($p<0.05$) and the Myanmar (Burmese) groups ($p <0.05$) all showed a significant improvement in fruit consumption (See Table 21).

Table 21: Changes in proportion of participants meeting the fruit guideline at baseline and week eight by community

Community	% meeting the guideline (n)		p-value
	Baseline	Week 8	
Afghani	58.3 (36)	75.0 (36)	0.13
Arabic-speaking	47.5 (118)	73.7 (118)	<0.001
Bhutanese	53.8 (26)	84.6 (26)	<0.05
Myanmar (Burmese)	53.6 (28)	79.3 (29)	<0.05
Pacific and South Sea Islander	54.2 (120)	76.2 (122)	<0.001
Sudanese/ Somali	37.8 (82)	55.0 (85)	<0.05
Sri-Lankan	37.1 (70)	66.7 (72)	<0.001
Vietnamese	88.1 (67)	89.6 (67)	0.78

For the Vietnamese group, where most of the participants were already meeting the fruit guideline, only six participants improved to meet the guideline at week eight while five participants dropped from meeting the guideline to not meeting the guideline (see Figures 15 and 16).

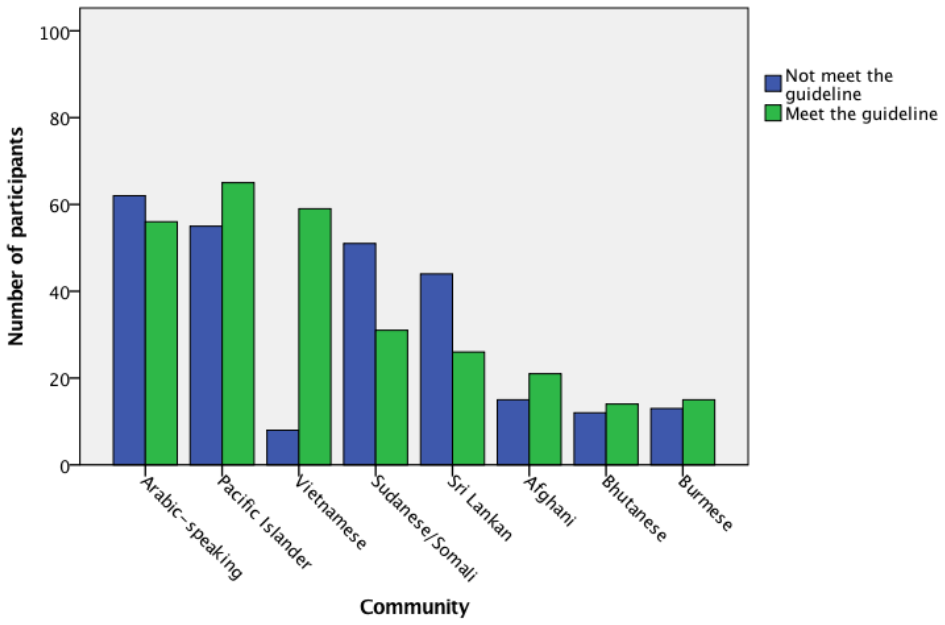

Figure 15: Fruit consumption across cultural groups at baseline (n=547)

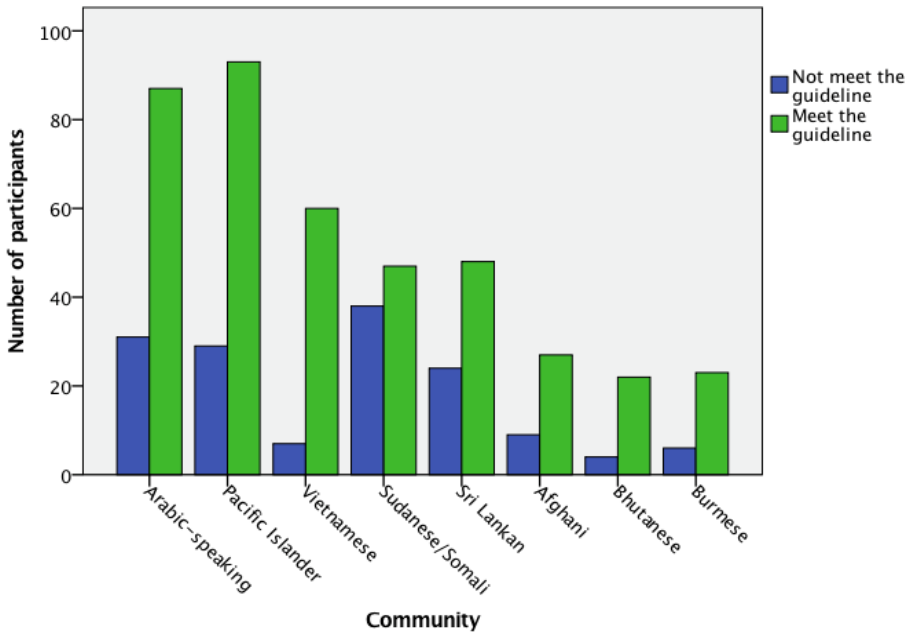

Figure 16: Fruit consumption across cultural groups at baseline (n=555)

At follow-up the number of participants meeting the fruit guideline continued to increase except for the Pacific and South Sea Islander participants who were unable to sustain this behaviour. This is described in more detail in the section below.

Vegetable consumption

The guideline for vegetable consumption is five serves per day. Participants were categorised into two groups – meeting the guideline (five or more serves per day) and not meeting the guideline (less than five serves per day).

The proportion of participants that met the guideline for vegetable consumption increased significantly after the program, from 5.7% (n=545) to 17.1% (p< 0.001) (n=554). However, a large number of participants (82.9%) still did not meet the vegetable guideline (see Figure 17).

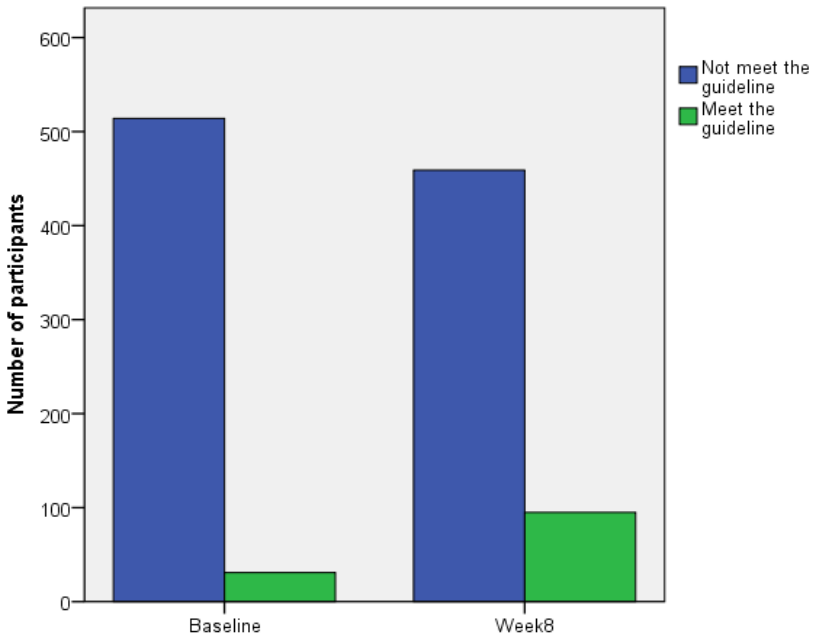

Figure 17: Vegetable consumption at baseline (n=545) and at the end of program (n=554)

When reviewing vegetable consumption for each community group – the proportion of participants not meeting the guideline is similar across all groups (range from 91.0% - 100%). After the program, the Arabic-speaking (p<0.01), Pacific and South Sea Islander (p<0.01) and Sudanese/Somali (p<0.001) groups had a significant improvement in vegetable consumption, while other communities had only slight improvements which were not significant (see Figures 18, 19 and Table 22). The differences between communities at baseline were not significant but were after the program (p<0.001).

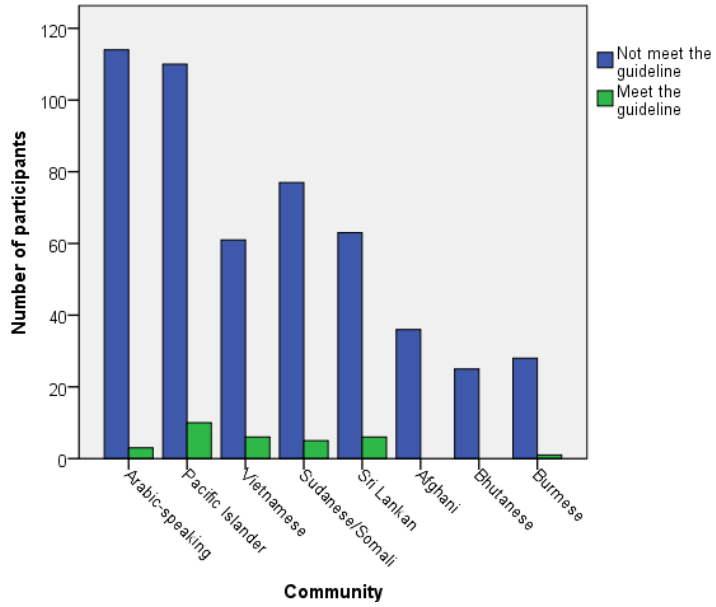

Figure 18: Vegetable consumption at baseline (n=545)

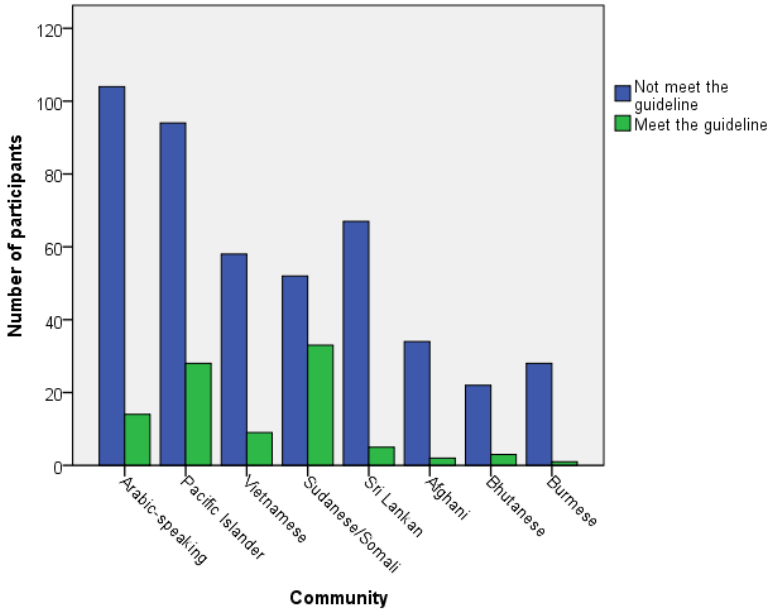

Figure 19: Vegetable consumption at post week 8 (n=554)

Table 22: Changes in proportion of participants meeting the vegetable guideline at baseline and week eight by community

Community	% meeting the guideline (n)		p-value
	Baseline	Week 8	
Afghani	0.0 (36)	5.6 (36)	0.15
Arabic-speaking	2.6 (117)	11.9 (118)	<0.01
Bhutanese	0.0 (25)	12.0 (25)	0.07
Myanmar (Burmese)	3.4 (29)	3.4 (29)	1.00
Pacific and South Sea Islander	8.3 (120)	23.0 (122)	<0.01
Sri-Lankan	8.7 (69)	6.9 (72)	0.69
Sudanese/ Somali	6.1 (82)	38.8 (85)	<0.001
Vietnamese	9.0 (67)	13.4 (67)	0.41

At week 8, for 543 participants, for whom there was full data available, 98 participants (18.0%) increased their intake by one serve, 119 participants (21.9%) increased by two serves and 140 participants (25.8%) increased by more than 3 serves. In total 65.7% participants increased their vegetable intake, with the remainder of participants either unchanged or slightly reducing their intakes. For each cultural group, more than 60% of participants in Arabic-speaking (79.3%), Pacific Islanders (60.0%), Sudanese/Somali (65.9%), Sri Lankan (64.7%), Afghani (72.2%), Bhutanese (80.0%) and Myanmar (Burmese) (72.4%) groups increased their intakes by more than a serve. The Vietnamese group only had 41.8% of participants with increased intake.

So while participants were not meeting the guideline for vegetable intake there was a noticeable increase in vegetable consumption. Consideration needs to be given to other targeted activities to increase vegetable intake to meet guidelines within each community. The LWM-LMP has significantly increased the number of serves of vegetables but additional time is required to increase the number of serves to meet guidelines.

Key Findings

The LWM-LMP significantly improved fruit and vegetable consumption:

- **Those meeting the fruit guideline increased from 52.5% to 73.3%**
- **The lowest consumers of fruit at baseline were the Sri Lankan community**
- **Afghani participants had the greatest improvement in fruit consumption**
- **Meeting the fruit guideline continued to improve for all communities except for Pacific and South Sea Islander participants at the completion of the program**
- **Those meeting the vegetable guideline increased from 5.7% to 17.1%**
- **65.0% of participants increased their vegetable intake by a minimum of one serve**
- **At baseline none of the Afghani or Bhutanese participants met the vegetable guideline**
- **Arabic-speaking, Sudanese/Somali and Pacific and South Sea Islanders had the greatest increase in vegetable consumption**
- **Vegetable consumption to meet the guideline was difficult to maintain for a majority of participants after completion of the program.**

Milk consumption

The type of milk consumed (low fat or full fat) has been used as a proxy for saturated fat intake. For CALD communities it is also important to determine those who do not drink milk. Milk consumption among adults is not common practice in many cultures that are not dairy-based. The proportion of participants not consuming milk at baseline and post-program was 9.5% and 7.3% respectively. Participants drinking low fat milk increased significantly from 27.3% to 65.8% by the end of the program ($p<0.001$) (see Figure 20).

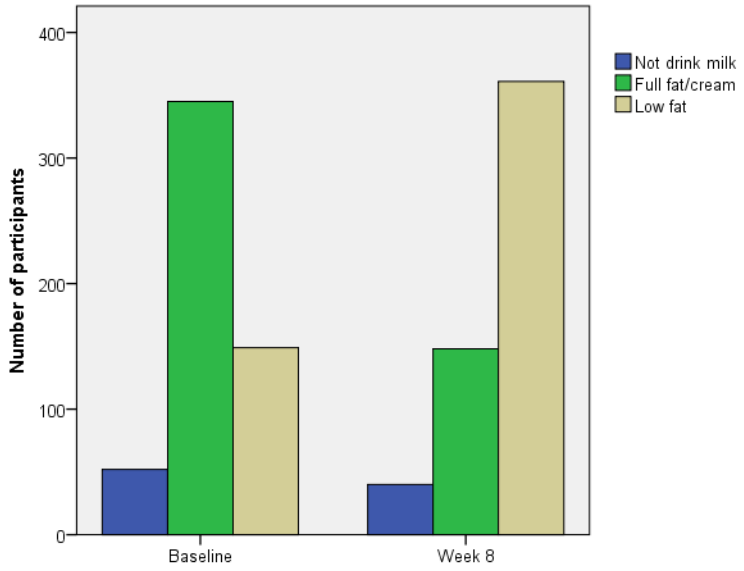

Figure 20: Milk consumption at baseline (n=546) and at the end of program (n=549)

When looking at the different communities the Myanmar (Burmese), Arabic-speaking and Sudanese/Somali participants had the highest proportions of participants not drinking milk at 34.5%, 17.8% and 8.8% respectively. The Sudanese/Somali, Afghani, Bhutanese, Pacific and South Sea Islanders and Arabic-speaking groups were more likely to drink full-cream milk at 78.8%, 77.8%, 69.2%, 67.5% and 66.1% respectively. At baseline, the proportion of participants drinking low fat milk is significantly different across cultural groups ($p <0.001$). In particular, the Sri-Lankan, Vietnamese and Pacific and South Sea Islander groups have 47.1%, 44.8% and 28.3% of their participants drinking low fat milk, while the Myanmar (Burmese), Bhutanese, Afghani, Arabic-speaking and Sudanese/Somali groups had 27.6%, 26.9%, 22.2%, 16.1% and 12.5% participants drinking low fat milk, respectively.

After the program, there is a significant increase in the number of participants drinking low fat milk across all groups except Myanmar (Burmese). The Arabic-speaking ($p<0.001$); Pacific and South Sea Islander ($p<0.001$); Vietnamese ($p<0.05$) Sri Lankan ($p<0.01$); Sudanese/Somali ($p<0.001$), Afghan ($p<0.001$) and Bhutanese ($p<0.05$) groups all increased their low fat milk consumption significantly (see Figures 21 and 22). In particular, a greater proportion of Pacific and South Sea Islander, Arabic-speaking and Afghan

participants switched to low fat milk. The proportions of participants in Afghani, Sri-Lankan, Pacific and South Sea Islanders, and Arabic-speaking drinking low fat milk at the end of the program was 85.3%, 75.0%, 73.8%, 70.3% respectively. There was a decrease in the number of Somali participants drinking low fat milk at the end of the program, again this is thought to be due to an increased understanding of the types of milks and understanding of the questions.

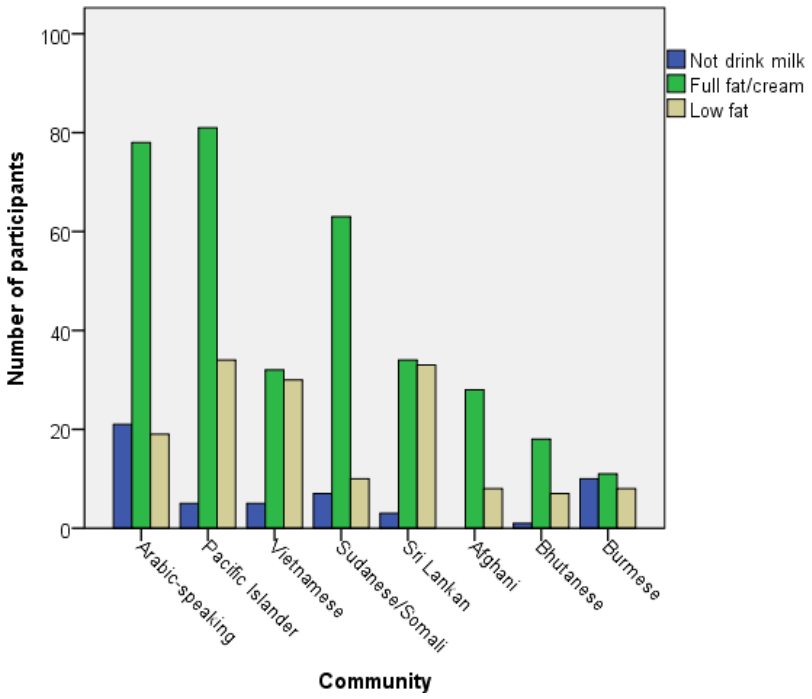

Figure 21: Milk consumption across cultural groups at baseline (n=546)

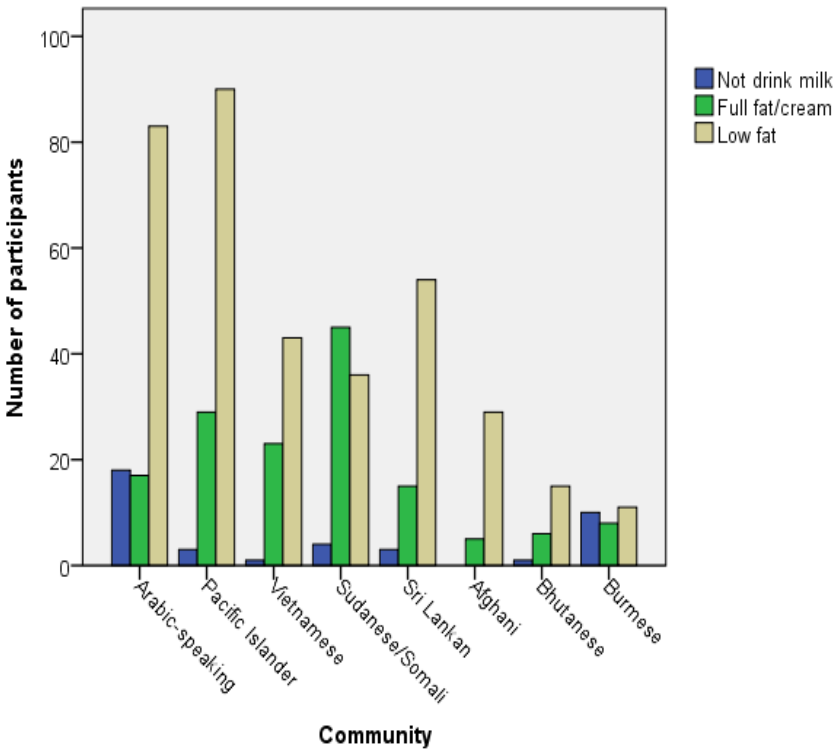

Figure 22: Milk consumption across cultural groups at Week 8 (n=549)

A majority of the participants were able to sustain this behaviour, however Pacific and South Sea Islander and Sudanese/Somali participants were more likely to revert back to full cream milk after the program had finished.

Processed meat consumption

The consumption of processed meats includes items such as sausages, tinned corned beef, camp pie, luncheon meat, salami and bacon. Responses for this question were grouped into three categories: never or rarely; once or twice a week; and >= 3 times per week. Respondents answering "I don't know" have been removed from the analysis.

Overall, the program significantly changed participants' consumption of processed meats ($p < 0.001$). The number of participants consuming processed meat very often (that is, three or more times per week) decreased from 20.2% to 5.9%. See Figure 23.

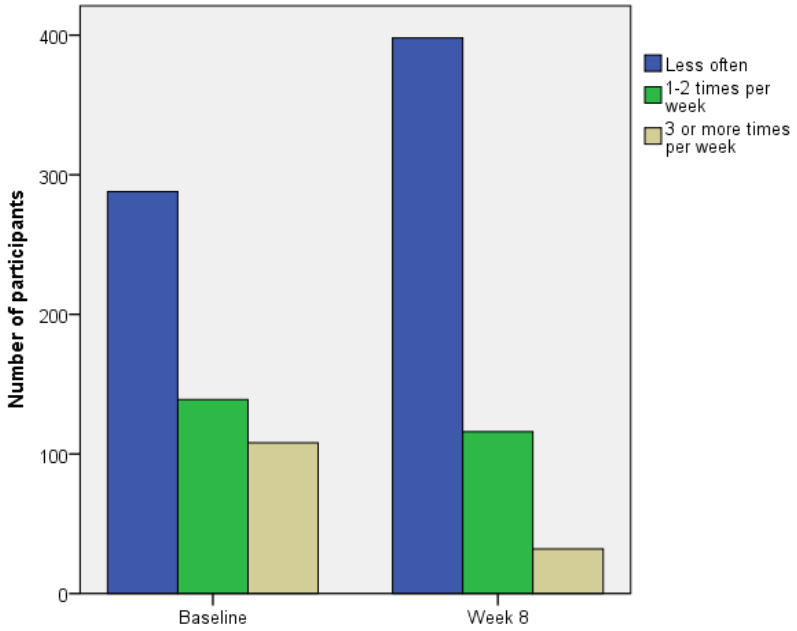

Figure 23: Processed meat consumption at baseline (n=535) and at the end of program (n=546)

At baseline, the consumption of processed meats was significantly different between cultural groups (p-value <0.001). Sudanese/Somali participants had the highest proportion of participants (36.6%) consuming processed meats three or more times per week, followed by the Pacific and South Islander at 27.5%; the Bhutanese 26.3%; 23.1% of the Arabic-speaking and 16.7% of the Afghani participants. There were no Vietnamese participants and only three Sri Lankan participants (4.6%) consuming processed meats this often.

