

**Is diet quality changing over time among adults in Canada?
An examination using data from 2018 to 2022**

by

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A thesis
presented to the University of Waterloo
in fulfilment of the
thesis requirement for the degree of
Master of Science
in
Public Health Sciences

Waterloo, Ontario, Canada, 2024

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Statement of Contributions

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Under Dr. Sharon Kirkpatrick's supervision, I also prepared the remaining chapters in this thesis, which were not written for publication.

Abstract

Background: Poor eating patterns have been established as one of the leading risk factors for chronic disease. Numerous efforts have been made to improve the population's diet quality, yet the last time dietary intake data were collected at the national level was in 2015, and policies are increasingly based on outdated dietary intake data. Existing data suggest poor diet quality in Canada, with indications of disparities by gender identity, age, income, education, and racial-ethnicity identity, but do not enable assessment of whether diet quality is changing over time.

Objective: This research was undertaken to examine trends in diet quality from 2018 to 2022 among adults in Canada overall and among groups characterized by sex, age group, perceived income adequacy, educational attainment, and racial-ethnic identity.

Methods: Data were drawn from repeat cross-sectional surveys of adults in Canada from the International Food Policy Study (IFPS) (n=13,448). The Healthy Eating Food Index-2019 (HEFI-2019) was applied to 24-hour dietary recall data to assess alignment of intake with the 2019 Canada's Food Guide healthy food choices recommendations. Mean HEFI-2019 scores, to a maximum of 80 points, were estimated overall and by sex, age, perceived income adequacy, educational attainment, and racial-ethnic identity. A modified approach to the population ratio method was used to estimate scores adjusted for sociodemographic characteristics. Paired *t* tests assessed changes in mean scores from year to year and from 2018 to 2022, overall and among subgroups.

Results: Among the overall sample, there was weak evidence of a decrease in diet quality from 2018 (46.5) to 2019 (44.0) (mean difference -2.46, SE 1.39, *P*=0.078) and moderate evidence of an increase in mean total HEFI-2019 scores from 2021 (44.7) to

2022 (48.0) (mean difference 3.30, SE 1.57, $P=0.035$). However, there was no evidence of a meaningful change in diet quality from 2018 to 2022 (mean difference 1.54, SE 1.5, $P=0.305$). Variations in total scores from year to year were largely attributable to variations in mean vegetables and fruits component scores. Similar patterns in scores across years were evident among some subgroups.

Discussion: The findings point to the need for concerted efforts to improve diet quality among adults in Canada. The introduction of the adjusted population ratio allows future studies to better understand diet quality in particular groups, independent of potential confounding factors.

Acknowledgements

Thank you to my amazing mom, dad and sister. I would not have come this far without your unwavering support, encouragement, and care. Thank you for listening to my relentless ramblings about my passion for nutrition epidemiology and my frustrations with SAS. Special thanks to Myles for probably being the only family member to read this thesis, and to Sable for your uncommon kindness throughout my educational journey.

To the Public Health Nutrition lab, thank you for your invaluable time and support during my practice presentations, poster drafts, and coding nightmares. Alex and Joy, thank you for including me in your Monday writing sessions. I cherished every minute of it and even found myself eagerly anticipating Mondays because of it. An additional heartfelt thanks to Joy, who has provided more mental support during these past few years than words can express. Thank you for the countless office chats and for putting up with an infinite number of times I said, “I have a question”.

I am deeply grateful to Dr. Kevin Dodd for his boundless patience and dedicated guidance on the methodology of this thesis. Thank you for generously sharing your expertise, which has been immensely helpful in shaping my understanding of the analytical methods used in my thesis. Initially, I found SAS daunting, but Kevin provided immense support, making the process much more manageable.

I extend my sincere appreciation to my thesis committee: Dr. David Hammond, Dr. Benoît Lamarche, and my supervisor Dr. Sharon Kirkpatrick, for their invaluable insights and time. Sharon, I am incredibly fortunate to have had you as my supervisor. Thank you for accepting me as your MSc student in 2022, someone with no nutrition or

diet assessment experience, but a willingness to be challenged and interest to learn all that you had to offer, and boy did you have a lot to offer. I am profoundly grateful for the amazing opportunities you have provided over the past two years, and I am looking forward to finishing (and starting) our many side projects together.

Finally, a special thanks to Maxwell House for keeping me properly caffeinated and to Tums for keeping the heartburn at bay, in part due to drinking too much coffee. Thank you all!

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List of Abbreviations

CFG	Canada Food Guide
HEI-2015	Healthy Eating Index-2015
HEFI-2019	Healthy Eating Food Index-2019
CCHS	Canadian Community Health Survey
IFPS	International Food Policy Study
ASA24	Automated Self-Administered 24-hour Dietary Assessment Tool

Chapter 1: Background

1.1 Overview and scope

Poor diet quality poses a substantial economic burden in Canada through chronic diseases^{1–6}, comparable in scale to the costs associated with smoking and exceeding those linked to physical inactivity⁶. Additionally, there is a growing body of literature that details the immense impact of current eating patterns on the environment^{7,8}. As a result, in 2019, the EAT-Lancet Commission introduced the Planetary Health Diet with the goal of optimizing human health and environmental sustainability⁹. Given the above considerations, the goal of Canada's newest Food Guide, released in 2019, is to promote health and limit disease burden through nutrition¹⁰. The 2019 Canada's Food Guide (2019-CFG) echoes, to a degree, the Planetary Diet's recommendations (e.g., eat more vegetables and fruits and plant-based proteins), suggesting a shift towards healthy as well as sustainable eating¹¹.