After the program, all groups decreased their consumption of processed meats. The number of participants having processed meat three or more times per week decreased significantly in the Arabic-speaking ($p<0.001$), Pacific and South Sea Islander ($p<0.01$), Afghani ($p<0.05$), the Sudanese/Somali ($p<0.01$) and the Myanmar (Burmese) ($p<0.05$) participants. In the Arabic-speaking group, the proportion of participants having processed meats less often (that is less than once a week) increased from 53.0% to 84.7%. The number of Pacific and South Sea Islander participants consuming processed meats three or more times per week decreased by a half, 27.5% to 13.1%, given the consumption of processed meats as a cultural food in this group this could also be considered clinically significant. None of the Afghani and Myanmar (Burmese) participants consumed processed meats more than three times a week. The consumption of processed meats more than three times a week decreased by a half, 36.6% to 11.9% in the Sudanese/Somali community and the types of meats and the reason for consumption needs to be further investigated in this community. See Figures 24 and 25.

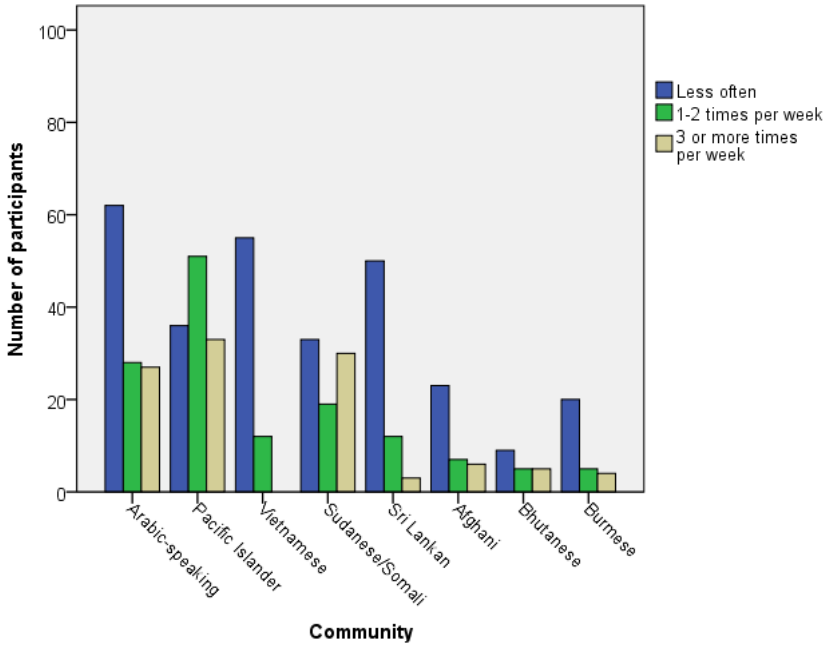

Figure 24: Processed meat consumption at baseline (n=535)

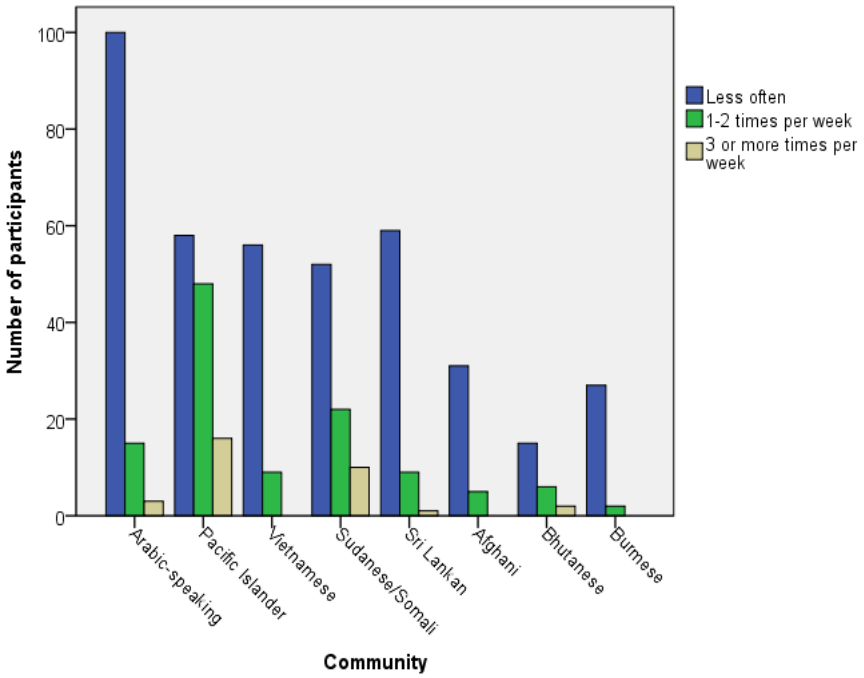

Figure 25: Processed meat consumption at the end of program (n=546)

After the program the decrease in processed meat consumption continued to improve for all community groups except for the Arabic-speaking participants.

Key Findings

The LWM-LMP significantly improved the consumption of low fat milk.

The LWM-LMP also significantly decreased processed meat consumption across all community groups. Those consuming processed meat three or more times per week decreased from 20.2% to 5.9%. Processed meat consumption was highest in the Sudanese/Somali, Pacific and South Sea Islander and Bhutanese participants at baseline.

Fast food/Takeaway consumption

This question relates to the consumption of discretionary food items and in conjunction with the questions regarding hot chips/fries, sweet and salty snacks, and soft drinks provides an indication of the consumption of energy-dense, nutrient-poor foods. Responses for this question were grouped into four categories: never or rarely; less than or about once a week; 2– 3 times per week = 2; and >= 4 times per week. Respondents answering "I don't know" have been removed from the analysis.

The frequency of participants having fast food/takeaway food reduced significantly after the program (χ^2 $p<0.001$). Those eating fast food/takeaway rarely or never increased from 25.1% to 35.7%. Participants consuming fast food/takeaway once a week or less increased from 56.3% to 59.5%. At week 8, there was only one participant (0.2%) consuming fast food four or more times per week (see Figure 26).

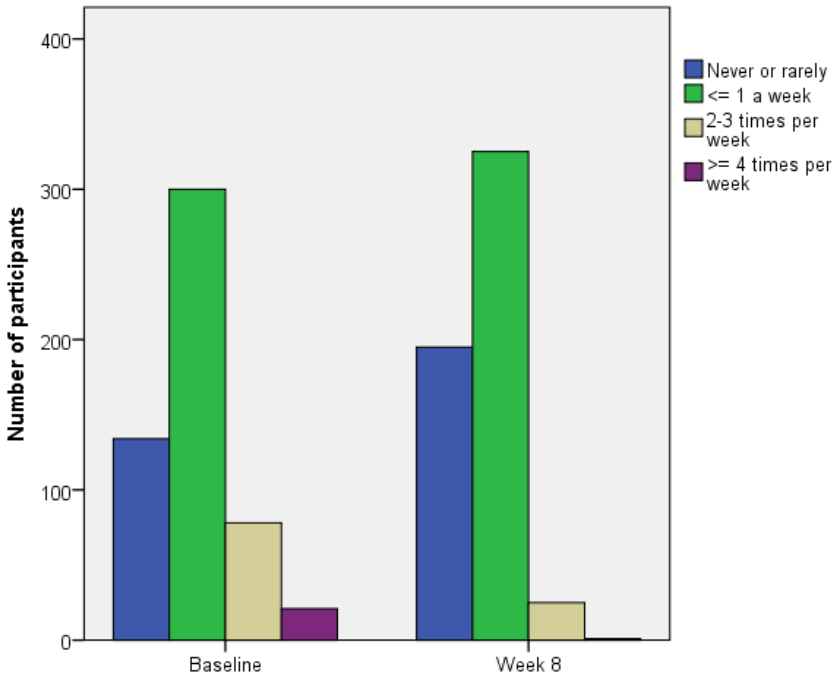

Figure 26: Fast food/takeaway food consumption at baseline (n=533) and at the end of program (n=546)

At baseline, the frequency of consuming fast food is significantly different across cultural groups ($p<0.001$). The Afghani, Pacific and South Islander, Sudanese/Somali, Arabic-speaking groups all had a large number of participants consuming fast food/takeaways more often (that is, more than two times per a week) at 30.6%, 28.8%, 24.4% and 21.1% respectively. The Sri-Lankan and Vietnamese groups only had 7.3% and 7.6% participants having fast food two or more times per week and no Vietnamese participants were consuming fast food four or more times per week. See Figure 27.

After the program at week eight, all participants in all communities had reduced their fast food/takeaway food consumption. The biggest change was in the Arabic-speaking group where consumption twice a week or more decreased from 21.1% to 2.6% ($p<0.001$), followed by the Afghani from 30.6% to 11.1%. However, the change in the Afghani group was not statistically significant. The Pacific and South Sea Islander groups consuming fast food once a week or less increased from 71.2% to 91.8%, with a majority consuming fast food once a week or less rather than rarely or never ($p<0.001$). This was followed by the Sudanese/Somali groups, where at baseline 75.6% were eating fast food/takeaway once a week or less increasing to 95.2% at after the program ($p<0.01$). The Sri-Lankan groups also had a significant increase from 92.7% to 95.9% ($p<0.05$), with the biggest shift being from once a week to rarely/never. There were no significant improvements in the Vietnamese, Afghani, Bhutanese and Myanmar (Burmese) groups. See Figure 28.

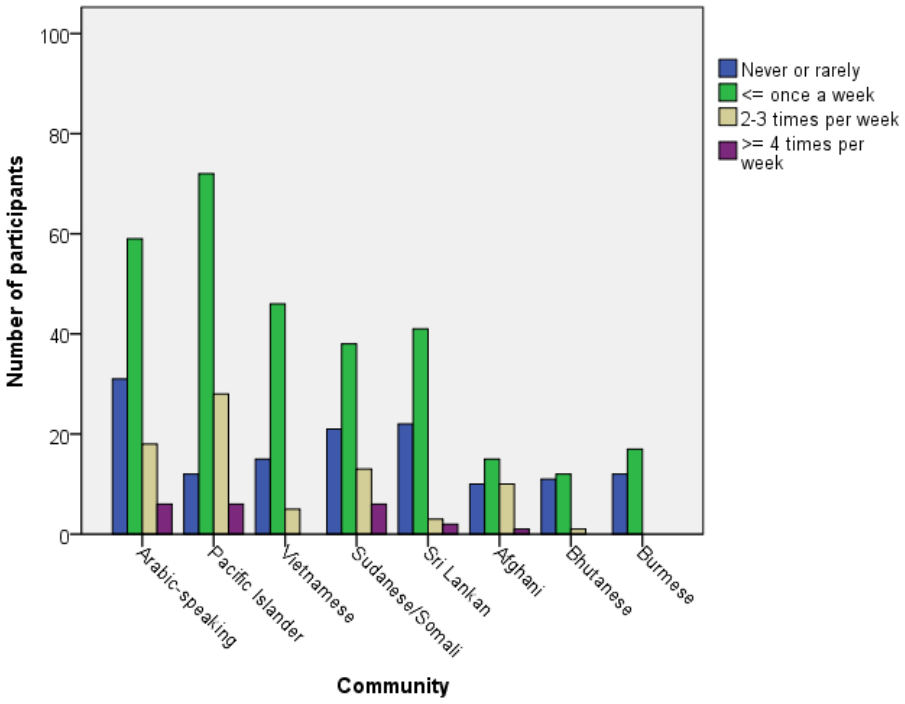

Figure 27: Fast food/takeaway consumption across cultural groups at baseline (n=533)

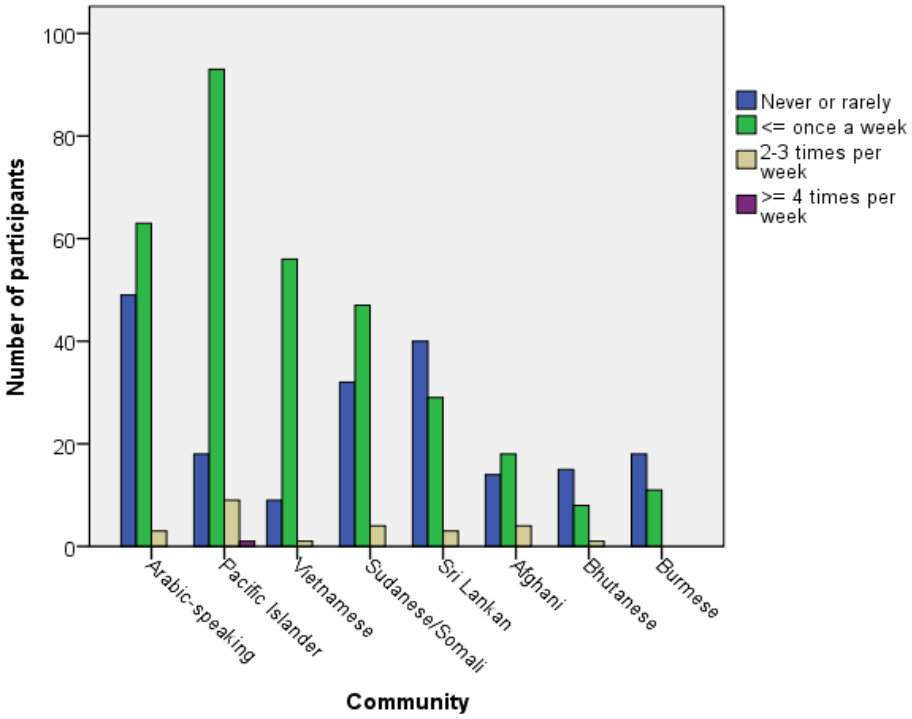

Figure 28: Fast food/takeaway consumption across cultural groups post-program at week 8 (n=546)

Hot chips/fries consumption

Hot chips/fries were asked separately from fast food/takeaway in order to attempt to capture the consumption of these foods as snacks as well as part of meals. This is corroborated by the fact that chips/fries were consumed two or more times per week by a quarter of participants (26.0%) while just over one-fifth (18.5%) were consuming fast food/takeaway two or more times per week. This question also includes more culturally specific items including fried taro, sweet potato, and cassava**.** Responses for this question were grouped into four categories: never or rarely; less than or about once a week; 2– 3 times per week = 2; and >= 4 times per week. Respondents answering "I don't know" have been removed from the analysis.

Overall, the frequency of participants consuming hot chips/fries was significantly reduced after the program (χ^2, p <0.001). After the program, the number of participants having hot chips two or more times per week dropped almost two-thirds, from 26.0% to 9.9%. Of note, was that after the program only one participant was consuming hot chips four or more times per week (at baseline this was 6.3% of participants) (Figure 29).

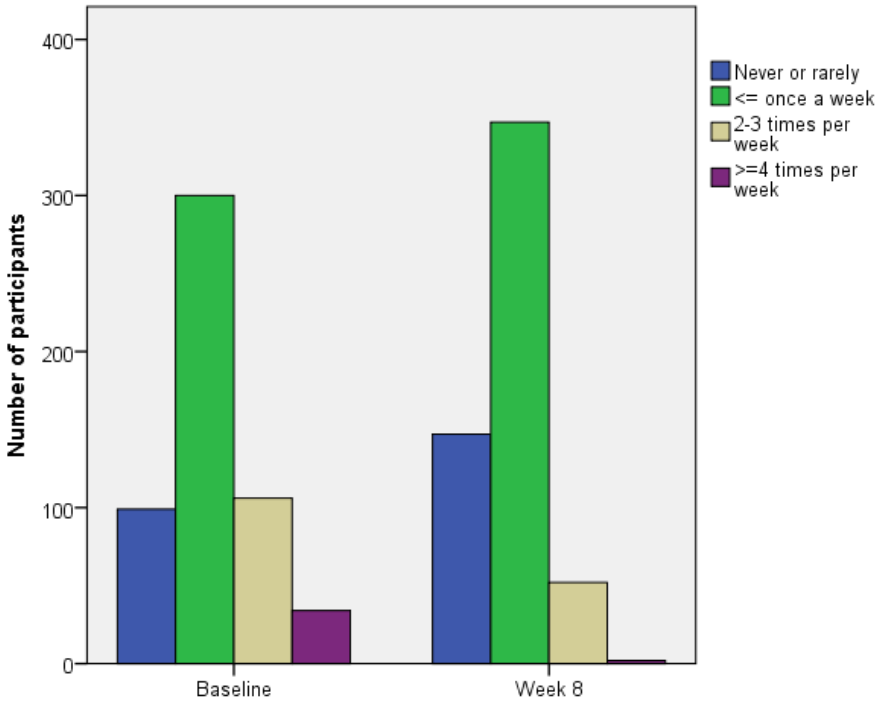

Figure 29: Hot chips/fries consumption at baseline (n=539) and after the program at week 8 (n=548)

At baseline, more Vietnamese (92.5%), Myanmar (Burmese) (86.2%), Sri-Lankan (82.6%), Sudanese/Somali (81.3%) Pacific and South Sea Islander (70.4%) participants were consuming hot chips once a week or less. The highest consumers of hot chips (twice or more a week) were the Afghani participants with 48.6%, followed by the Arabic-speaking (37.6%), the Pacific and South Sea Islander (29.6%), and the Bhutanese (33.3%) participants. The Arabic-speaking also had the highest proportion of participants consuming hot chips four or more times per week (12.0%). These variations were significant ($p<0.001$).

After the eight week program, only one Sri-Lankan and one Bhutanese participant was consuming chips four or more times per week and overall chip consumption had significantly decreased ($p<0.001$). The Arabic-speaking group had a significant improvement in chip consumption ($p<0.001$); with the number of participants having a high frequency of consumption (twice or more a week) reducing from 37.6% to 12.0%. The Pacific and South Sea Islander ($p<0.05$) and the Afghani ($p<0.05$) also show significant improvement, the proportion of highest consumers (twice or more a week) reduced from 29.6% to 14.8%, and from 48.6% to 13.9%, respectively.

Sudanese/Somali, Sri Lankan, Bhutanese and Myanmar (Burmese) groups all had improvements in chip consumption that were not statistically significant. The Vietnamese community had very minor change in chip consumption. See Figures 30, 31 and Table 23.

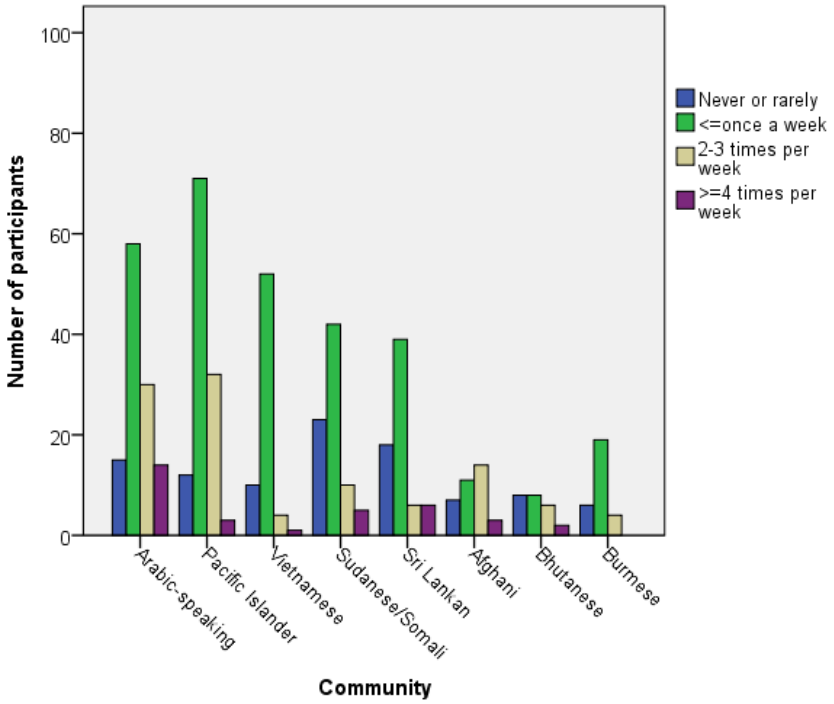

Figure 30: Hot chip consumption across cultural groups at baseline (n=539)

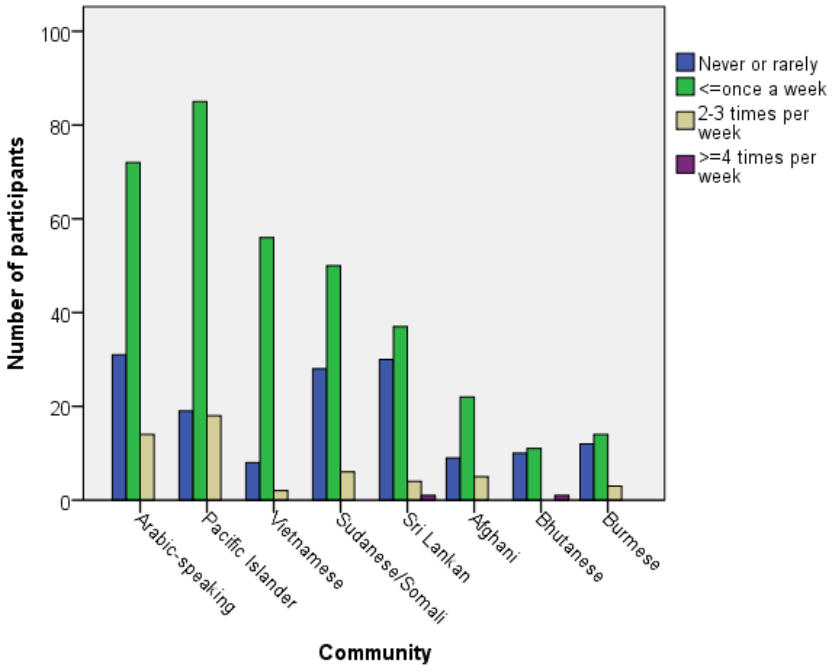

Figure 31: Hot chip consumption across cultural groups at week 8 (n=548)

Table 23: Changes in frequency of hot chip consumption at baseline and week eight by community

Community	Timeline (n)	Frequency of hot chip consumption (%) per week			
		Never or rarely	<= once	2-3 times	>=4 times
Afghani	Baseline (35)	20.0	31.4	40.0	8.6
	Week 8 (36)	25.0	61.1	13.9	0.0
Arabic-speaking	Baseline (117)	12.8	49.6	25.6	12.0
	Week 8 (117)	26.5	61.5	12.0	0.0
Bhutanese	Baseline (24)	33.3	33.3	25.0	8.3
	Week 8 (22)	45.5	50.0	0.0	4.5
Myanmar (Burmese)	Baseline (29)	20.7	65.5	13.8	0.0
	Week 8 (29)	41.4	48.3	10.3	0.0
Pacific Islander	Baseline (118)	10.2	60.2	27.1	2.5
	Week 8 (122)	15.6	69.7	14.8	0.0
Sri-Lankan	Baseline (69)	26.1	56.5	8.7	8.7
	Week 8 (72)	41.7	51.4	5.6	1.4
Sudanese/ Somali	Baseline (80)	28.8	52.5	12.5	6.3
	Week 8 (84)	33.3	59.5	7.1	0.0
Vietnamese	Baseline (67)	14.9	77.6	6.0	1.5
	Week 8 (66)	12.1	84.8	3.0	0.0

Salty snack consumption

This question asks about the consumption of potato crisps or other salty snacks such as Twisties™, corn chips, pretzels, fried, salty nuts. It is understood that nuts are beneficial for health but a clear distinction was made to include only fried/salted nuts. Responses for this question were grouped into four categories: never or rarely; less than once a week; 1– 3 times per week = 2; and >= 4 times per week. Respondents answering "I don't know" have been removed from the analysis.

In general, the results suggest that the program significantly reduced the consumption of salty snacks (p-value <0.001). The proportion of participants having salty snacks less than once a week increased from 63.7% to 82.7%; those having salty snacks 1-3 times per week reduced from 26.4% to 13.9%; and those having these items four or more times per week dropped from 9.9% to 3.4% (Figure 32).

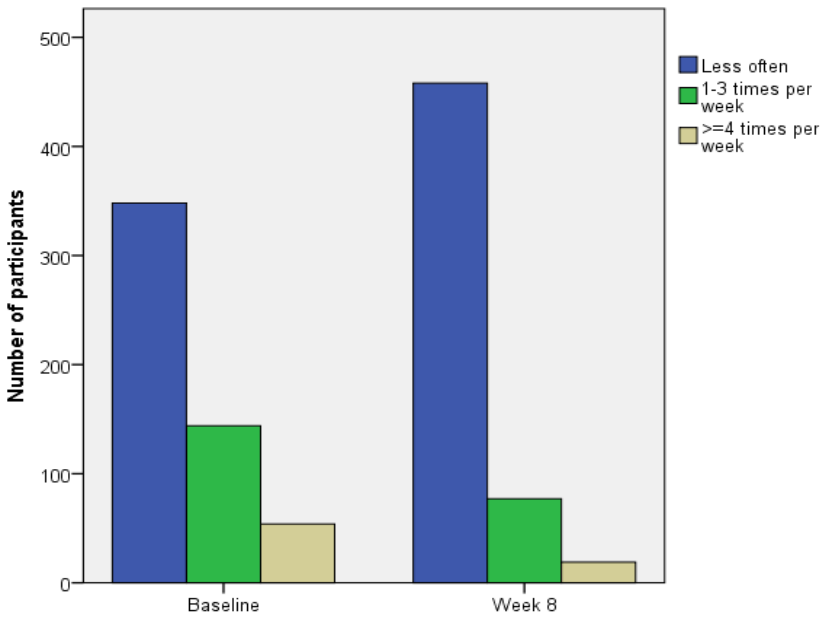

Figure 32: Salty snack consumption at baseline (n=546) and after the program at week 8 (n=554)

At baseline ($p<0.001$) and post-program ($p<0.001$), differences between communities were statistically significant. The highest consumption of salty snacks, four or more times per week, is among the Afghani (30.6%) and Arabic-speaking (14.4%) participants; followed by the Myanmar (Burmese) participants at 13.8%, Sudanese/Somali at 10.8%. At the end of the program at eight weeks, the Arabic-speaking ($p<0.001$) and Afghani ($p<0.01$) participants had the only significant decrease in salty snack consumption. The proportion of Arabic-speaking participants consuming salty snacks less than once a week increasing from 45.7% to 82.9%. The highest consumption of salty snacks by the Afghani participants reduced significantly from 30.6% to 2.8%. All other participants had decreases but these were not statistically significant (see Figures 33, 34 and Table 24).

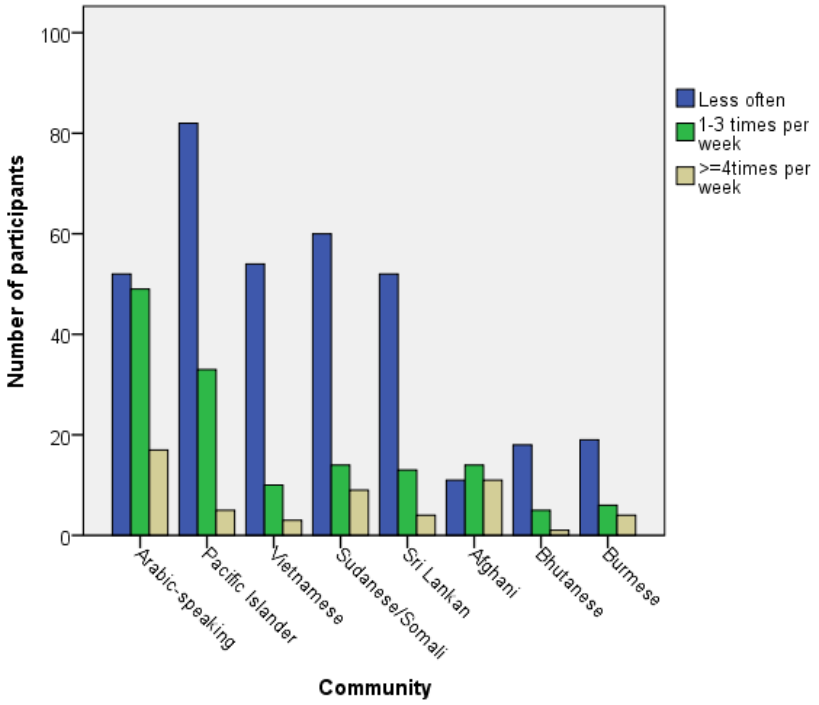

Figure 33: Salty snack consumption across cultural groups at baseline (n=546)

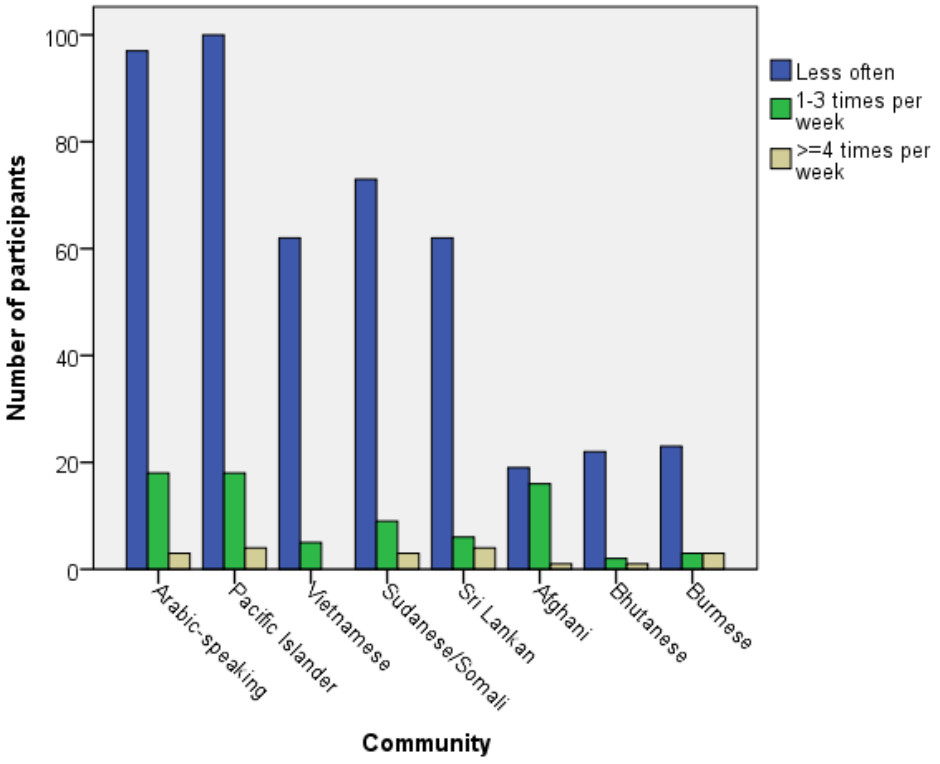

Figure 34: Salty snack consumption across cultural groups at baseline (n=554)

Table 24: Changes in frequency of salty snack consumption at baseline and week eight by community

Community	Timeline (n)	Frequency of salty snack consumption (%) per week		
		Less often	1-3 times	>=4 times
Afghani*	Baseline (35)	20.0	40.0	8.6
	Week 8 (36)	25.0	13.9	0.0
Arabic-speaking**	Baseline (118)	12.8	25.6	12.0
	Week 8 (117)	26.5	12.0	0.0
Bhutanese	Baseline (24)	33.3	25.0	8.3
	Week 8 (22)	45.5	0.0	4.5
Myanmar (Burmese)	Baseline (29)	20.7	13.8	0.0
	Week 8 (29)	41.4	10.3	0.0
Pacific Islander	Baseline (120)	10.2	27.1	2.5
	Week 8 (122)	15.6	14.8	0.0
Sri-Lankan	Baseline (69)	26.1	8.7	8.7
	Week 8 (72)	41.7	5.6	1.4
Sudanese/ Somali	Baseline (80)	28.8	12.5	6.3
	Week 8 (84)	33.3	7.1	0.0
Vietnamese	Baseline (67)	14.9	6.0	1.5
	Week 8 (66)	12.1	3.0	0.0

*p<0.01, **p<0.001

Sweet snack consumption

This question asks about the consumption of sweet snacks such as sweet biscuits, cakes, muffins, scones, sweet pies, lollies, candy or chocolates, baklava, oil cakes, wattappam (Sri Lankan dessert), sticky rice cakes, pastries. Responses for this question were grouped into four categories: never or rarely; less than once a week; 1– 3 times per week = 2; and >= 4 times per week. Respondents answering "I don't know" have been removed from the analysis.

The results suggest that the program significantly reduced the consumption of sweet snacks (p<0.001). The proportion of participants having sweet snacks less than once a week increased from 44.3% to 65.9%; those consuming sweet snacks 1-3 times per week reduced from 33.0% to 28.5%; and those having these items four or more times per week also decreased from 22.7% to 5.6% see Figure 35.

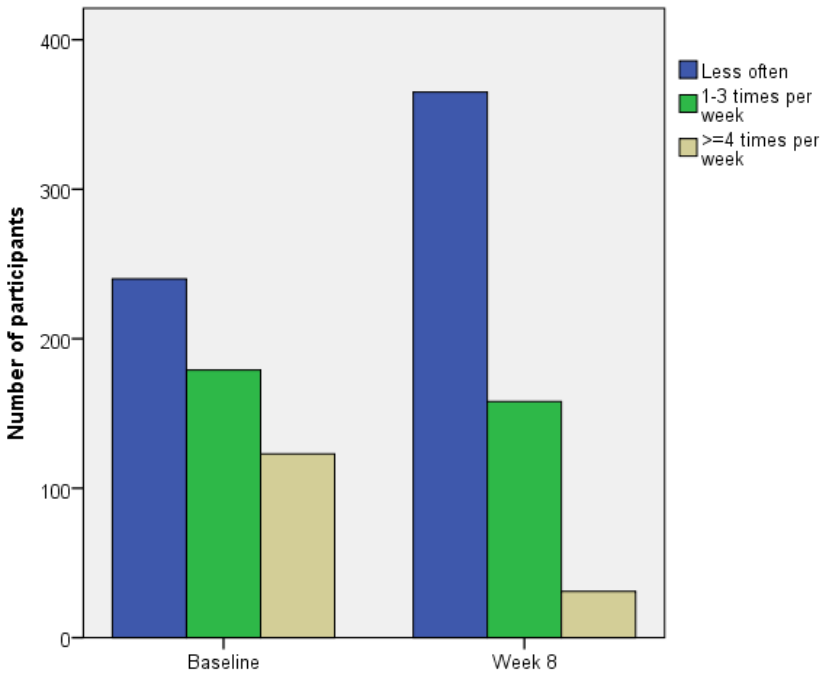

Figure 35: Sweet snack consumption at baseline (n=542) and after the program at week 8 (n=554)

At baseline there are significant differences between communities ($p<0.001$). The highest consumption of sweet snacks at baseline is among the Arabic-speaking and Afghani participants with 77.9% and 75.0% consuming these items at least once a week and of these 38.1% and 36.1% consuming them four or more times per week, respectively. This is followed by the Vietnamese participants at 64.2% (17.9% of whom were consuming sweet snacks four or more times per week); the Myanmar (Burmese) participants 55.1% (24.1% of whom were consuming sweet snacks four or more times per week); the Pacific and South Sea Islander participants 46.7% (11.7% of whom were consuming these items four or more times per week); and the Sri Lankan participants 44.9% (24.6% of whom were consuming these items four or more times per week). Around two fifths of the Sudanese/Somali participants (40.1%) were consuming sweet snacks once a week or more with 13.8% consuming these four or more times in a week. The Bhutanese participants were the lowest consumers overall at 21.7% (17.4% were consuming sweet snacks four or more times per week). See Figure 36.

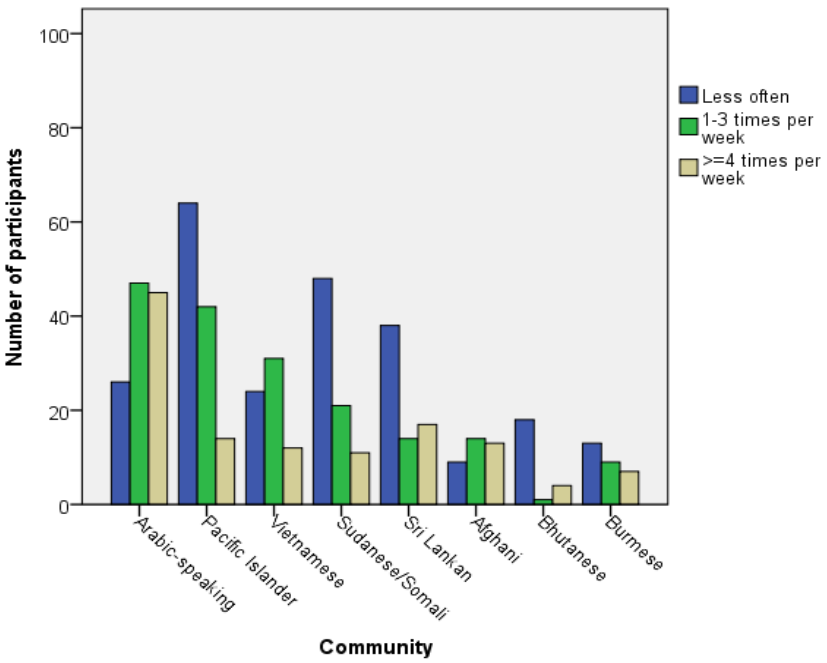

Figure 36: Sweet snack consumption across cultural groups at baseline (n=542)

At the end of the program at eight weeks, the consumption of sweet snacks four or more times a week decreased in all groups. The differences between groups were significant ($p<0.001$). The largest decrease was among the Arabic-speaking participants where those consuming sweet snacks less than once a week increased from 22.0% to 63.6% ($p<0.001$). The Pacific and South Sea Islander ($p<0.01$), Vietnamese ($p<0.05$), Sudanese/Somali ($p<0.05$), Sri-Lankan ($p<0.05$), Afghani ($p<0.01$) and Myanmar (Burmese) ($p<0.05$) participants all indicated a significant drop in the frequency of sweet snack consumption. Consumption among the Bhutanese participants also decreased with no participant had sweet snack four or more time per week, but the changes were not significant. Among the Sri Lankan participants, while the consumption of sweet snack four or more times a week decreased by half from 24.6% to 12.3%, the frequency of consuming sweet snacks increased overall, with those consuming these items once a week or more increasing from 44.9% to 50.7%. See Figure 37 and Table 25.

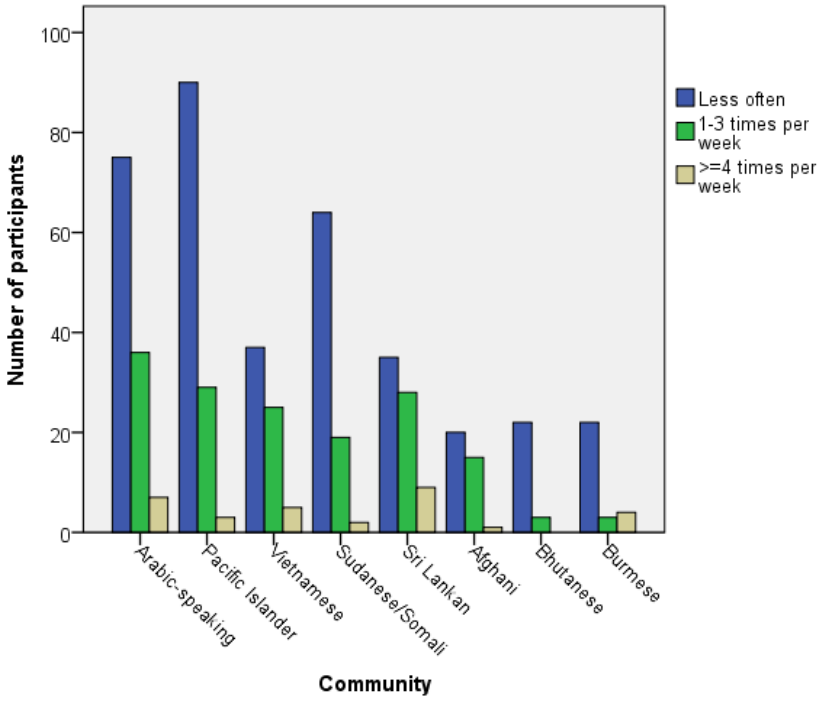

Figure 37: Sweet snack consumption across cultural groups at Week 8 (n=554)

Table 25: Changes in frequency of sweet snack consumption at baseline and week eight by community

Community	Timeline (n)	Frequency of sweet snack consumption (%) per week		
		Less often	1-3 times	>=4 times
Afghani**	Baseline (36)	25.0	38.9	36.1
	Week 8 (36)	55.6	41.7	2.8
Arabic-speaking***	Baseline (118)	22.0	39.8	38.1
	Week 8 (118)	63.6	30.5	5.9
Bhutanese	Baseline (23)	78.3	4.3	17.4
	Week 8 (25)	88.0	12.0	0.0
Myanmar (Burmese) *	Baseline (29)	44.8	31.0	24.1
	Week 8 (29)	75.9	10.3	13.8
Pacific Islander**	Baseline (120)	53.3	35.0	11.7
	Week 8 (122)	73.8	23.8	2.5
Sri-Lankan*	Baseline (69)	55.1	20.3	24.6
	Week 8 (72)	48.6	38.9	12.5
Sudanese/ Somali*	Baseline (80)	60.0	26.3	13.8
	Week 8 (85)	75.3	22.4	2.4
Vietnamese*	Baseline (67)	35.8	46.3	17.9
	Week 8 (67)	55.2	37.3	7.5

*p<0.05, ** p< 0.01, *** p<0.001

Intake of sugar-sweetened beverages

The question asks participants about their consumption of sugar sweetened beverages such as soft drinks/ fizzy drinks (like Coke™, lemonade) or sports drinks like Gatorade™, or energy drinks like Red Bull™, Sting™

or Mother™. Responses were categorised into: less than once a week; 1-3 times per week; and 4 or more times per week. A majority of participants (61.3%) consumed these beverages less than once a week at baseline and this significantly increased to about four-fifths of participants (79.3%) at the end of the program ($p<0.001$). Participants consuming these beverage four of more times per week also significantly decreased from 12.7% to 2.7% ($p<0.001$). See Figure 38.

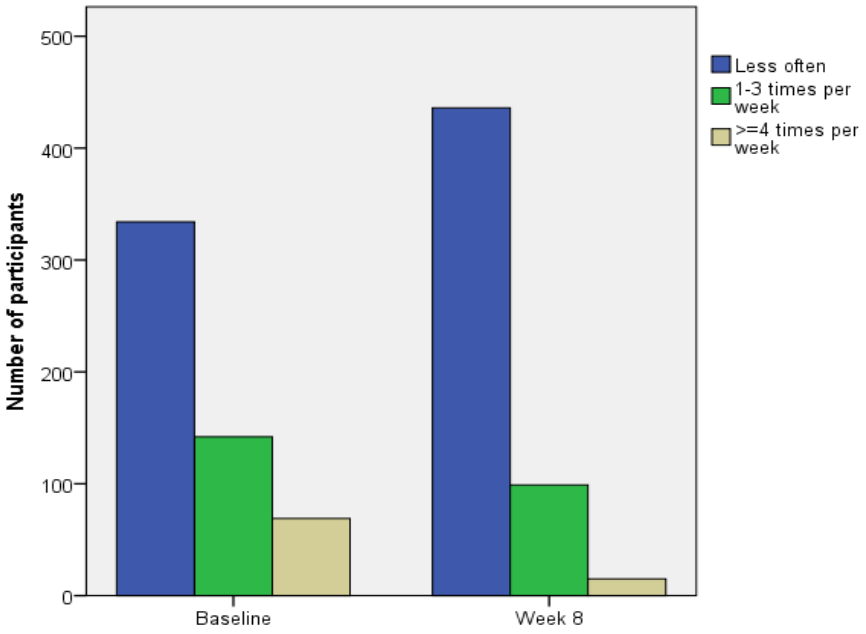

Figure 38: Sugar sweetened beverage consumption at baseline (n=545) and after the program at week 8 (n=550)

There were significant ($p<0.001$) variations in sugar sweetened beverage (SSB) consumption between communities at baseline. The highest consumers of SSBs at baseline were Sudanese/Somali, Arabic-speaking, Bhutanese, Pacific and South Sea Islander and Afghani communities with 55.4%, 50.0%, 48.0%, 41.6% and 44.4% of participants consuming SSBs at least once a week. The Bhutanese and Arabic-speaking participants were the most likely to consume these beverages four or more times per week at 24.0% and 19.5% respectively. This was followed by the Myanmar (Burmese) participants (13.8%), the Pacific and South Sea Islanders (13.3%) and the Afghani (11.1%). Vietnamese participants had the lowest consumption of these sugar-sweetened beverages at a total of 11.9% consuming more than once a week. Only 1.5% (one participant) Vietnamese consume SSBs four or more times per week. See Figure 39.

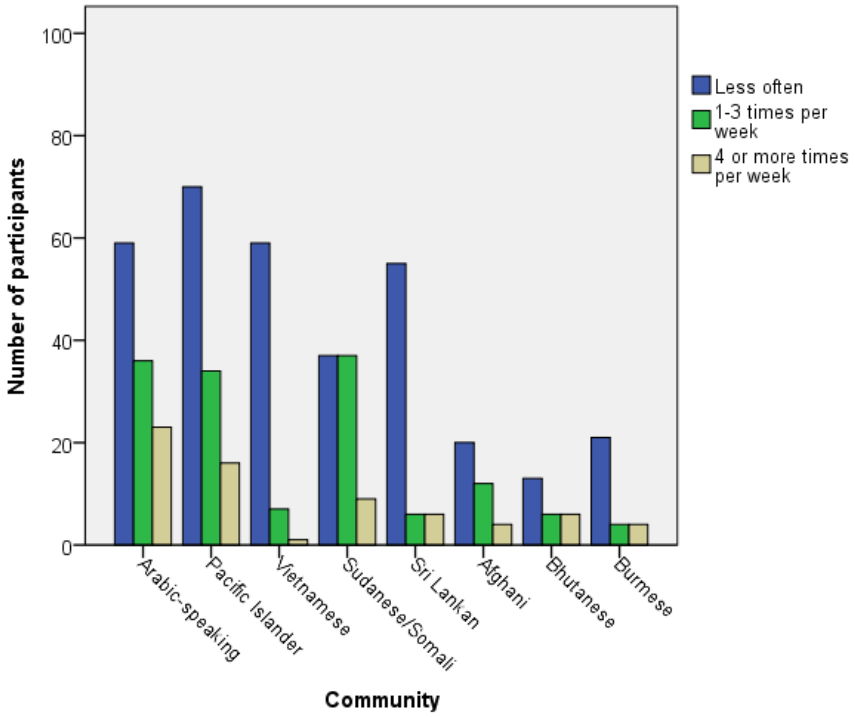

Figure 39: Sugar sweetened beverage consumption across cultural groups at baseline (n=545)

After the eight week program, all groups decreased their frequency of sugar sweetened beverage consumption. This was significant for the Pacific and South Sea Islander, Arabic-speaking and Bhutanese participants where consumption of these beverages, less than once a week, increased from 58.3% to 80.3% ($p<0.001$), 52.0% to 88.0% ($p<0.01$) and 50.0% to 79.7% ($p<0.001$) respectively. The proportions of participants having soft drink 4 or more times per week reduced from 19.5% to 3.4% in Arabic-speaking community, from 13.3% to 3.3% in Pacific and South Sea Islander, and from 24.0% to 0% in Bhutanese participants. The Sudanese participants are the most frequent consumers of sugar-sweetened beverages at the end of the program with more than two-fifths (43.4%) of participants still consuming them at least once a week. See Figure 40 and Table 26.

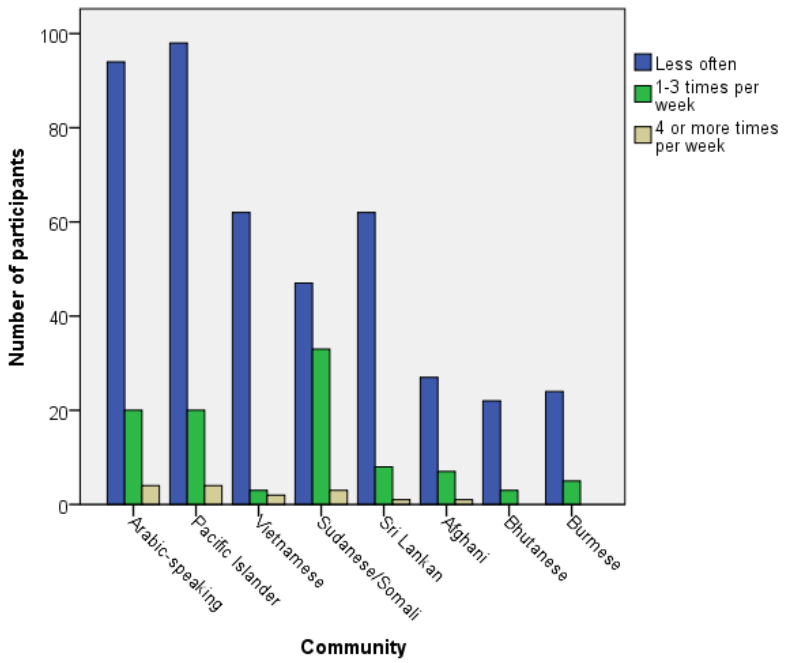

Figure 40: Sugar sweetened beverage consumption across cultural groups at Week 8 (n=550)

Table 26: Changes in frequency of sugar sweetened beverage consumption at baseline and week eight by community

Community	Timeline (n)	Frequency of sweet snack consumption (%) per week		
		Less often	1-3 times	>=4 times
Afghani	Baseline (36)	55.6	33.3	11.1
	Week 8 (35)	77.1	20.0	2.9
Arabic-speaking***	Baseline (118)	50.0	30.5	19.5
	Week 8 (118)	79.7	16.9	3.4
Bhutanese**	Baseline (25)	52.0	24.0	24.0
	Week 8 (25)	88.0	12.0	0.0
Myanmar (Burmese)	Baseline (29)	72.4	13.8	13.8
	Week 8 (29)	82.8	17.2	0.0
Pacific Islander***	Baseline (120)	58.3	28.3	13.3
	Week 8 (122)	80.3	16.4	3.3
Sri-Lankan	Baseline (67)	82.1	9.0	9.0
	Week 8 (71)	87.3	11.3	1.4
Sudanese/ Somali	Baseline (83)	44.6	44.6	10.8
	Week 8 (83)	56.6	39.8	3.6
Vietnamese	Baseline (67)	88.1	10.4	1.5
	Week 8 (67)	92.5	4.5	3.0

*p<0.05, ** p< 0.01, *** p<0.001

Maintaining low consumption of discretionary foods was difficult to maintain, most communities increased their consumption of fast food after they finished attending the program. Arabic-speaking and Vietnamese participants increased their consumption of salty snacks, and Sri Lankan and Vietnamese participants increased their consumption of SSBs. All communities maintained their decreased consumption of sweet snacks.

Key Findings

The LWM-LMP program significantly decreased consumption of discretionary food items. Those consuming:

- **Fast food rarely or never increased from 25.1% to 35.7%**
- **Hot chips greater than two or more times per week decreased from 26.0% to 9.9%**
- **Salty snacks less than once a week increased from 63.7% to 82.7%**
- **Sweet snacks less than once a week increased from 44.3% to 65.9%**
- **Sugar sweetened beverages four or more times per week decreased from 12.7% to 2.7%**

Were changes in eating behaviours able to be sustained

For this analysis, we use matched participants from 44 groups that had completed data up to week 14. Table 27 provides the breakdown of the sample used.

Table 27: Summary of the matched samples used for comparing changes from baseline, week 8 and week 14.

Community	Number of groups	Matched sample size
Afghani	3	32
Arabic-speaking	9	112
Bhutanese	2	15
Myanmar (Burmese)	1	15
Pacific Islander	9	100
Sri Lankan	7	62
Sudanese/Somali	6	49
Vietnamese	7	47
Total	**44**	**432**

Nearly all eating behaviours continued to improve with the exception of takeaway/fast food and processed meat consumption, where the frequency of consumption slightly increased. Overall, the proportion of participants meeting the fruit and vegetable guidelines increased from 72.9% to 82.5% ($p<0.001$) and from 16.5% to 20.7% of participants, respectively. Those consuming salty snacks, sweet snacks and sugar sweetened beverages four or more times per week decreased to 1.2% (result not significant), 3.4% ($p<0.05$) and 1.0% ($p<0.01$) respectively.

The proportion of participants consuming low fat milk increased from 68.9% at week eight to 71.6% at week 14. Those consuming takeaway at least twice per week increased from 5.4% to 7.2% and processed meat consumption three or more times per week decreased from 5.9% to 4.3%. As such these behaviours may be more difficult to sustain. A breakdown by cultural group is provided in Table 28.

From this table it can be seen that the Sudanese and Afghani participants have been able to sustain and improve behaviours more so than any other group. The Sri Lankan participants have continued to improve fruit and vegetable consumption but are finding it difficult to sustain a decreased consumption of discretionary foods and low fat milk.

Table 28: Behaviour changes from week 8 to week 14 by cultural group

Community	Fruit	Vegetable	Milk	Salty snack	Sweet snack	Soft drink	Fast food	Processed meat
	% meeting guideline		% change to low fat	% consuming (>=4 times/week)			% consuming (2-3 times/week)	% consuming (>=3 times/week)
Afghani	Increase 100%**	No change 3.1% NS	Increase 90.6% NS	Increase 6.3% NS	Decrease 0% NS	Decrease 0% NS	No change 12.5% NS	Decrease 0.0% NS
Arabic-speaking	Increase 85.7%*	Decrease 10.7% NS	Increase 75.9% NS	Decrease 0% NS	Decrease 1.8%*	Decrease 0%*	Increase 2.7% NS	Increase 3.6% NS
Bhutanese/ Myanmar (Burmese)	Decrease 66.7% NS	Increase 13.3% NS	Increase 50.0% NS	Decrease 0% NS	Decrease 0% NS	Decrease 10.0% NS	Increase 3.3% NS	Decrease 0% NS
Pacific Islanders	Increase 78.0% NS	Increase 33.0% NS	Decrease 67.0% NS	Decrease 0% NS	No change 3.0% NS	Decrease 2.0% NS	Increase 11.0% NS	Decrease 8.0% NS
Sri-Lankan	Increase 80.3% NS	Increase 27.9%**	Decrease 72.1% NS	Decrease 1.6% NS	Decrease 6.6% NS	Increase 1.7% NS	Increase 6.6% NS	Decrease 0% NS
Sudanese/Somali	Increase 63.3% NS	No change 34.7% NS	Increase 55.1% NS	Decrease 0% NS	No change 2.0% NS	Decrease 0% NS	Decrease 6.1% NS	Decrease 12.2% NS
Vietnamese	Increase 97.9% NS	Decrease 8.5% NS	Increase 76.6% NS	Increase 2.1% NS	No change 8.5% NS	Increase 2.2% NS	No change 2.1% NS	Decrease 8.5% NS

*** p-value <0.001, **p-value <0.01, * p-value <0.05

Alcohol consumption

Excessive alcohol consumption is a known risk factor for chronic disease, poor health generally and contributes to social issues. This section looks at the baseline alcohol consumption and changes made after the eight week program. It should be noted that some participants may not have accurately identified their usual alcohol consumption. In many of the targeted communities alcohol consumption is not socially acceptable for women, in particular. In some cases alcohol is expressly prohibited by religious requirements. Safe alcohol intake is characterised by: < 2 standard drinks per day and < 4 drinks per occasion.

At baseline 119 participants indicated they drank alcohol (n = 556, 21.4%), with 31 of these participants drinking above the recommended amounts. Out of the alcohol consumers, 41 (out of 119) were Pacific and South Sea Islander, 20 (out of 119) Sri Lankan, 19 (out of 119) Arabic-speaking and 13 (out of 119) Sudanese/Somali. Out of the 31 excessive drinkers, the majority are from Pacific Islanders (20 drink excessively, 21 drink safely), Sudanese/Somali (5 drink excessively, 8 drink safely) Arabic-speaking (4 excessively, 15 safely) and Vietnamese (2 excessively, 5 safely).

At the end of the program at week 8, 20 out of 31 excessive drinkers had changed to safe drinking practices (3 Arabic-speaking, 12 Pacific and South Sea Islander and 5 Sudanese/Somali). However, there were 4 participants who had moved from safe to excessive drinking (3 Arabic-speaking and 1 Myanmar (Burmese)).

Due to a larger number of missing data so it is difficult to determine if there was a decrease in the number of participants drinking alcohol.

Smoking

Responses to this question are difficult to interpret due to inconsistent and missing data. The low prevalence of smoking may be attributed to the lower numbers of male participants, in many of these cultural groups smoking among women is culturally not acceptable.

It would appear that at baseline (n=550), there were 41 smokers (7.5%). Of those, the Pacific and South Sea Islander group had the highest number of smokers (26/41 smokers who identified at baseline), followed by Arabic-speaking participants (7/41) and Bhutanese (4/ 41). At week eight, 11 participants had quit smoking (5 Arabic-speaking, 1 Pacific Islander, 3 Bhutanese and 2 Myanmar (Burmese) participants), 11 participants (all Pacific and

South Sea Islanders) had reduced their levels of smoking, and six participants had not reduced but had tried to quit smoking. By the second follow –up (week 26) a further three had quit smoking (2 PI and 1 Vietnamese).

Key Finding

The LWM-LMP program appears to facilitate safe alcohol consumption and reduced smoking.

Confidence

One of the specific aims of the LWM program was to improve participants' confidence in reducing their risk of a chronic disease and in managing a chronic condition and stopping it from getting worse if they were to be diagnosed. Confidence was rated on a scale from 1 – not at all confident to 10 – totally confident.

For confidence in reducing risk, at baseline the mean score was 5.98 (n=534; the median score was 6, interquartile range 5). This increased significantly to 7.63 at the end of eight weeks (paired t-test; $p<0.001$) (n=545; median score 8 interquartile range 4). The mean difference was 1.65 (95% CI 1.36 – 2.03).

At baseline, mean confidence scores for reducing risk varied significantly across cultural groups and with educational background (ANOVA, p-value < 0.001). The Pacific and South Sea Islanders group were the most confident with a mean score of 7.34 (SD=3.2, 95%CI: 6.8 – 7.9). All mean scores of the Arabic-speaking, Vietnamese, Sudanese/Somali, Sri-Lankan groups were above 5.0, while the Afghan, Bhutanese and Myanmar (Burmese) participants had an average score of 3.1 (SD = 3.0, 95% CI: 2.1 – 4.1), 4.7 (SD=2.6, 95%CI: 3.6 – 5.8), and 4.8 (SD=3.7, 95%CI: 3.3 – 6.3), respectively.

After the program at week eight, all communities have significant improve for confidence scores in reducing risk, except for Pacific Islander and Myanmar (Burmese) groups. See Table 29.

Table 29: Changes in confidence scores in reducing risk at baseline and week eight by community.

Community	N	Baseline (mean (SD))	Week 8 (mean (SD))	p-value
Afghani	36	3.1 (3.0)	7.7 (3.0)	<0.001
Arabic-speaking	115	6.3 (2.8)	7.8 (2.0)	<0.001
Bhutanese	25	4.7 (2.6)	7.9 (1.7)	<0.001
Myanmar (Burmese)	25	4.8 (3.7)	6.6 (2.8)	0.07
Pacific Islander	119	7.3 (3.2)	7.2 (2.5)	0.6
Sri-Lankan	62	5.7 (3.3)	8.5 (2.1)	<0.001
Sudanese/ Somali	61	5.4 (2.9)	8.0 (2.2)	<0.001
Vietnamese	67	6.2 (2.1)	7.5 (2.2)	<0.001

Shown are descriptive summary and results from pair t-test for participants with full data only

At baseline, mean confidence scores in reducing risk were significantly different across the four education groups (ANOVA, p<0.001), participants with a primary education had the lowest score, with a mean of 5.0 (SD = 3.0, 95% CI: 4.4 – 5.6). In contrast, participants with a Diploma/Certificate group had the highest mean score of 6.8 (SD = 3.0; 95% CI: 6.2 – 7.3). See Figure 41.

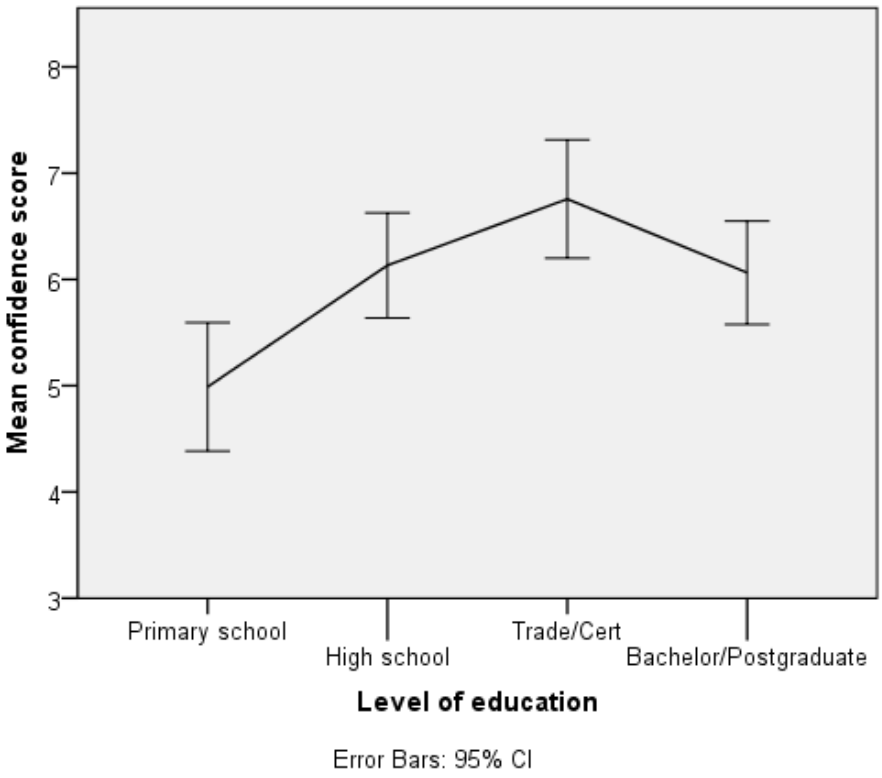

Figure 41: Mean scores for confidence to reduce risk at baseline by level of education (n=513)

With respect to confidence in managing a chronic condition, more than half of participants (63.2%, 335/530) felt very confident (scores of 8 to 10) at the end of the program. At baseline the mean score was 6.07 (n = 531, SD = 3.1) and this increased to 7.8 (n=530, SD = 2.3) at the end of the program (p<0.001).

At baseline, the mean confidence scores for managing a chronic condition varied significantly across cultural groups and across educational background (ANOVA, p-value < 0.001). Pacific and South Sea Islanders had the highest average score of 7.8 (SD = 2.9, 95% CI: 7.3 – 8.4), whereas the Afghani participants had the lowest score of 2.8 (SD = 2.6, 95% CI: 2.0 – 3.7). See Table 30.

Across the four education groups, participants with a primary education had the lowest confidence scores in managing a chronic condition, with a mean of 5.0 (SD = 3.1, 95% CI: 4.4 – 5.7). In contrast, participants with a Diploma/Certificate group had the highest mean score of 7.0 (SD = 2.9; 95% CI: 6.5 – 7.6). See Figure 42.

Table 30: Changes in confidence scores in managing chronic condition at baseline and week eight by community.

Community (n)	Baseline (mean (SD))	Week 8 (mean (SD))	p-value
Afghani (36)	3.1 (3.0)	7.7 (3.0)	<0.001
Arabic-speaking (115)	6.3 (2.8)	7.8 (2.0)	<0.001
Bhutanese (25)	4.7 (2.6)	7.9 (1.7)	<0.001
Myanmar (Burmese) (n=25)	4.8 (3.7)	6.6 (2.8)	0.07
Pacific Islander(119)	7.3 (3.2)	7.2 (2.5)	0.6
Sri-Lankan (n=62)	5.7 (3.3)	8.5 (2.1)	<0.001
Sudanese/ Somali (n=61)	5.4 (2.9)	8.0 (2.2)	<0.001
Vietnamese (67)	6.2 (2.1)	7.5 (2.2)	<0.001

Shown are descriptive summary and results from pair t-test for participants with full data only

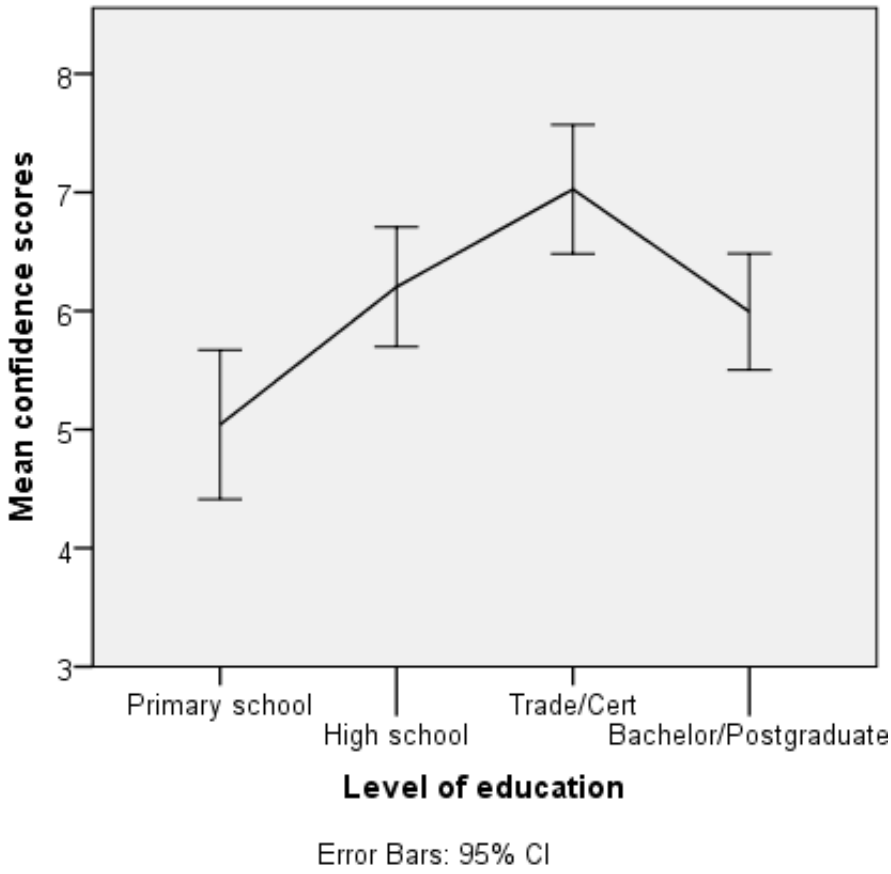

Figure 42: Mean scores for managing chronic condition by education level

Were confidence scores able to be sustained?

The means of confidence scores in reducing risk remain similar after the program, at week 14 and week 26. Confidence in managing risk is therefore sustained. See Table 31 and Figure 43.

Table 31: Mean confidence scores in reducing risk with SD and 95% CI at four time points, for the total number of participants in 40 programs (p-value <0.001)

Time-point	Confidence score in reducing risk
Baseline (n=443)	6.1 (SD = 3.0, 95% CI: 5.8 – 6.4)
Week 8 (n=450)	7.7 (SD = 2.4, 95% CI: 7.5 – 7.9)
Week 14 (n=387)	8.1 (SD = 2.0, 95% CI: 7.9 – 8.3)
Week 26 (n=403)	8.4 (SD = 1.5, 95% CI: 8.2 – 8.5)

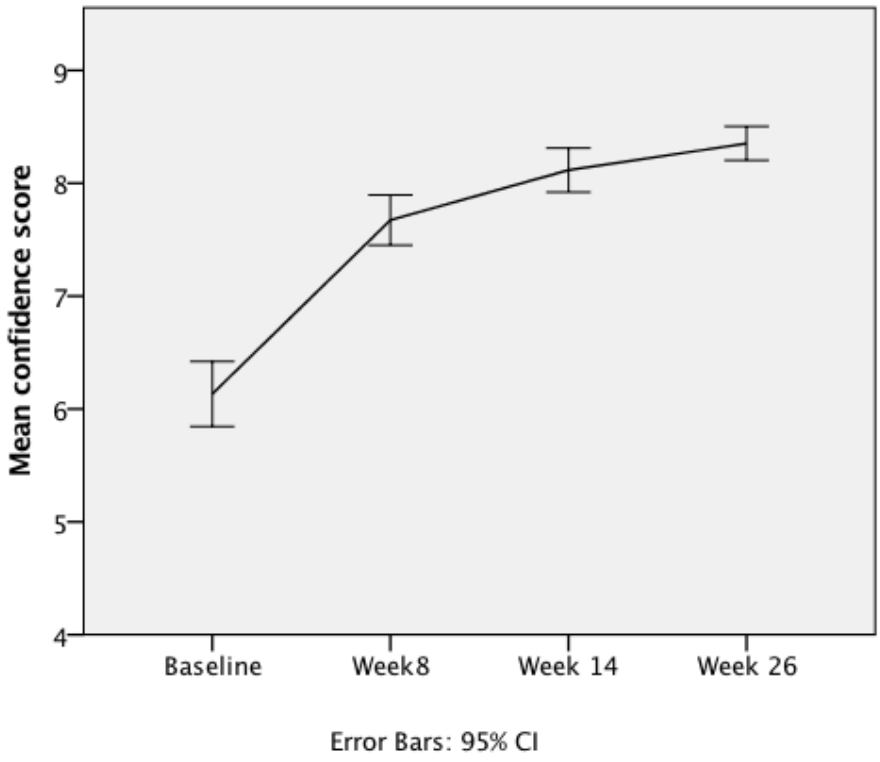

Figure 43: Mean confidence score in reducing risk at 4 time points

The means of confidence scores in managing chronic disease remain similar after the program, at week 14 and week 26. Confidence in managing risk is therefore sustained. See Table 32 and Figure 44.

Table 32: Mean confidence scores in managing a chronic disease with SD and 95% CI at four time points, for the total number of participants in 40 programs (p-value <0.001)

Time-point	Confidence score in managing a chronic condition
Baseline (n=440)	6.2 (SD = 3.1, 95% CI: 6.0 – 6.5)
Week 8 (n=433)	7.9 (SD = 2.3, 95% CI: 7.7 – 8.1)
Week 14 (n=381)	8.3 (SD = 1.8, 95% CI: 8.1 – 8.5)
Week 26 (n=402)	8.4 (SD = 1.6, 95% CI: 8.3 – 8.6)

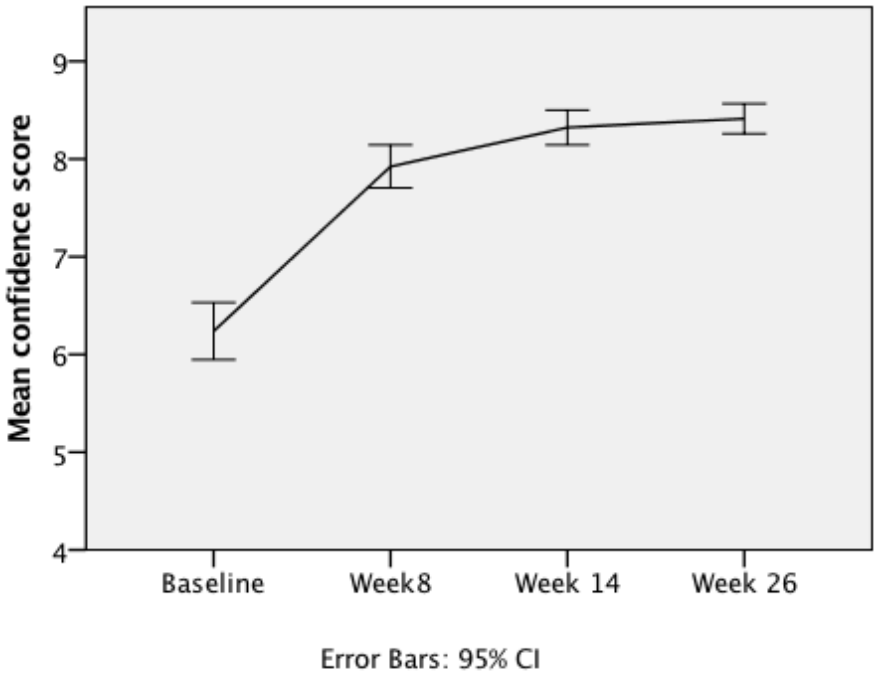

Figure 44: Mean confidence score in managing chronic diseases at 4 time points

Qualitative responses related to impacts

Participants at Weeks 8, 14 and 26 were asked what changes they had made with respect to their diet, physical activity and health. The aspects of health will be discussed under outcomes.

Diet changes made

Fruit and vegetable intake

We put in more veges in our cooking. We make lots of soup with many veges in it (AIS081064 Week 8)

…started to eat more steam vegi (PIR 201181 Week 8)

I started eating healthy and eat more vegetables every day (SOR010188 Week 8)

I try and add more fruits and veges to our diet… (AIS081064 Week 14)

We eat more fruits now, and we use more veges now, and cut more veges into our soup (AUK200562 Week 14)

… I use 3 serves of vegetables every day … (MAR010182 Week 14)

add vegetable to every meal and eat healthy fast foods with salad (TON231085 Week 26)

I use more vegetables for myself and for my kids than before (ZAk210385 Week 26)

Our family diet has changed a lot. … more fruits and veges (and in kids lunchboxes). … (MAG071168 Week 26)

Increased intake of wholegrains

change the bread from white to wholegrain bread (KAR010363 Week 8)

change to wholemeal bread, increased brown rice intake (WIC230166 Week 8)

… eat Basmati rice with small portion (LE171048 Week 8)

incorporated … wholemeal bread into my diet (FAR240358 Week 14)

I eat wholegrain bread … (ZEI121069 Week 14)

We change our bread from white to wholegrain/multigrain. … (MUA280351 Week 26)

Drink more water and reduce consumption of sugar sweetened beverages

drink water instead of soft drinks (OSM010194 Week 8)

… I stopped soft drink and replaced with water (ALA040879 Week 8)

We don't drink soft drinks anymore (VAA221267 Week 8)

I cut down on … especially sweet drinks (TOM180656 Week 8)

.. cut down sweet , botttled/canned drinks(coke, juice etc) (RAV180763 Week 8)

No more soft drinks, just filtered water. (AIS221065 Week 14)

… We rarely drink soft drinks… (AIS221065 Week 26)

… Less soft drinks (not often), but juices sometimes. … (BRO210287 Week 26)

Reduce fat intake/Changed fat intake

stopped fried food (ABA200879 Week 8)

we used to buy foods with lots of fat, instant noodles, vegetable cooking oils, and foods with lots of sugar, but not anymore (LEF310155 Week 8)

I cut away all the fat from the meat (beef or mutton) before cooking (AUK200562 Week 8)

Stop using coconut milk for the curry… (RAM100475 Week 8)

use coconut for the curries sometimes (RAM 100475 Week 14)

We changed from full cream to low fat milk (AIS221065 Week 8)

We changed from butter to canola or olive spread (AIS221065 Week 8)

I try … consume good oil … (HOA 290779)

I cut off the fatty bits of meat and remove the skin from chicken before cooking… (FAA210561 Week 14)

I cut out all fatty foods from my diet, … (SIO070648 Week 14)

… change from coconut cream to coconut milk. Change milk to low fat. (MAG071168 Week 14)

Use low fat or fat free product instead of full cream. … (TIE 041058 Week 14)

I use less oil in my cooking … (MAR010182 Week 26)

… don't fry chips and cook less fried food (ZAH200371 Week 26)

Reduce carbohydrate/sugar intake

Please note that some of the sentiments regarding reducing carbohydrate intake are not necessarily evidence-based and a check should be undertaken that the message of reducing overall carbohydrate intake is not being undertaken. In some instances where rice consumption is decreased this may be in due to the glycaemic response to rice for those with impaired blood glucose control.

I have tried to consume less carbohydrate particularly after 6 pm (FAR261194 Week 8)

…. I eat less rice, bread and rice noodle (NGU080656 Week 8)

have cut down on sugar … in our cooking and foods at home (AIS221065 Week 8)

… eat less sweeties (KEM060590)

… Eat rice with low GI as Basmati rice (NGU 070249 Week 14)

… don't eat bread any more (ALW050195 Week 14)

I cut down … starchy foods such as taro. … (TOM180656 Week 14)

I have tried to make my diet healthy to cutting down sugar … (PER160869 Week 14)

As whole family we plan to reduce … sugar … (AMI210594)

Reduce rice serving… (LUO 030750 Week 26)

Reduce salt intake

Cut down on salt. Cut down on soy sauce (SAO030562 Week 8)

cut down on corn beef and salted beef (STO220457 Week 8)

… Reduce … salt in cooking (VU 150575 Week 8)

Reduce meat intake/Increase fish intake

I cut down on meat portions (FUA150468 Week 8)

… We don't eat much meat as we used to (TAU280268 Week 8)

Yes, I eat more … fish… (LE 291038 Week 8)

… We eat fish 2-3 times a week. … (ALO170655 Week 26)

Increase dairy intake

drink more skim milk (PHA 150350 Week 8)

I start eat cheese because I don't drink enough milk as recommendation (NGU 211252 Week 26)

Reduce food portion size

I cut down on food portions, from 2 bananas to one (LEA221048 Week 8)

… take care about the serving size when I cook … (ZRA170474 Week 8)

I eat smaller portions now, and I eat often during the day. … (ALO050952 Week 14)

… I struggle to cut down on food portions… (SIO150786 Week 14)

smaller portions of intake… (ATU230467 Week 26)

Reduce takeaway/junk foods

Instead eating junk food I eat fruit and vegetable (MOH241195 Week 8)

try to reduce eating not healthy food and I did it (SAM110953 Week 8)

I don't buy snack food… (LE 050980 Week 8)

… eat less fast food like pizza, pie, sweet things. … (LUO 030750 Week8)

… I tell my older kids not to buy and bring home anymore takeaways (AIS081064 Week 14)

I try and avoid the "banned" foods or the red zone foods. … (SAM210156 Week 14)

We get takeaways (KFC) only once a week now. … (BRO210287 Week 26)

Physical activity changes made

Increase in the amount of physical activity

Participants indicated that they had increased the amount of activity they were undertaking, in some cases this was on a daily basis and in others across the week. The time ranged from 10 to 45 minutes.

I do at least 30 M/DAY every day (KAR010363 Week 8)

do more exercises at least 30 M/ day (ABD150660 Week 8)

I walk at least 30 minutes a day. If I am at work, I 'll walk around the block with my friend. (TOG300492 Week 8)

The Physical Activity 4 days a week (RAM 100475 Week 8)

walking every day between 15 to 30 minute … (ALW050195 Week 14)

vigorous exercise and moderate for daily for 50 minutes (OKE090190 Week 14)

Do HEAL exercise 100 minutes/day (TRU 171047 Week 14)

I try and do dome exercise everyday. (FAA210561 Week 14)

My husband a I try and walk every evening. Sometimes on the weekends, I go fishing with him, and walk along the beaches. … (LEI151160 Week 26)

I still go for walks every day. (TAN040346 Week 26)

I still … go for walks at least 6 days of the week. (LEA051246 Week 26)

Walking 10 minutes x3 a day every week (ADW150496 Week 26)

Types of physical activity

Many participants talked about increasing walking, others have introduced a sport, the gym or the HEAL/Theraband exercises that were taught during the program.

walk every day 30 minute (BOU211270 Week 8)

joined gym exercise 4x a week (TON231085 Week 8)

I have signed up to gym and have committed to attendance on week day (AR310892 Week 14)

I play volleyball once every week, and walk regularly (MAG071168 Week 8)

basketball x2 a week (OJU 080896 Week 8)

Play soccer for three times a week (Hus 050172 Week 8)

I start playing rugby 2 months ago. (EO260500 Week 8)

… dance at home (OMO120384 Week 8)

Regular Weight lifting. (MEA180546 Week 8)

I use my Theraband regularly. (TOM180656 Week 8)

Do HEAL 2 times/day. (LE 291038 Week 8)

…playing tennis on Friday night (SIT121195 Week 14)

I have now started swimming classes (ARI010170 Week 14)

Regular … cycling (PIR 181176 Week 26)

… We also use a Zumba program on DVD sometimes for exercises. (ALO170655 Week 26)

Increased incidental activity and active transport

Our new house has a staircase, and I try and go up and down many times in a day. (AIS081064 Week 8)

I don't go to the gym, but I do a lot of exercises at home, … and a lot of house chores such as cleaning the house and gardening. (LEF310155 Week 8)

I try to do more physical activity daily such as … taking the stairs not the lift (HOA 290779 Week 8)

Try to walk to the bus stop and train without using car. (SUT 120272 Week 8)

I have increased outdoor playing with my son (LIY091178 Week 8)

Walking to take public transport (Bak 120184 Week 14)

Walking daily to train station and back (Abr 010169 Week 26)

… I play ball with my grandchildren 2-3 times a week in the backyard. (SAM210156 Week 26)

Nothing

nothing because of the kids (SAD120781 Week 8)

I used my Theraband everyday for the first 2 weeks, but then dropped of in the next few weeks. I walked 2 blocks every morning for the first 2 weeks when taking kids to school, but this activity dropped off too. (MAT080365 Week 8)

Barriers and enablers

Participants were also asked to identify the things that helped them make the changes and those things that created barriers.

Enablers

Participants identified a range of areas that assisted them in making the necessary changes. The LWM program was identified as well as the increased knowledge, motivation and practical strategies provided by the program.

the program is very useful and helped me to make some good change (ALK170976)

the weekly session really helped me develop on understanding and gain the knowledge I need for a healthier life style (MOH291292)

the information that I got from living well program (ASH300443)

the fact that the program reiterated the positive change required made me more motivated to stick to my goals (AR261194)

Also identified as facilitators for behaviour change were:

- Support from family and friends

  Four of us participants have got together to have regular walks and exercises, and this makes it easy for all of us, since one supports the other. (MAG071168)

- Positive and negative role models

  It was hard but I tried to set a good example in my family. (SIO150786)

  seeing others around me to achieve the same thing (ARI200260)

- Improvements in health
- Intrinsic qualities such as willpower and determination

  It was easy since I was determined to make the changes, but sometimes there were lapses. (LUP280280)

- Introducing the changes slowly

Barriers

Participants identified a number of barriers to behaviour change including:

- Time poverty

  sometimes I don't have enough time to do my exercises or to choose food with less fat (MAH020982)

  Time because I have a big family with a lot of commitments (VO 160265)

- Family commitments and needs

  sometimes family responsibility stop me (MOH030274)

  dependant on my family member's diet (DO 080537)

  I live with my daughter's family so I need to follow their eating habits I couldn't shopping as I want (LE 291038)

  My older kids bring soft drinks and leave them in the fridge, it's a temptation for me (TOM180656)

- Fatigue and poor health

  the illnesses that I have doesn't allowed me to do exercises and eat some food (ASH300443)

  Sometimes I am tired from working all day, I don't feel like doing exercises in the evening (LUP280280)

- Cost of healthy food

  None, except maybe financial constraint in buying some of the healthy foods which are sometimes expensive. (TOM180656)

  the vegetable price is very high (HUS101278)

- Accessibility of unhealthy food

  Temptations, when you walk past McDonalds or KFC. Foods that your friends bring to school (for lunch) (LEO260500)

- Intrinsic factors such as laziness, willpower and lack of motivation

  Willpower - I have a weakness for sweet foods, such as chocolate and sweet cakes (MAT080365)

  No, just laziness most of the time (LEA221048)

- Cultural reasons – culturally appropriate sporting facilities and cultural/social events

  I like to be more active physically, but there is no gym that suits me because of my religion because I need a women's gym only (SAD120781)

  Sometimes you receive or get offered food from others (sometimes offensive to say no) (FAA131060)

  … We also get involved in community events which provides food, sometimes very delicious but unhealthy foods (temptations). (AIS081064)

Section 4: Outcomes

This part of the report responds to the question “Is anyone better off?” In this report, data is presented on weight status and body mass index (BMI) across all groups. It also reports on waist circumference, metabolic risk and blood pressure.

Weight and BMI

Participants who are younger than 18 years old (8 participants in PI group) and who are underweight (6 participants) were removed prior to the analysis.

Mean weight across all cultural groups prior to the program commencing was 76.3 Kg (SD 20.7 Kg, n=553) and at the end of the program was 75.6 Kg (SD 20.4 Kg, n=554). On average, participants reduced 0.70 Kg after the program however this difference in weight was not statistically significant (pair t-test, p=0.5). Figure 45 provides frequencies of weight lost – over the eight week period: one participant lost 11.3Kg, one lost 7Kg and one 6.2Kg. Forty-six participants (8.3%) lost from 3kg to 6kg within the eight week program. Seven participants gained weight, of these two remained in the healthy weight range; two moved from the healthy weight range to overweight; and the remaining three stayed in the obese range. Reasons for these weight gains are unclear but could potentially be attributed to mis-weighing at baseline, changes in clothing worn between baseline and the end of the program, increased food intake, decreased activity, changes in temperature that could contribute to hydration or medical conditions.

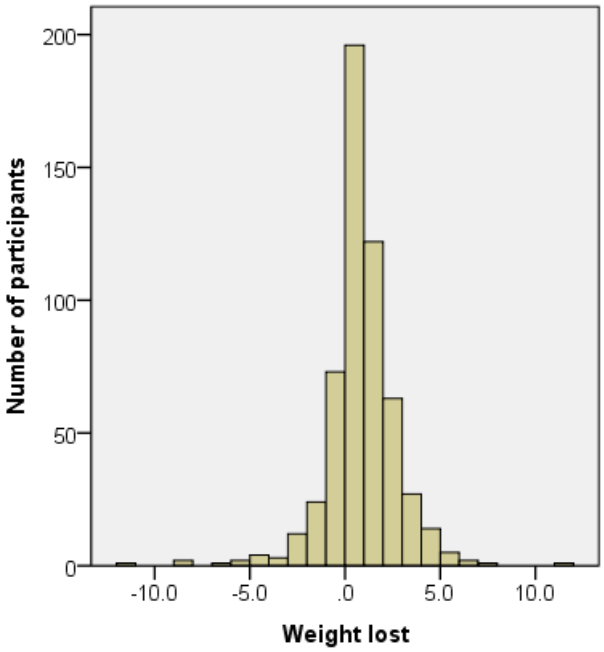

Figure 45: Frequency of weight loss over the eight week program (n=553)

At baseline, mean weight was significantly different across cultural groups (ANOVA, p-value < 0.001). Pacific and South Sea Islander participants were the heaviest, with a mean weight of 101.1 kg (95%CI: 97.1 – 105.1). Table 33 and Figure 46 summarise the changes in weights from baseline to post-program for participants in each community.

Table 33: Mean (SD) weight at baseline and post program at Week 8 with 95% CI and p values

Community	N	Baseline Mean weight Kg (SD)	Post week 8 Mean weight Kg (SD)	Diff (95 % CI)	p-value
Afghani	36	69.1 (11.8)	67.9 (11.2)	1.2 (0.7 – 1.8)	<0.001
Arabic-speaking	118	72.2 (13.9)	71.3 (13.7)	0.9 (0.6 – 1.2)	<0.001
Bhutanese	26	65.9 (9.1)	65.3 (9.4)	0.6	NS
Myanmar (Burmese)	29	65.8 (10.6)	65.7 (10.6)	0.1	NS
Pacific Islanders	122	101.1 (22.2)	100.1 (21.9)	1.0 (0.5 – 1.5)	<0.001
Sri-Lankan	71	69.7 (11.2)	69.0 (11.1)	0.7 (0.5 – 1.1)	<0.001
Sudanese/Somali	85	75.7 (16.0)	75.1 (15.3)	0.6 (0.2 – 0.9)	<0.01
Vietnamese	66	58.4 (9.6)	58.2 (9.4)	0.2	NS

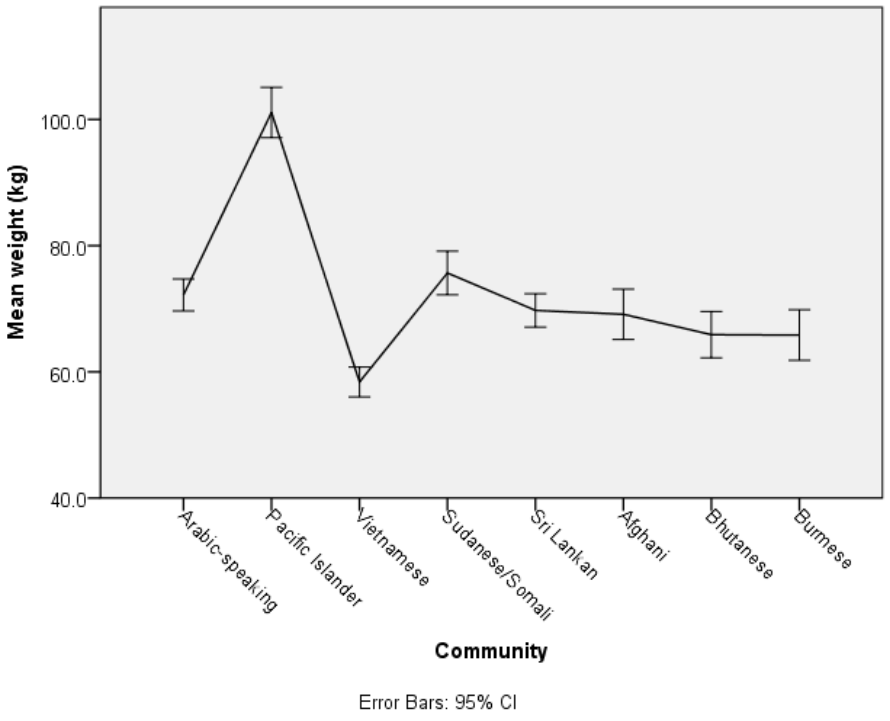

Figure 46: Mean weight across cultural groups at baseline (n=553)

After the program, the Arabic-speaking, Pacific and South Sea Islanders, Sudanese/Somali, Afghani and Sri-Lankan participants had significant weight losses, whereas Vietnamese, Bhutanese, Myanmar (Burmese) participants had only slight changes to weight.

Body Mass Index or BMI is also used as an indicator of metabolic risk. For non-Asian populations a cut-off of 25.0 Kg/m^2 is indicative of high risk and for Asian populations a cut-off of 23.0 Kg/m^2 is used. The mean BMI (Kg/m^2) prior to the program commencing was 29.1 Kg/m^2 (SD 7.2; n=553) and this decreased to 28.8 Kg/m^2 (SD 7.1; n=553) at week eight. On average, participants reduced 0.3 units after the program with the true difference being between 0.21 to 0.33 units. This difference in BMI was significant (paired t-test, p<0.001).

At baseline, the mean BMI was significantly different across cultural groups (ANOVA, p-value < 0.001). The Pacific and South Sea Islander participants had the highest mean BMI at 36.4 Kg/m^2 (95% CI: 35.0 – 37.8), while the Vietnamese had the smallest BMI at 24.8 Kg/m^2 (95% CI: 23.9 – 25.6). It should be noted that even though Vietnamese participants had the lowest BMI – it was still indicative of a higher risk of chronic conditions. Table 34 summarises the changes in BMI across all cultural groups.

Table 34: Changes in mean BMI (SD) from baseline to post-program week 8 across all cultural groups, 95% CI and p-values

Community	N	Baseline	Post week 8	Diff (95 % CI)	p-value
Afghani	36	27.4 (4.7)	26.9 (4.5)	0.5 (0.3 – 0.7)	<0.001
Arabic-speaking	118	27.4 (5.4)	27.1 (5.3)	0.3 (0.2 – 0.5)	<0.001
Bhutanese	26	26.5 (4.0)	26.4 (4.1)	0.1	NS
Myanmar (Burmese)	29	26.8 (4.2)	26.7 (4.2)	0.1	NS
Pacific Islanders	122	36.4 (7.7)	36.0 (7.6)	0.4 (0.2 – 0.5)	<0.001
Sri-Lankan	71	26.9 (3.7)	26.6 (3.7)	0.3 (0.1 – 0.4)	<0.001
Sudanese/Somali	85	28.5 (8.4)	28.3 (7.9)	0.2 (0.0 – 0.4)	<0.05
Vietnamese	66	24.8 (3.5)	24.7 (3.4)	0.1	NS

Waist circumference

Waist circumference is used as an indicator of metabolic risk. AUSDIAB indicates that measurements in excess of 102cm for men and 88cm for women are indicative of increased risk of chronic conditions. For Vietnamese participants there are indications that risk increases at lower measurements: 90cm for men and 80cm for women. These are the figures that have been used to indicate risk.

The mean waist circumference of all participants (n=549) at baseline is 95.6 cm (SD= 15.2). After the program, participants' waist measurements significantly decreased to a mean of 94.2 cm (SD =14.6) (pair t-test, p-value < 0.001).

Mean waist circumference for participants from each community is represented in Figure 47. Pacific and South Sea Islander participants had the highest mean waist circumference at 111.3 cm (SD=14.3) followed by the Sri Lankan participants at 94.1 cm (SD=9.5 cm).

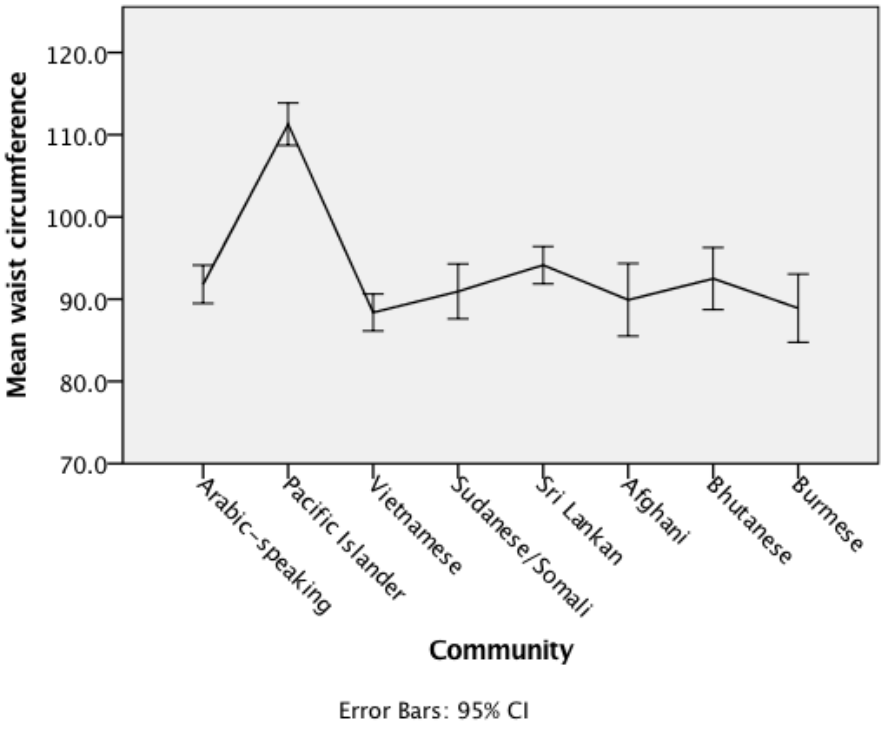

Figure 47: Mean waist circumference at baseline by community (n=549)

As waist circumference cut-offs vary according to gender, Table 35 provides a summary of the breakdown.

Table 35: Changes in mean waist circumference (SD) from baseline to the end of the program, presented by gender

Gender	Baseline	Post week 8	Difference (95%CI)	p-value
Female (n=388)	94.2 (14.7)	92.8 (14.3)	1.4 (1.0 – 1.8)	<0.001
Male (n=161)	99.1 (15.7)	97.6 (15.0)	1.5 (0.9 – 1.9)	<0.001

Across all participants there is a significant decrease in waist circumference by the end of the program except in Bhutanese and Burmese participants. This is shown in Table 36. While there is a decrease in waist circumference this did not translate into a significant reduction in risk. Using the waist cut-offs of 102cm for men and 88cm for women and 90cm for Vietnamese, Bhutanese and Burmese men and 80cm for Vietnamese, Bhutanese and Burmese women, 61.1% (336/550) of participants were at risk of chronic conditions and this reduced to 56.0% (309/552) at week eight.

Table 36: Changes in mean waist circumference from baseline to the end of the program

Community	N	Baseline	Post week 8	Diff (95 % CI)	p-value
Afghani	36	89.9 (13.1)	86.9 (12.2)	3.0 (2.0 – 4.0)	<0.001
Arabic-speaking	118	91.8 (12.8)	91.0 (12.5)	0.8 (0.2 – 1.3)	<0.01
Bhutanese	25	92.0 (9.2)	92.7 (8.8)	-0.7	NS
Myanmar (Burmese)	29	88.9 (10.9)	88.3 (11.1)	0.6	NS
Pacific Islanders	122	111.3 (14.3)	108.9 (14.0)	2.4 (1.6 – 3.2)	<0.001
Sri-Lankan	70	94.1 (9.5)	92.7 (8.9)	1.4 (0.7 - 2.1)	<0.001
Sudanese/Somali	83	90.9 (15.3)	89.4 (15.0)	1.5 (0.6 – 2.5)	<0.01
Vietnamese	66	88.4 (9.1)	87.5 (9.2)	0.9 (0.4 - 1.3)	<0.001

At baseline, the percentage of participants with metabolic risk was significantly different across cultural groups (p-value < 0.001). Across cultural groups, the Pacific and South Sea Islanders had the largest number (87.7%) of participants with increased risk, followed by Vietnamese, Afghani, Bhutanese, Sri-Lankan, Sudanese/Somali and Arabic-speaking participants, with 75.8%, 50.0%, 50.0%, 47.1%, 44.6% and 44.1% respectively. Using this indicator, only 31.0%% of Myanmar (Burmese) participants are identified as having metabolic risk. See Figure 48.

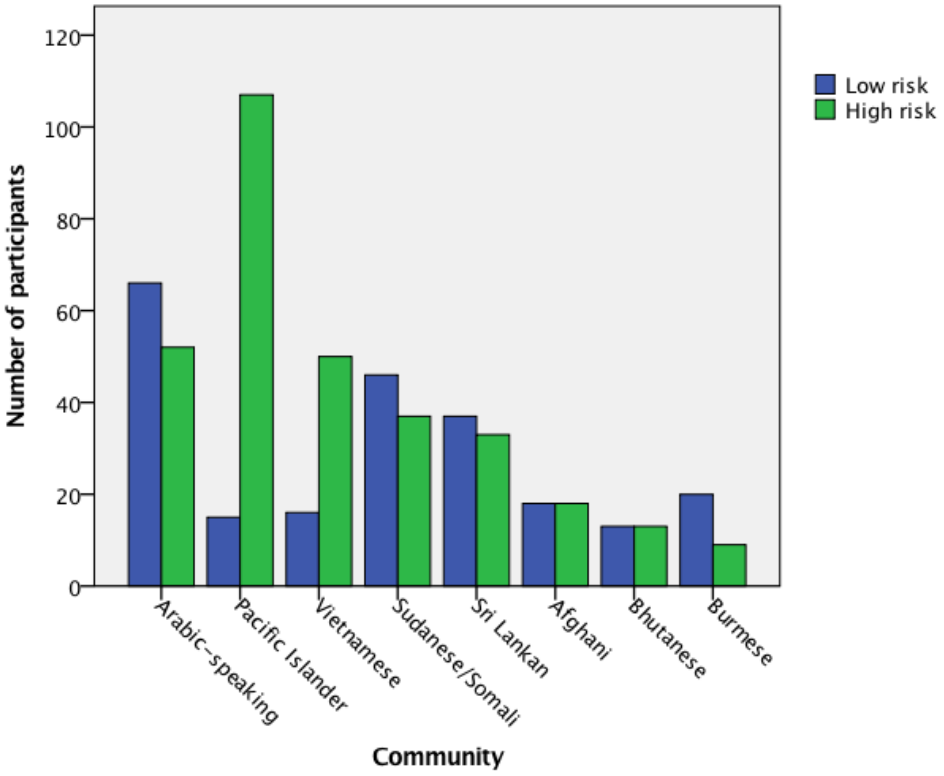

Figure 48: Metabolic risk by community at baseline (n= 550), using waist circumference.

Cardio-metabolic risk

Waist-to-height ratio has been identified as potentially a better indicator of adiposity and metabolic risk than other measures – particularly among Asian populations. A ratio of 0.5 and above is indicative of elevated risk. Overall, the proportion of participants with high metabolic risk at baseline was 85.1% (468/550), and this decreased to 83.1 % (462/556) at the end of the program.

At baseline, the proportion of participants with high metabolic risk was significantly different across cultural groups (p-value < 0.001). The Pacific and South Sea Islander groups had the highest proportion of participants at high risk, 97.5% participants, followed by the Sri-Lankan (94.3%), the Vietnamese (92.4%), the Bhutanese (88.5%), the Myanmar (Burmese) (82.8%), the Afghani (77.8%) and the Arabic-speaking (77.1%) groups. After the program, 17 participants (five Arabic-speaking, two Pacific and South Sea Islanders, two Vietnamese, four Sudanese/Somali, two Afghani, one Bhutanese and one Myanmar (Burmese)) had a significant improvements in metabolic risk measurement switching from high risk to low risk. In contrast, eight participants (two Arabic-speaking, one Vietnamese, three Sudanese/Somali, one Bhutanese and one Myanmar (Burmese)) switched from low risk to high risk.

Figures 49 and 50 illustrate changes to metabolic risk by community at baseline and post-program at week eight.

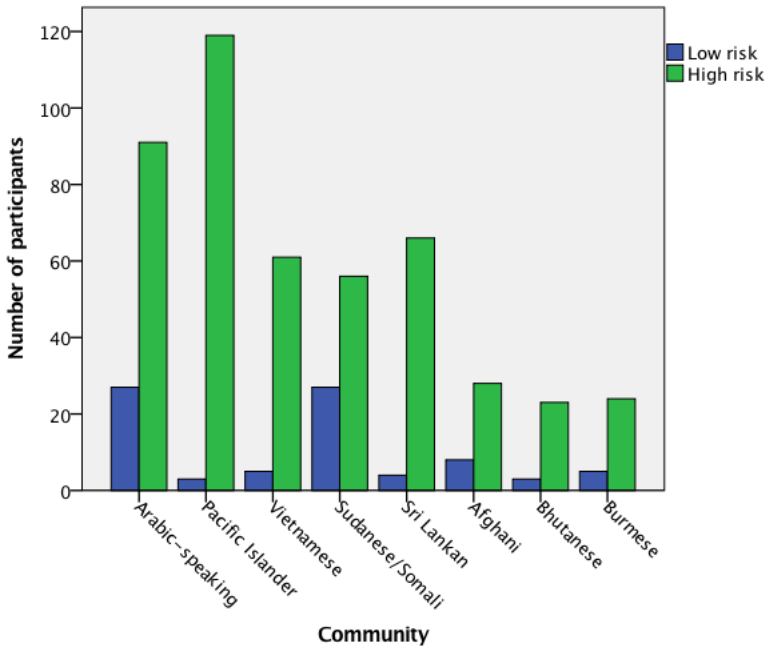

Figure 49: Metabolic risk (waist/ht ratio) by community at baseline (n=550)

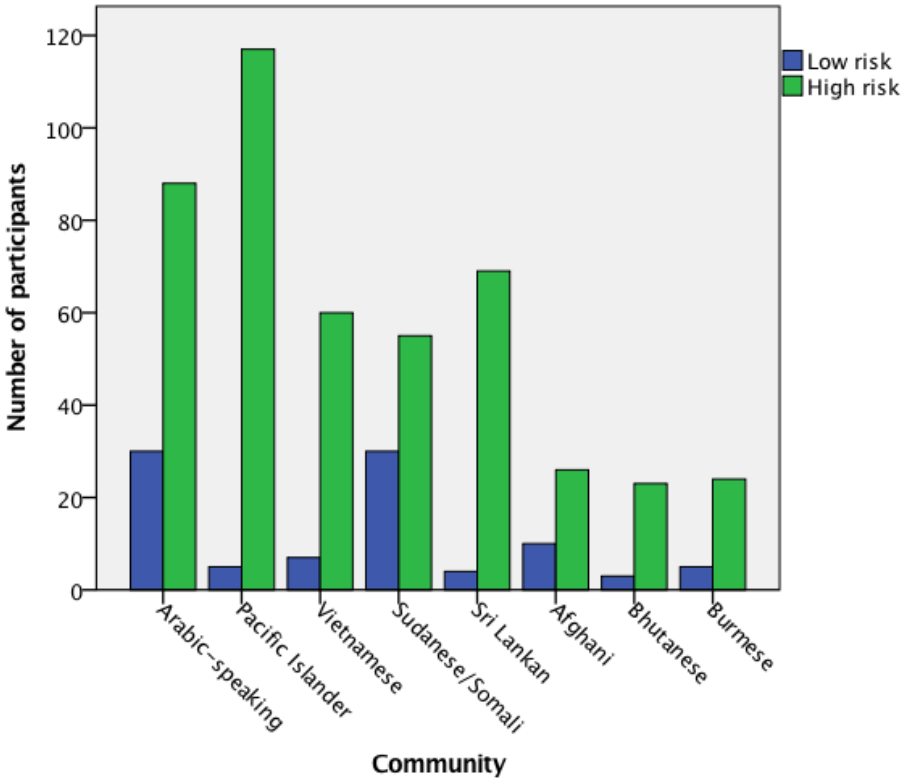

Figure 50: Metabolic risk (waist/ht ratio) by community at week 8 (n=556)

Blood pressure

Elevated blood pressure is a cardiovascular risk factor. Blood pressure was measured by multicultural health workers at baseline and post-program at week eight. Systolic pressure greater than 140mmHg and/or a diastolic pressure greater than 90mmHg is considered indicative of elevated risk. At baseline 25.9% (143/552) of participants had elevated blood pressure decreasing significantly to 19.7% (109/552) after the program ($p<0.05$).

At baseline, the proportion of participants with high blood pressure varied significantly across cultural groups ($p<0.001$). At baseline, the proportion of participants with high blood pressure varied significantly across cultural groups ($p<0.001$). Half of the Pacific and South Sea Islander participants (50.0%, 61/122) registered a high blood pressure, this contrasted with Arabic-speaking, Sudanese/Somali and Myanmar (Burmese) participants where only 12%, 10.7% and 6.9% participants registered a high blood pressure. All groups recorded a decrease in blood pressure, however none were statistically significant. See Table 37.

Table 37: changes in blood pressure for each community group from baseline to post-program at week 8.

Community	N	Baseline (%)	Post week 8 (%)	p-value
Afghani	36	22.2	13.9	NS
Arabic-speaking	117	12.0	5.1	NS
Bhutanese	26	19.2	11.5	NS
Myanmar (Burmese)	29/28*	6.9	3.6	NS
Pacific Islanders	122	50.0	42.6	NS
Sri-Lankan	71	29.6	25.4	0.57
Sudanese/Somali	84/85*	10.7	5.9	NS
Vietnamese	67	34.3	28.4	NS

*Baseline/Week 8

Are the outcomes sustainable?

The results above provide information on baseline and immediately after the end of the program at eight weeks. This next section looks at the first group of participants and if changes were sustained 6 weeks post program and again at 4 months post program. It should be noted that at 6 weeks post program participants attended another session where data including weight, waist and blood pressure were collected. At four months post program participants were telephoned and the data is self-reported.

Weight

Based on the available data it would appear that weight slightly decreased after the end of the program. See Table 38. Please note that there are fewer participants at the week 14 and 26 follow ups and the final follow up is self-reported.

Table 38: Changes in weight at 4 time points

Time-point	Valid data N	Mean weight in Kg (SD, 95% CI)
Baseline	456	76.7 (SD = 21.5, 95% CI: 74.8 – 78.7)
Week 8	457	75.9 (SD = 21.1, 95% CI: 74.0 – 77.9)
Week 14	391	75.8 (SD = 20.6, 95% CI: 73.8 – 77.9)
Week 26	398	74.7 (SD = 20.7, 95% CI: 72.7 – 76.8)

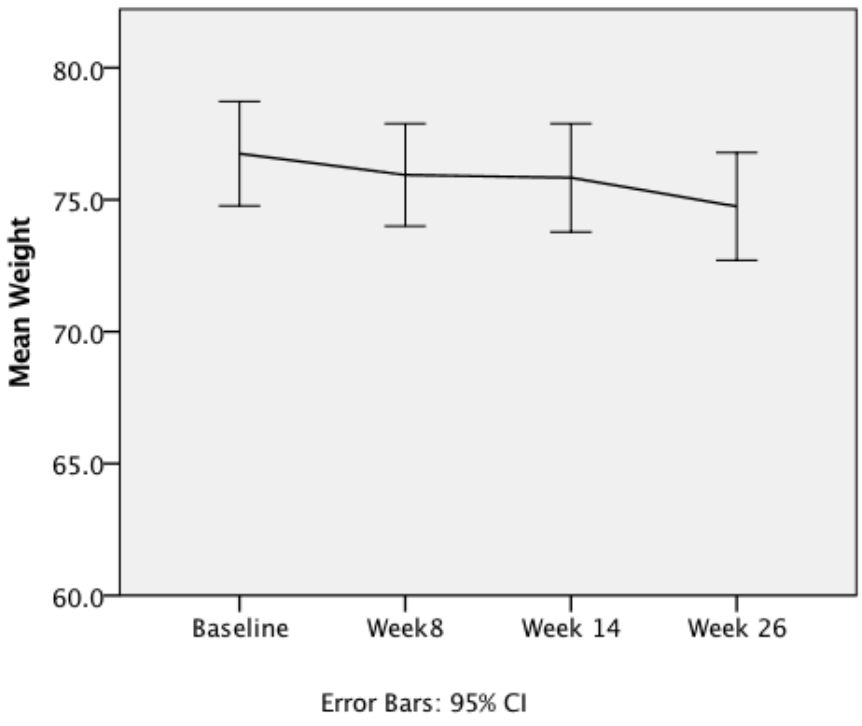

Figure 51 Mean weight at four time points

Although not significant, it would appear though that BMI and waist circumference continued to decrease, see Table 39 and Figures 52 and 53. Waist circumference was not collected at Week 26.

Table 39: Changes in mean BMI and waist circumference at first follow up.

Timeline	N	Mean BMI Kg/m^2 (SD, 95% CI)	N	Mean waist circumference cm (SD, 95% CI)
Baseline	429	29.0 (SD = 6.8, 95% CI: 28.4 – 29.7)	427	95.6 (SD = 15.8, 95%CI: 94.4 – 97.3)
Week 8	431	28.7 (SD = 6.7, 95% CI: 28.1 – 29.4)	430	94.3 (SD = 14.5, 95% CI: 92.9 – 95.7)
Week 14	432	28.5 (SD = 6.5, 95% CI: 27.9 – 29.1)	432	93.4 (SD = 14.9, 95% CI: 92.0 – 94.8)

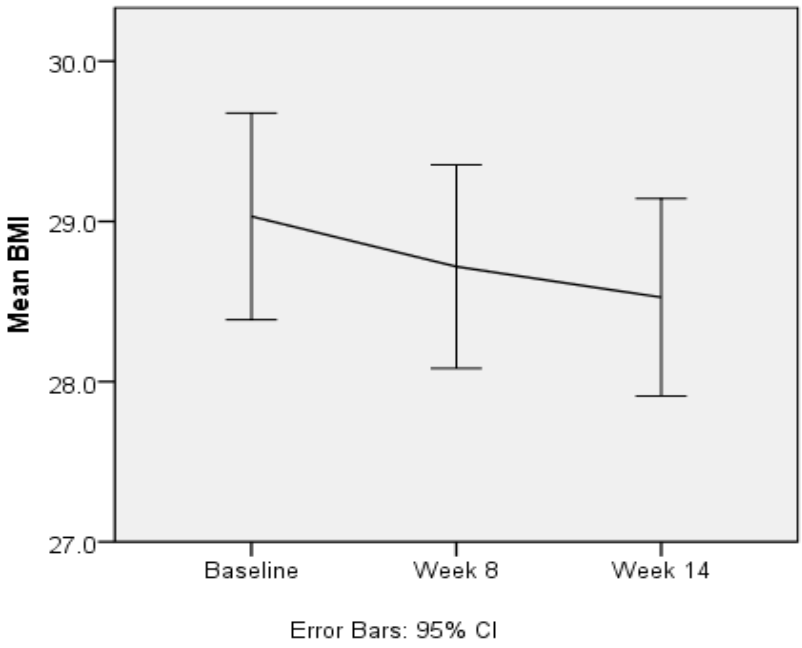

Figure 52: BMI at Baseline, post week 8 and follow-up

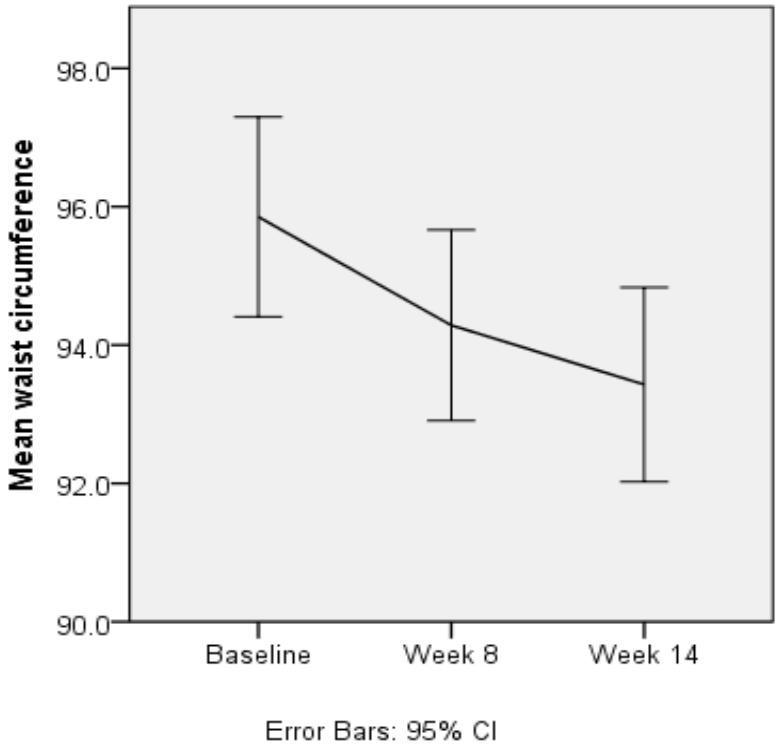

Figure 53: Mean waist measurement at Baseline, post week 8 and follow up

Metabolic risk based on waist/height ratio also continued to decline at the first follow-up. See Figure 54.

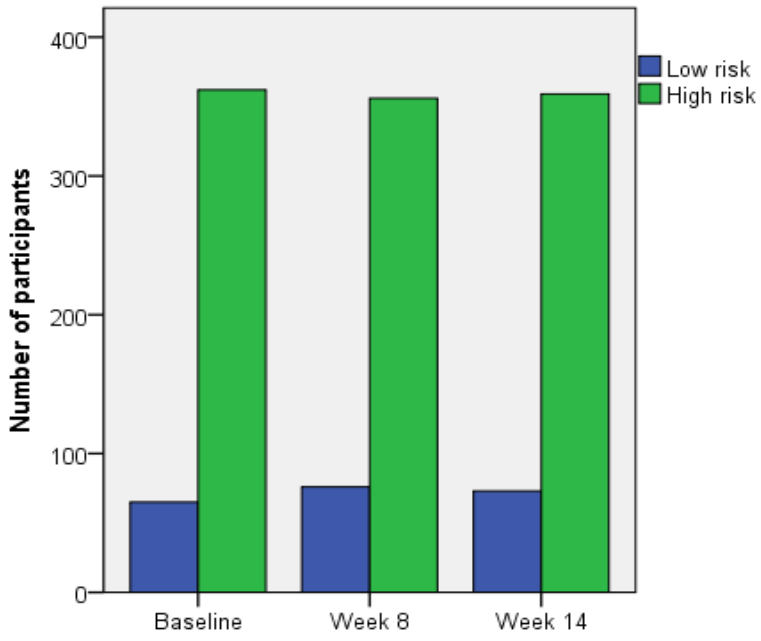

Figure 54: Changes to metabolic risk at first follow up

Blood pressure also continued to decline at follow up and this would appear to be significant ($p<0.001$). Care needs to be taken in interpreting these results due to the number of participants that did not attend the first follow up and the risk of bias, that is, those who attended the first follow up were those who had maintained the behaviours. See Figure 55.

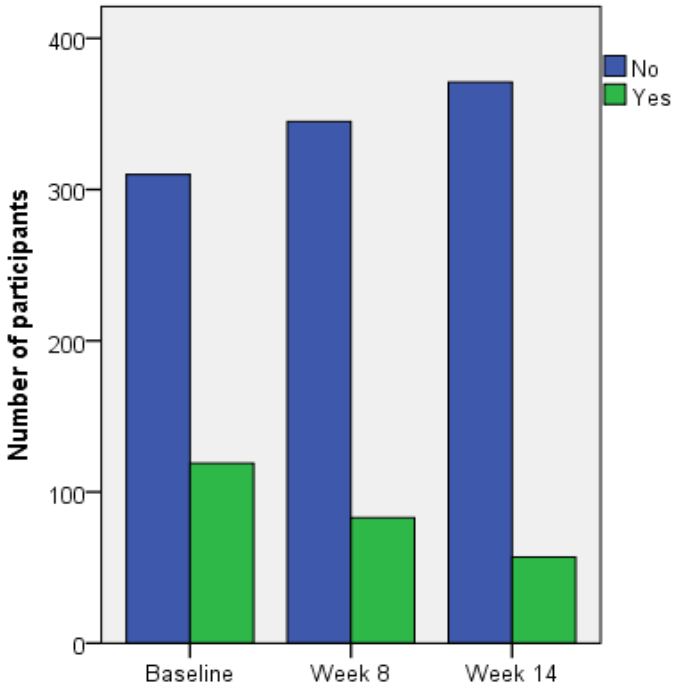

Figure 55: Changes in number of participants with high blood pressure at the first follow up

Qualitative responses

Participants were asked to comment on changes made to their overall health in weeks 8, 14, and 26. In addition, to change in eating and physical activity, described above, participants also identified the following changes to their overall health: feeling happier/healthier/stronger; reduced pain; weight loss; better sleep; and health changes.

Feeling happier/healthier/stronger

I have a lot of energy, and I feel lighter, I am not sick often. I also don't get headaches anymore. (MAG071168)

… can work longer with less tired (NGU150639)

I get sick significantly less than previous time (NGU 030952)

Reduced pain

My knees are less painful. (NGU070249)

Weight loss

I lost many kg (ABD 010172)

reduce my waist circumference (LE291038)

I can manage my weight now… (ALO100760)

Better sleep

I sleep well (HOA 090160)

take good sleep of 6-8 hours (PAR131269)

Health changes

My cholesterol level is lower (TRU 171047)

… my blood pressure decreased a lot (FAH260249)

sugar level is under control RAM 100475

Conclusion and Recommendations

The LMW program has been effective in:

- Identifying and engaging the required community groups to participate in the program;
- Providing a services to a broad range of community members from different backgrounds;
- Increasing knowledge around risk factors associated with chronic disease;
- Improving confidence to reduce risk and manage chronic conditions.
- Decreasing weight, waist circumference and high blood pressure as risk factors for chronic disease;
- Improving eating behaviours with an increased consumption of fruit, vegetables and low fat milk and a decreased consumption of discretionary food items in the short term but more work needs to be done to sustain these behaviours;
- Increasing physical activity.

The program appears to be able to maintain, in the short term, positive eating behaviours and physical activity with concomitant ongoing decreases in waist circumference and blood pressure.

Recommendations

Based on the findings to date the recommendations are:

1. Discuss with MHWs and key male members of each community as to how male members can be targeted and reached. This may involve changing the programs to be more in line with activities that are male-oriented.
2. Eating behaviours appear to be the most difficult to sustain in particular around takeaway food and processed meat consumption. These behaviours need to be more thoroughly investigated with community generated solutions developed.
3. Review the content of the program, in particular for low literacy communities with a view to increasing experiential activities.
4. Develop a system to deliver ongoing messages for each target community to continue to enhance and sustain behaviours. These need to be developed and tested with each community.

Appendix A – Evaluation tool

Only the pre-questionnaire is presented here. Other tools are available on request

Culturally and Linguistically Diverse Communities

Ethnic Communities Council of Queensland

Queensland University of Technology

Healthier. Happier.

Queensland Government

We greatly appreciate your help with this questionnaire. The information you provide is important as it will provide the Ethnic Communities Council of Queensland (ECCQ) with information on the program and how it has worked and what could be improved.

As part of participating in the Living Well Multicultural Program you will be undergoing a collection of information at the beginning of the program, at the end of program, and 6 weeks after the program has finished. Six months later the health worker will ring you to see how you are going and ask some similar questions.

In collecting the information, health workers from your cultural background will be asking you questions and checking various measurements of your weight, height, waist and blood pressure. This will take approximately forty minutes. It will include questions such as:

- How many pieces of fruit do you eat each day?
- What is the main type of milk you usually drink?
- In the last week, for how many minutes have you walked continuously for recreation, exercise or to get to or from places?
- How does your level of activity now compare to 12 months ago?
- How much do you weigh?
- How tall are you without shoes on?
- Do you currently smoke cigarettes or any other tobacco products on a daily basis?

The questionnaire will be coded to allow ECCQ to match your pre and post program information but it will not include your name and it is unlikely that anyone would be easily able to identify you. Your questionnaires will only have the following to identify them for example Mary Smith born 02 Feb 1954 will be coded as SMI02021954. This will mean that privacy will be protected. Any identifiable information already obtained from you will be destroyed.

ECCQ has received funding from Queensland Health to run this program and ECCQ is funding QUT to undertake the evaluation, to see how well the program works.

Your participation is entirely voluntary and you can choose not to answer all or some of the questions. If you do agree to participate you can withdraw your data at any time. Your decision to participate, or not participate will not impact on your current or future relationship with Queensland Health, ECCQ or QUT. Queensland Health will not have access to this information. The information you provide, with no identifying information to link it back to you may be used by other researchers looking at the same questions.

Any data collected as part of this project will be stored securely as per QUT's Management of research data policy.

You will benefit directly from collecting this information by knowing about your current health status and through improvements in the Living Well Multicultural Lifestyle Modification Program.

You may feel some discomfort with answering some of the questions, remember that your answers are confidential but you can choose not to answer any of the questions.

Completion of this questionnaire is taken as consent to participate.

Please remember:

- There are no right or wrong answers; we just want to know what **YOU** think.
- Provide only one answer for each item, unless otherwise stated.
- Your answers will be treated as strictly **PRIVATE** and **CONFIDENTIAL** as required by law.

If you have any questions:

Please contact Ms Hong Do, Program Manager on (07) 325 51540 or email hongd@eccq.com.au.

Or Associate Professor Danielle Gallegos on (07) 3138 5799 or email danielle.gallegos@qut.edu.au.

This has been approved by Queensland University of Technology Human Research Ethics Committee (1500000028).

Concerns / complaints regarding the conduct of the project:

QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on (07) 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

Office Use Only

First three letters of surname Day/Month/Year of birth

Section 1 About you and your household

1.1 What is your date of birth and age?

											Age in years		
	DAY		MONTH			YEAR							

1.2 Are you male or female?

☐0 Male ☐2 Female

1.3 What is your country of birth?

(Please specify) _____

1.4 How long have you been in Australia?

		years	**OR**		Months		

1.5 What is the main language that you speak?

(Please specify) _____

1.6 What is your ethnicity?

(Please specify) _____

1.7 What suburb do you live in? Please state the postcode if you know this

(Please specify) _____ Postcode___ ___ ___ ___

1.8 What is the highest educational qualification you have completed?

(Please tick one only)

☐1 Primary School	☐5 Diploma or Associate Degree
☐2 High school (up to 3-4 years)	☐6 Bachelor Degree (Pass or Honours)(University)
☐3 High school (up to 5-6 years)	☐7 Postgraduate degree (Masters degree or Doctorate)

☐4 Certificate (trade or business) ☐8 Other (Please describe) _____

1.9 Where was this qualification achieved?

☐ 1 In Australia ☐In your home country

1.10 Which one of the following best describes your employment situation?

(Please tick one only)

☐1 Full-time paid work	☐ 2 Part-time paid work
☐3 Casual paid work	☐ 4 Self-employed
☐5 Work without pay in a family or other Business	☐ 6 Home duties
☐7 Unemployed looking for work	☐ 8 Retired
☐9 Permanently unable to work	☐ 10 Student
☐11 Other: (Please Specify): _____	

1.11 Which one of the following best describes your household?

(Please tick one only)

☐1 Living alone with no children

☐2 Single parent living with one or more children

☐3 Single and living with friends or relatives

☐4 Couple (married or defacto) living with no children

☐5 Couple (married or defacto living with one or more children)

☐6 Other (Please specify) _____

1.12 How did you find out about the ECCQ Living Well Multicultural Program?

(Please tick one only)

☐1 A member of my community

☐1	The newspaper
☐1	The radio
☐1	ECCQ website/newsletter
☐1	Word of mouth
☐1	My community association's website
☐2	The multicultural health worker
☐2	My doctor/general practitioner
☐2	The hosptial or other medical service
☐3	Other please specifiy

Office Use Only:

1: Self 2: Medical 3: Other

2.1 How much do you weigh?

(The interviewer will weigh you)

Kilograms

2.2 How tall are you without shoes on?

(The interviewer will measure your height)

Centimetres

2.3 What is your Body Mass Index (BMI) is?

(The interviewer will calculate this for you)

Kg/m^2

2.4 What is your waist circumference?

(The interviewer will measure this for you)

cm

2.5 What is your blood pressure?

(The interviewer will measure this for you)

Systolic e.g 120 *Diastolic e.g 80*

2.6 Do you think you are?

(Please tick one only)

☐$_1$ A healthy weight

☐2	A little bit overweight
☐3	Significantly overweight
☐4	Underweight
☐5	I am not sure

2.7 In the last six months do you think you have?

(Please tick one only)

☐1	Lost weight
☐2	Gained weight
☐3	Stayed the same weight
☐4	I am not sure

2.8 Have you ever been told by a doctor or nurse that you have/had any of the following conditions?

	Yes	No
Diabetes or high blood sugar	☐1	☐
Heart attack	☐2	☐
High blood pressure or hypertension	☐3	☐
Hardening of the arteries	☐4	☐
Elevated or high cholesterol	☐5	☐
Overweight or obesity	☐6	☐
Asthma	☐7	☐
COPD (chronic obstructive pulmonary disease), emphysema or other lung problems	☐8	☐
Chronic kidney disease or other kidney problems	☐9	☐
Arthritis	☐10	☐

Other: *Please specify* _____ ☐11 ☐

2.9 Do you currently smoke cigarettes or any other tobacco products on a daily basis?

☐1 Yes ☐0 No

2.10 Have you had an alcoholic drink of any kind in the last 12 months?

☐1 Yes
Go to Q2.11

☐0 No
Go to Q2.14

2.11 In the last 12 months how often did you have an alcoholic drink of any kind?

☐1	☐2	☐3	☐4	☐5	☐6	☐7
Everyday	5 to 6 days a week	3-4 days a week	1 to 2 days a week	2 to 3 days a month	About 1 day a month	Less often

2.12 The last time you drank alcohol <u>what type</u> of alcohol did you drink? Tick all that are relevant (includes purchased or homemade)

☐1	☐2	☐3	☐4	☐5
Beer - full or mid strength	Beer – low alcohol	Wine (Red or White)	Spirits (whiskey, vodka, kava, sake etc)	Liqueur or fortified wine (port, sherry)

2.13 The last time you drank alcohol how much alcohol did you drink?

☐1	☐2	☐3	☐4	☐5
Less than 1	1-2 drinks	3-4 drinks	5-6 drinks	More than six drinks

Interviewer note: a drink is half a glass of wine, a can of beer or a shot of spirits

2.14 What have you changed or tried to change about your diet and or physical activity in the last six to 12 months? ***(please write down what you have done, if you have not made any changes just state "nothing")***

2.15 What have you changed or tried to change about your health in the last six to 12 months? ***(please write down what you have done, if you have not made any changes just state "nothing")***

2.16 What is the main thing you would like to learn from the program?

Section 3 What you eat

This section asks about the types of foods you usually eat.

3.1 **How many pieces of fruit do you usually eat per day?**

(Count ½ cup of tinned fruit OR 1 cup fresh fruit/ berries/ grapes OR 1/3 cup dried fruit OR ½ cup juice as 1 piece).

(Count all types – fresh, frozen or tinned)

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Don't eat fruit	Less than 1 piece per day	1 piece per day	2 pieces per day	3 pieces per day	4 or more pieces per day

3.2 **How many servings of vegetables, do you usually eat per day?**

(1 serving = 1 medium piece such as one whole tomato or potato OR ½ cup cooked vegetables OR 1 cup fresh salad).

(Count all types – fresh, frozen or tinned)

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Don't eat vegetables	Less than 1 serving per day	1 serving per day	2 servings per day	3 servings per day	4 servings per day	5 or more servings per day

3.3 **What is the main type of milk do you usually drink?**

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7
Whole milk (full fat/full cream)	Reduced fat milk	Skim milk	Evaporated or condensed milk	Soy milk regular	Soy milk reduced fat	Other milk (e.g. rice/almond/ chickpea)

	If milk is not consumed at all please tick this box 0 ☐

Note milk can be cow's, sheep's, goat's milk

3.4	**How many times <u>in a week</u> would you <u>usually</u> eat meals that were bought from fast food/takeaway food outlets like McDonalds, Hungry Jacks, Pizza Hut/Dominoes, Kentucky Fried Chicken (KFC) Red Rooster, hamburger shops and fish and chips shops, Kebab, Thai/Chinese/Indian takeaway?**

☐ 0 Never or rarely	☐ 1 Less than once a week	☐ 2 Once a week	☐ 3 2-3 times per week	☐ 4 4-5 times per week	☐ 5 6 or more times per week	☐ 6 I don't know

3.5 **How often <u>in a week</u> do you eat hot potato chips, fries or wedges (including fried taro, sweet potato, cassava)**

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Never or rarely	Less than once a week	Once a week	2-3 times per week	4-5 times per week	6 or more times per week	I don't know

3.6 **How often do you eat potato crisps or other salty snacks (such as Twisties, Corn chips, pretzels, fried, salty nuts)?**

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Never or rarely	Less than once per week	About 1-3 times per week	About 4-6 times per week	Once a day	2 or more times per day

3.7 **How often do you eat sweets (such as sweet biscuits, cakes, muffins, scones, sweet pies, lollies, candy or chocolates, baklava, oil cakes, wattappam, sticky rice cakes, pastries)?**

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Never or rarely	Less than once per week	About 1-3 times per week	About 4-6 times per week	Once a day	2 or more times per day

3.8 **How often do you usually drink soft drinks/ fizzy drinks (like Coke, lemonade) or sports drinks like Gatorade, or energy drinks like Red Bull, Sting or Mother?**

☐0	☐1	☐2	☐3	☐4	☐5
Never or rarely	Less than once per week	About 1-3 times per week	About 4-6 times per week	Once a day	2 or more times per day

3.9 How many times per week do you eat :

	Never	Less than once per week	1 – 2 times per week	3 – 4 times per week	5 or more times per week
Processed meat (sausages, corned beef, camp pie, luncheon, salami etc)	☐0	☐1	☐2	☐3	☐4
Savoury pies, sausage rolls, or pastries					
If vegetarian, please indicate by ticking this box		☐			

Section 4 How active are you?

4.1 In the last week, what do you estimate to be the total number of minutes you have walked continuously for fitness, recreation, exercise or to get to or from places? This is any walking, fast or slow.

Active Australia: If the respondent appears to be having difficulty in totalling the time over the entire week, you could assist by prompting for a time each day and adding them yourself, e.g. 'Did you walk on Monday? How long did you spend walking on Monday? And did you walk on Tuesday? For how long?' Continuous is without stopping

Active Australia: Interviewers stress continuously

		minutes

4.2 In the last week, what do you estimate was the total time that you spent doing vigorous gardening, heavy work around the yard or housework which may you breathe harder or puff and pant?

Active Australia: The types of activities which may be included in this section could include heavy digging, tree lopping, landscaping (e.g. pushing a wheelbarrow or moving large rocks), pushing a lawn mower and using a hand saw, scrubbing the shower or bath, washing the floor. If the respondent appears to be having difficulty in totalling the time over the entire week, you could assist by prompting for a time each day. This question relates to work.

		minutes

4.3 Not including the walking identified above, in the last week, what do you estimate was the total time that you spent doing moderate physical activity?

Active Australia: The types of activities which might be expected, in addition to the above examples, include ballroom or slower dancing, badminton, table tennis, horseback riding, canoeing, kayaking, volleyball, cricket, baseball or softball, downhill skiing, cross-training, surfing and windsurfing.

		minutes

4.4 Not including the physical work identified above, in the last week, what do you estimate was the total time that you spent doing other vigorous physical activity that made you breather harder or puff and pant? (e.g. jogging, cycling, basketball, soccer, competitive tennis, fast dancing)

Active Australia: The types of activities which might be reported here, in addition to the above examples, include football (of all types), hockey, squash, cross-country skiing, cross-country hiking (i.e. rough or steep terrain), weight lifting, boxing, rock climbing, basketball, netball, gymnastics, using a rowing machine, martial arts, high-impact and step aerobics.

		minutes

4.5 How does your level of activity now compare to 12 months ago?

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Significantly less	A little less	About the same	A little more	Significantly more	Not sure

Section 5 Have you heard about these?

We would be grateful if you could provide us with some information about what you know about these issues. Tick the response you think is the BEST answer

5.1 Physical activity is

☐**A** Structured exercise like aerobics or the gym that makes me sweaty and breather quicker

☐**B** Physical labour like cutting wood or vacuuming that makes me breathe quicker and my heart beat faster

☐**C** Any activity that makes me breathe quicker and my heart beat faster

☐**D** Doing a sport like soccer that makes me sweaty and my heart beat faster

☐**E** I don't know

5.2 The recommendation for physical activity for adults is to undertake each week

☐**A** Up to 300 minutes of moderate physical activity per week

☐**B** Up to 300 minutes of vigorous physical activity per week

☐**C** Up to 75 minutes of moderate physical activity per week

☐**D** Up to 30 minutes of vigorous physical activity per week

☐**E** I don't know

5.3 The recommended number of serves of fruit to eat each day is

☐**A** One

☐**B** Two

☐**C** Four

☐**D** Five

☐**E** I don't know

5.4 The recommended number of serves of vegetable to eat each day is

☐**A** One

☐**B** Two

☐**C** Four

☐**D** Five

☐**E** I don't know

5.5 A serve of vegetable is

☐**A** About a cup of cooked vegetables or a whole potato/sweet potato/taro/cassava

☐**B** About two cups of cooked vegetables or 2 whole potatoes/ sweet potato/taro/cassava

☐**C** About a half a cup of cooked vegetables or ½ of a potato/ sweet potato/taro/cassava

☐**D** About a quarter a cup of cooked vegetables or ¼ of a potato/ sweet potato/taro/cassava

☐**E** I don't know

5.6 The ingredient label on a nutrition panel on food products in Australia

☐**A** Does not have to list all the ingredients

☐**B** Can be made up and not true

☐**C** Is listed in order of quantity from lowest to highest

☐**D** Is listed in order of quantity from highest to lowest

☐**E** I don't know

5.7 The Medicare health insurance in Australia pays for

☐**A** Elective and cosmetic surgery as well as specialists appointments

☐**B** Private health services, visits to the dentist, and ambulance cover

☐**C** Public health services, visits to the GP, medical tests, x-rays and eye tests

☐**D** Physiotherapy, dentistry, podiatry and psychology

☐**E** I don't know

5.8 How confident do you feel you can reduce your risk of getting a chronic condition such as diabetes, heart disease?

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐	10 ☐

Not at all confident			Totally confident

5.9	**If you have a chronic condition how confident do you feel you can manage it and stop it from getting worse?**

1 ☐ Not at all confident	2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐	8 ☐	9 ☐ 10 ☐ Totally confident

End of questionnaire.

Thank you for your time and dedication in completing this questionnaire.

It is much appreciated.

If you have any further queries, please do not hesitate to us.

Appendix B – Visual representation of socio-demographic data of participants

This appendix provides visual representation of the socio-demographic data of participants.

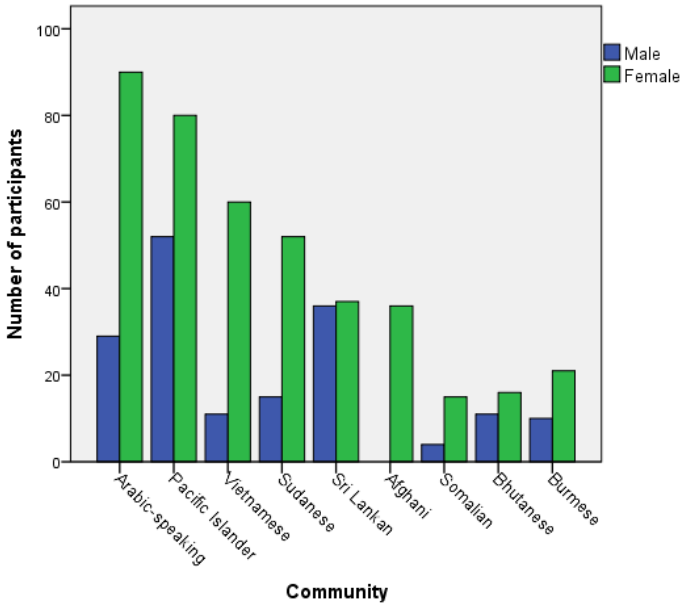

Figure AB-1 Gender of participants

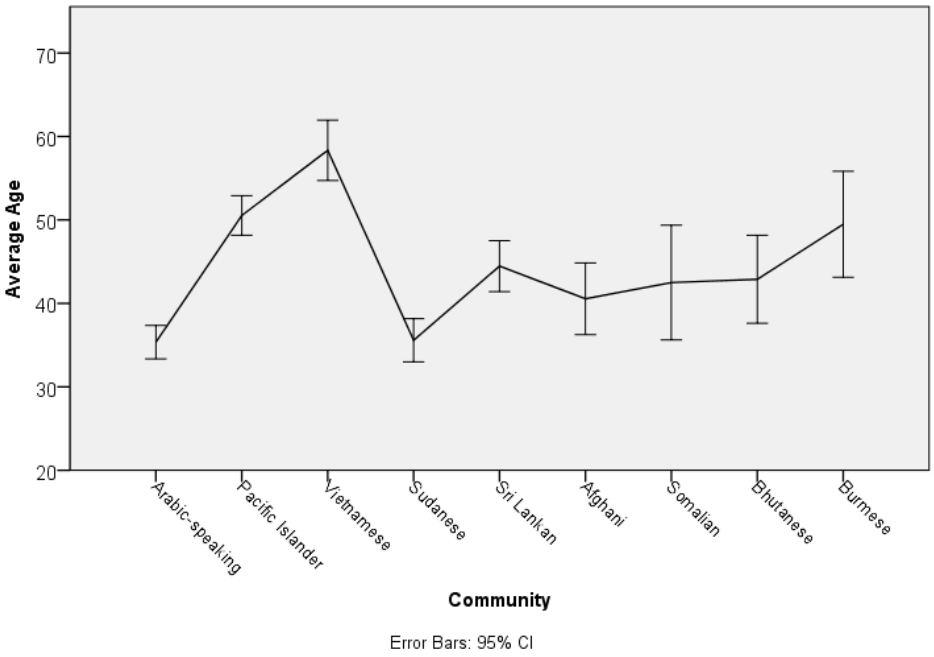

Figure AB-2: Average age of participants with 95%

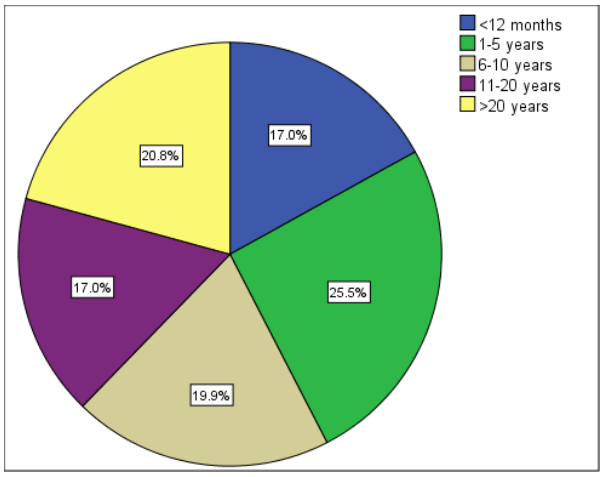

Figure AB-3: Participant length of time in Australia

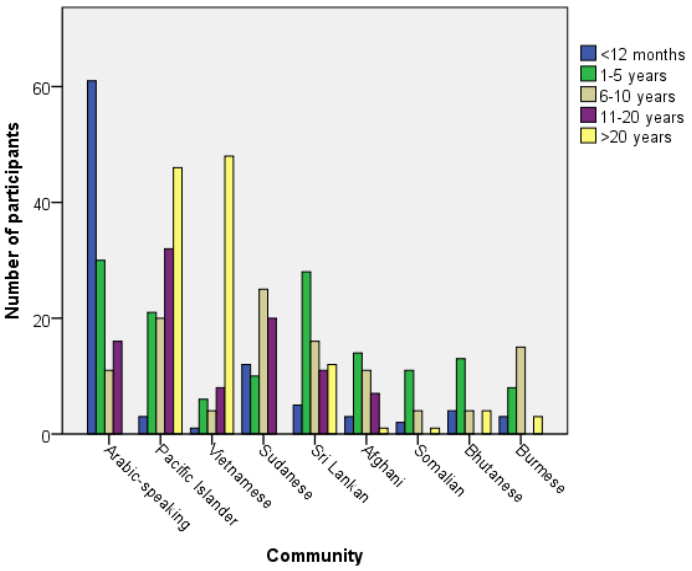

Figure AB-4: Participant length of time in Australia by community

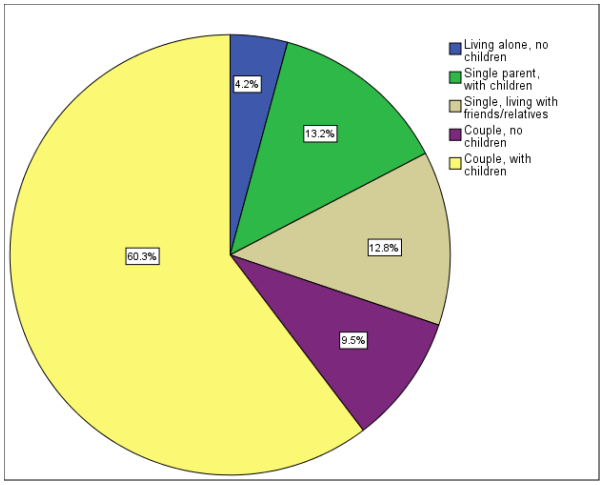

Figure AB-5: Participant living arrangements

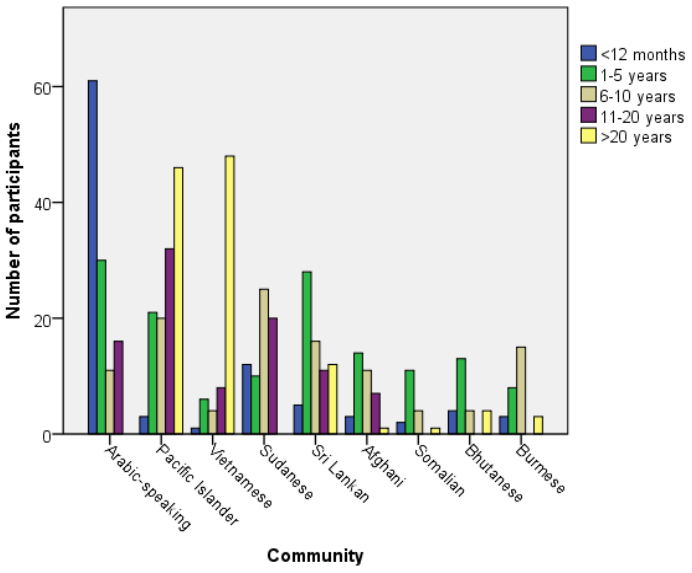

Figure AB-6: Participant living arrangements by community

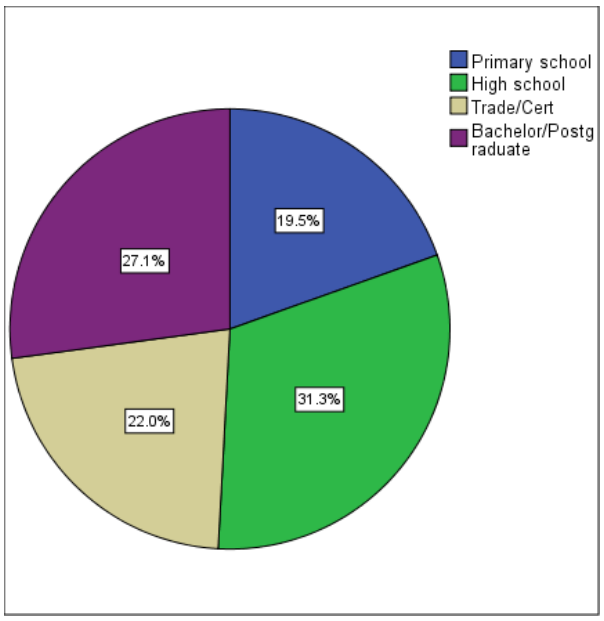

Figure AB-7: Participant education status

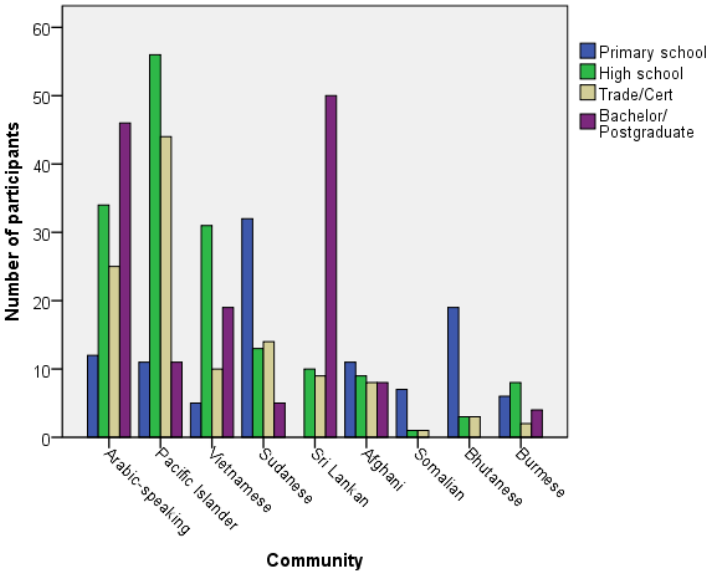

Figure AB-8: Participant education status by community

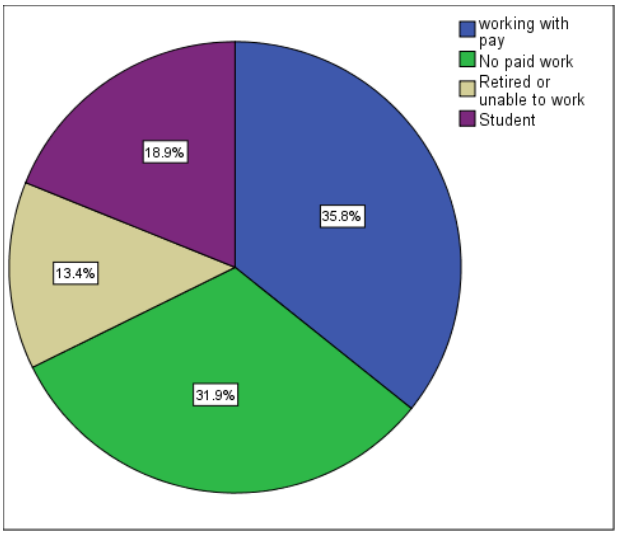

Figure AB-9: Participant employment status

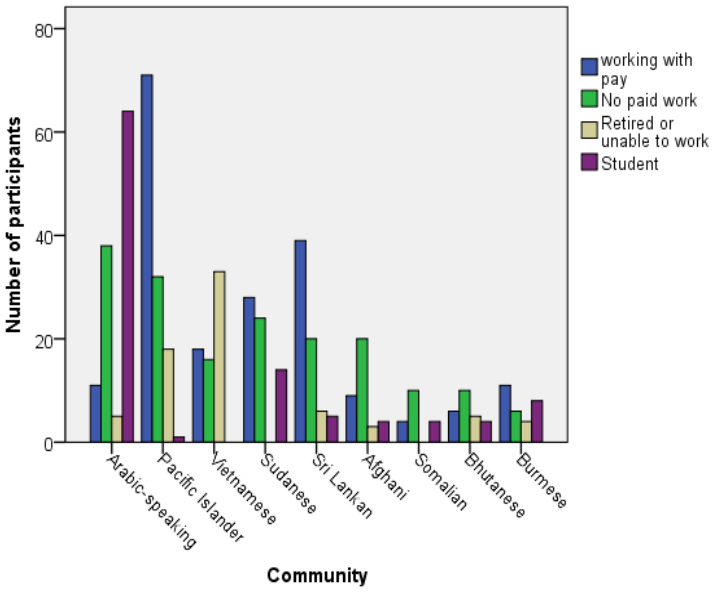

Figure AB-10: Participant employment status by community

Appendix C – Qualitative comments post-session

Session 2

What did you learn?	What are you going to change?
• Need 30 minutes of physical activity per day • Physical activity to maintain a healthy weight/ lose weight • Small amounts of physical activity are better than nothing • Learnt about recommended physical activity • Importance of regular/daily physical activity • Exercise and different types of exercise • HEAL and Theraband exercises • Importance of PA for health • Effects of PA of mental wellbeing/ QOL • Motivation to do PA • Sedentary behaviour • Safety and PA • PA is easy • Negative health effects of physical inactivity • PA Guidelines • Reduce Intake of fat, sugar and/or salt • Negative health effects of poor diet • Healthy diet • Fibre is important • Portion size • Drink 8 cups of water per day • Negative effects of smoking and alcohol during pregnancy • Passive Smoking • Negative effects of alcohol and tobacco • Electronic cigarettes • Smoking and preventable disease • Alcohol is fine in moderation • Do not smoke and/or drink alcohol • External support to stop smoking/ drinking alcohol • Learnt why people smoke • How to quit smoking and/ or drinking alcohol	• Do at least 30 minutes of physical activity per day • Do moderate physical activity • Increase/ start physical activity • Do physical activity regularly/ daily • Do some walking • Increase distance walking to work • Go to the gym • Start doing 30 minutes of physical activity and then increase to 60 minutes • Continue with regular physical activity • Stop or avoid sedentary behaviour • Breathing to calm down and relax (1) • Able to manage diabetes with small amount of exercise (1) • Stop smoking and/or drinking alcohol • Reduce alcohol consumption • Reduce smoking (1) • Avoid passive smoke • Reduce/ stop drinking sugar sweetened beverages • Increase water intake • Eat a healthy/ balanced diet • Change diet • Increase intake of fruit and/or vegetables • Eat no more than 2 serves of fruit per day (1) • Reduce food portion sizes • Stop eating regular snacks (1) • Reduce intake of fat and/or salt and/or sugar • Give more importance to food (1) • Set goals

• Benefits of quitting smoking and/ or reducing alcohol intake • Happiness is not related to smoking or alcohol • Type of chronic disease • PA can prevent chronic disease/ sickness • Risk factors for chronic disease/ sickness • Impact of chronic disease on populations in Australia (1) • Following individual advice in addition to group program (1) • Role modelling (1) • Goal setting (1) • Healthy lifestyle (1)	• Try and get more energy and a healthy body (1) • Change lifestyle (1) • Educate family about physical activity (1)

Session 3

What did you learn?	**What are you going to change?**
• Have 2 serves of fruit &/or 5 serves of vegetables • Benefits of fruit and/or vegetables • About protein (1) • Eat a moderate amount of meat (1) • Eat lentils • Eggs are very nutritious (1) • Avoid or eat small amounts of foods high in sugar and/or fat and/or salt • Foods that have high amounts of sugar and/or fat and/or salt • Choose low fat dairy for lower saturated fat content • Meat with skin-on is higher in fat than meat with skin removed (1) • Cooking methods (grilling better than frying) • The good and bad fats • The benefits/role of carbohydrates • Recommended number of carbohydrate serves (1) • Fibre is good for digestion • Drink plenty of water	• Control serving size • Reduce serving size or number of serves • Reduce consumption of meat/ red meat • Increase consumption of lean meat • Increase consumption of fish • Use the right oil (1) • Stop consumption of foods high in saturated fat (1) • Remove the fat or skin from meat • Reduce intake of fatty foods • Eat 2 serves of fruit and/or 5 serves of vegetables per day • Eat different colour fruit and vegetable • Increase intake of fruit • Increase intake of vegetables • Increase intake of green foods • Increase intake of fibre • Reduce sweet food and/or foods with added sugar

• Sugar content of juice and sweet drinks • Food serve sizes • Eating in moderation from different food groups • Different categories of food • Benefits/ effects of different food groups • Foods to eat more and/or foods to avoid • Foods to eat to improve health • Healthy and nutritious foods • Unhealthy foods • Changes in body and mind from healthy lifestyle (1) • Healthy eating is about variety of food • Food plate • Maximum daily number of serves of food to consume • Vitamins are good for energy (1) • Healthy eating/ balanced diet • How to choose nutritious foods and/or reading food labels • Steps to achieve a healthy life • Number of meals per day • Healthy eating can prevent and manage chronic disease • Diseases • Poor diet can harm the body and cause chronic disease • Exercise • "Thumbs Up Game" • Many new things • Set goals or adopt guidelines/ health tips • Nothing new	• Reduce salt intake and/or foods with high salt content • Reduce alcohol intake (1) • Reduce or stop drinking sugar sweetened beverages • Reduce/ manage intake of carbohydrates • Increase intake of water • Not use frying or deep-frying as a cooking method • Increase milk intake (1) • Change to reduced fat milk (1) • Have 3 meals per day (1) • Reduce intake of take away • Eat a variety of foods in moderation • Eat a healthy/ balanced diet • Eat per dietary guidelines • Implement simple techniques to eating well • Reduce unhealthy eating habits/ food • Increase exercise/ do regular exercise • Exercise after eating unhealthy foods • Read food labels • Change the types of food purchased • Lose or maintain weight • Live a happy life

Session 4

What did you learn?	What are you going to change?
• Importance of a healthy, balanced diet (1) • Choose a variety of colours for different vitamins and minerals • Eat a variety of foods from the different food groups • Importance of drinking water (1)	• Read the food labels/ nutrition information panel when shopping • Use the food label reading card when shopping • Check amounts of salt, sugar and fat when shopping

• Meat and fish need to be eaten in moderation (1) • Processed meat is very high in fat and salt (1) • Choose lean cuts of meat • Need to change type of milk used (1) • Eggs don't contribute to high cholesterol levels (1) • Legumes are a great alternative to meat products • How to read food labels/ nutrition information panels • How to select and purchase healthy foods • Should read food labels • Packaging claims and labels are not always accurate • Able to determine which foods are healthier using food labels • How to assess the amount of sugar, salt and fat in foods • Foods high in fibre have more than 3g fibre (1) • Wholegrain bread is better than white (1) • Avoid foods high in sugar and/or salt and/or fat • Even though foods look safe to eat they may have bacteria • How to store food (1) • How to check the expiry and best before dates • Plan a shopping before going to the shop • Shopping and food unit prices (1) • Shopping tips • Important to do some exercise everyday (1)	• Changes/ improvements to the food bought • Plan a shopping list/ budget before shopping • Check unit pricing when shopping (1) • Reduce intake of sugar/ foods with high sugar content • Reduce intake of salt/ foods with high salt content • Reduce/ cease intake of soft drinks • Increase intake of water • Reduce intake of fat/ foods with high fat content • Reduce intake of saturated fat • Choose lean cuts of meat • Choose tuna in spring water rather than olive oil • Switch from full cream milk to low fat or skim milk • Increase intake of fish • Increase intake of nuts/legumes • Buy unsalted instead of salted nuts • Eat 5 serves of vegetables and 2 serves of fruit • Increase intake of fruit and/or vegetables • Choose a variety of different colour fruits and vegetables • Increase intake of wholegrain cereals • Be careful/ aware of food intake • Reduce intake of traditional foods/ sweets • Follow health guidelines provided in this program • Have a balanced diet (1) • Share information from this session with family (1) • Ensure that children's school lunchboxes are healthy and balanced (1) • Exercise regularly • Improve lifestyle/ have a healthy lifestyle

	• Reduce smoking (1)

Session 5

What did you learn?	What are you going to change?
• How to store foods • Must store foods before 4 hours (1) • How to handle meat and poultry (1) • Ensure food does not stay frozen for too long by using older stock (1) • Understand the difference between best before and use by dates (1) • What food poisoning is • Causes of food poisoning • Food safety/ how to prevent food poisoning • Food does not have to appear bad to be unsafe to eat (1) • Temperature danger zone is between 5^0C and 60^0C • How to thaw frozen food safely • Infants and the elderly are at greatest risk of food poisoning • Wash hands before handling food • How to choose foods when shopping • Plan shopping list • How to budget and/or estimate prices for grocery shopping • Check receipts after shopping • Buy in bulk (1) • How to read food labels/ nutrition information panels • The traffic light system • How to stay fuller for longer • Eating in moderation • To drink 8 glasses of water per day (1) • Good sources of calcium and/or iron	• Increase cleaning • Symptoms of food poisoning • Plan shopping list before going shopping • Make/ stick to a budget • Buy food in bulk • Check receipts (1) • Shop during sales/ specials • Read the food labels/ nutrition information panels • Use the traffic light system • Do not eat food after its use by date (1) • Ensure food does not stay frozen for too long (1) • Freeze foods to store for longer periods • Use the microwave to thaw frozen food (1) • Will not refreeze food that have already been frozen • Separate raw foods from cooked foods • Use plastic or glass chopping board instead of wooden boards (1) • Ensure the refrigerator temperature is less than 5^0C (1) • Wash hands before handling food • Eat/ buy foods that have low GI • Decrease/ stop intake of processed foods • Reduce intake of unhealthy foods • Purchase foods that are low in fat • Reduce intake of fat

• Tea, coffee or calcium supplements should be take several hours before eating iron-rich foods (1) • Healthy (unsaturated) and unhealthy (saturated) fats and oils • Good cholesterol and bad cholesterol • The goodness of nuts (1) • Healthy eating • Different food groups (1) • How to select appropriate/ healthy foods • Alternate names for salt/ fat/ sugar • The negative effects of salt on the body • Reduce/ monitor salt intake • Reduce/ monitor fat intake • Reduce intake of saturated fat • Reduce/ monitor sugar intake • The amount of sugar/ salt/ fat in foods/ drinks • Understand the foods that should be limited • Alternatives to unhealthy foods • Reduce food portion size • Reduce intake of meat • Increase intake of seafood and/or eggs • Eat 2 serves of fruit and/or 5 serves of vegetables per day • Increase intake of vegetables • Increase intake of fibre (1) • Understand what fibre is and/or the importance of fibre • Antioxidants • Causes/ risk factors for heart disease • How to prevent heart disease (1) • Steps to a healthy heart • How to control blood pressure (1) • Foods to maintain heart health/ prevent heart disease • Types of diabetes (1) • How to prevent diabetes • Damage to the body caused by diabetes • Increase physical activity	• Change from full cream to low fat milk • Reduce intake of saturated fat • Increase intake of healthy fats • Buy foods high in fibre • Buy fresh foods • Reduce intake of salt • Reduce intake of sugar • Increase intake of vegetables • Eat fresh foods (1) • Increase intake of fibre • Eat a healthy/ balanced diet • Eat fish at least twice per week • Eat eggs for breakfast • Reduce portions of meat • Reduce food portions (1) • Modify cooking and/or recipes • Increase water intake • Stop/ reduce intake of sugar sweetened beverages • Set an example for family (1) • Follow guidelines provided in the program • Participate in regular physical activity • Have check-up with GP

Session 6

What did you learn?	What are you going to change?
• Risk factors for chronic disease • How the cardiovascular system works • What is the range of good blood pressure and pulse rate • About cardiovascular disease/ stroke/ heart attack • Cardiovascular disease is all linked together • A heart attack occurs when blood supply to the heart is blocked • A stroke occurs when blood supply to the brain is blocked • Symptoms of heart attack and/or stroke • How to prevent cardiovascular disease • Management of heart disease • Risk factors for cardiovascular disease • Causes of cardiovascular disease • Eating from all food groups is essential for balanced nutrition (1) • Reduce fatty foods (1) • Participate in 30 minutes of moderate intensity exercise per day (1) • The respiratory system (1) • Symptoms of asthma • Causes of asthma (1) • How to control asthma/ do an action plan • Difference between asthma and COPD and that the main cause of COPD is smoking • Different types of diabetes • Causes of diabetes • AUSDRISK • How to prevent diabetes • Symptoms of diabetes • Body functions that control blood sugar level • Function of the pancreas • Effects of diabetes on the body • Importance of physical activity	• Do 30 minutes of physical activity per day (1) • Do moderate to vigorous physical activity • Increase/ start physical activity • Participate in daily/ regular physical activity • Do physical activity in a group/ team • Eat healthy foods/ balanced diet • Increase fruit and/or vegetable intake • Eat a variety of foods • Reduce/ monitor intake of carbohydrates • Switch to low fat milk • Avoid/ reduce intake of foods high in fat • Avoid/ reduce intake of foods high in sugar • Avoid/ reduce intake of foods high in salt • Reduce/ cease intake of sugar sweetened beverages • Reduce intake of alcohol (1) • Increase intake of water • Plan meals for the family • Limit intake of takeaway foods • Reduce intake of unhealthy foods • Reduce meat consumption (1) • Consume fish at least 2 times per week (1) • Follow the guidelines provided by this program • Set good goals (1) • Be aware of symptoms of cardiovascular diseases • Get a health/ blood pressure/ cholesterol/ BGL check-up • Control risk factors for cardiovascular disease • Reduce blood glucose levels (1) • Reduce weight (1) • Never smoke (1)

• Increase physical activity • Do physical activity with a group (1) • Importance of eating a healthy/ balanced diet • Foods and drinks high in sugar and/or fat are not good for health • How to control blood glucose levels	• Use asthma medication correctly • Symptoms of asthma • Reduce risk factors for chronic diseases/ asthma

Session 7

What did you learn?	What are you going to change?
• Bulking billing/ access to health services free of charge • Private hospitals are not free • Ask if bulk billing is available • Must cancel appointment if cannot attend (1) • Discuss treatment with doctor • Understand the role of General Practitioners • Able to change General Practitioner (1) • General Practitioners refer to specialists/ health professionals • Understand the different types of specialist doctors • Medicare covers xrays • Eye tests are free under Medicare • Medicare and health care cards • Health care information is kept confidential • What are the rights and/or responsibilities for Australian residents • Right to anti-discrimination • Where to take complaints about healthcare • Medicare was passed in 1973 • Australian health care system • Interpreter services available if needed • Access to community health centres/ medical centres • How to contact health care services/ agencies for assistance • Emergency services are free of charge • Call 000 or go to emergency department if there is an emergency • Compile list of personal details and medications in case of an emergency (1) • Take care of own health (1)	• Ask for bulk billing doctors • Access other health services when needed (1) • Request female GP if uncomfortable • Find a GP that feel comfortable with (1) • Change GP if not happy with service or uncomfortable • Use the right to not answer questions (1) • Ask the GP about medication side effects (1) • Ask for interpreter services if required • Use an interpreter • Will not use family or friends as interpreters • Request specialist referrals when specific care is required • Look after own and family health (1) • Use Medicare card for health services • Use health care card when purchasing medication • Be aware of location of nearest community health centre (1) • Call 000 in an emergency • Be aware of emergency contact numbers for health services • Share information about the healthcare system with others • Contact GP for less serious health issues • Complain if unhappy with standard of health services • Follow the health guidelines provided in this program • Participate in regular physical activity • Eat a healthy/ balanced diet • Drink lots of water

	• Reduce intake of unhealthy foods • Reduce intake of sugar/ foods with high sugar content • Reduce intake of fat/ foods with high fat content • Reduce intake of salt/ foods with high salt content • Stop drinking soft drinks • Reduce alcohol and/or smoking • Reduce risk factors for chronic disease

Session 8

What did you like best about the program?	What could be changed about the program?
• The sessions/ program was useful • Enjoyed the program • Everything in the program was important • Information/ sessions on chronic disease • Learnt ways to reduce risk of chronic disease • Learning that healthy eating and/or physical activity can prevent chronic disease • Learnt how to manage health conditions • Have lost weight • Information about physical activity and healthy eating • Information/ sessions about healthy eating • Information about foods/nutrients to limit • Reduced intake of take away foods/ food high in fat/ food high in sugar • Learnt about physical activity/ different exercises • The physical activity carried out • Understanding how healthy eating and regular exercise can improve health (1) • Discussion about nutrition and health • Learning how to lead a healthy lifestyle • Learning about serve size and/or daily serve recommendations • How to use labels to select and purchase food • How to store food (1) • Motivation to do physical activity (1) • Information about how to manage asthma • Information about how to manage blood pressure (1) • Information was explained well/ easy to understand • The presenter was good/ knowledgeable • The presenter was engaging and/or motivating • Face to face lectures (1) • The quality of information provided (1)	• More sessions on chronic disease • More session on healthy ways to lose weight (1) • More information about medication and side-effects (1) • Learn about preservatives and chemicals in food (1) • Session about physical activity for older people (1) • More practical exercises/ activities • More sessions on and including physical activity (1) • More real life examples of food items/ diet plan • More information about specialists (1) • Include watching videos • Make the program/ information accessible online • Rearrange the sequence of some sessions (1) • Change the frequency of the sessions (1) • Offer program during the holidays (1) • Hold the sessions during the evening • Change the time of the sessions • Hold the sessions on a different day (1) • Hold the sessions on the weekend • May need to try incentives for people to attend • Reduce number of sessions (1) • Another program about skin diseases and cosmetic surgery • To have training on presentations • The program was good/ nothing to change

• Filling in question sheets after sessions to refresh key learning (1) • HEAL sessions/ theraband activities (1) • Healthy changes to diet/ physical activity/ lifestyle • As a male preferred the physical activity, nutrition and chronic disease sessions to the shopping tips and food storage sessions (1) • Learnt about the Australian healthcare system • Understand about different types of doctors (1) • Participating in a group/ making new friends • Sessions were very interactive (1) • Food examples were relatable/ culturally tailored • Placing importance on your health	

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