Along with the update to the Food Guide, interventions promoting and supporting healthy eating patterns in Canada have grown in recent years, including as part of Health Canada's Healthy Eating Strategy¹². Understanding dietary patterns and how they are changing over time is crucial to informing and evaluating interventions to support healthy eating, including among groups experiencing inequities¹³. Yet, in Canada, dietary intake has been comprehensively assessed in national surveys (with the exception of the territories) only twice—in 2004 and 2015—over the past two decades¹⁴.

The paucity of data with which to monitor diet quality is concerning given the range of factors that could influence what people eat, including the emergence of Health Canada's Healthy Eating Strategy¹⁵; increased awareness of the importance of eating patterns to planetary health⁷⁻⁹; a global pandemic; high rates of inflation¹⁶⁻¹⁸; and rapid changes in technology and social media use^{19,20}. **Figure 1.1** presents a brief timeline of factors that may have influenced diet quality over the past several years. In addition to population-level factors, diet quality differs based on individual factors such as gender identity, age, income, education, and racial-ethnic identity²¹⁻²⁸. Given the potentially differential influences of policies and societal events on individuals with different characteristics, it is important for surveillance to consider whether and how diet quality is changing among the overall population as well as subgroups.

This thesis examines diet quality from 2018 to 2022 among adults in Canada, overall and among groups characterized by sex, age group, perceived income adequacy, educational attainment, and racial-ethnic identity. A modified approach to the population ratio method allowed examination of mean diet quality scores adjusted for sociodemographic characteristics. Chapter 2 provides additional context for this research, while Chapter 3 summarizes the thesis rationale, objectives, and hypotheses. Chapter 4 presents a manuscript prepared for submission to Applied Physiology, Nutrition and Metabolism, and Chapter 5 provides a general discussion of key findings, strengths, limitations, and implications.

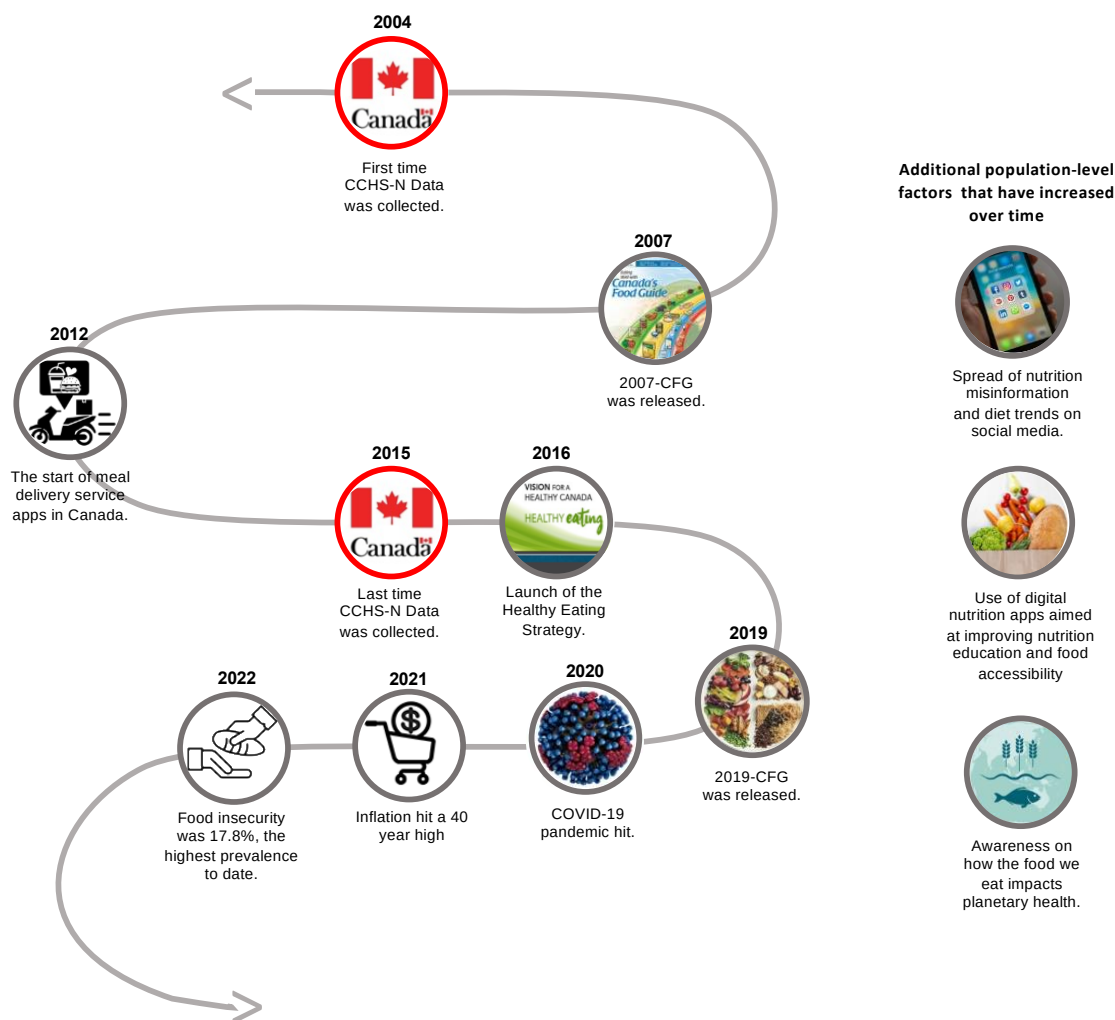


Figure 1.1: Timeline showing factors that may have influenced diet quality since dietary intake was last comprehensively assessed in Canada^{9,11,15,29–37}.

Chapter 2: Literature Review

2.1 Defining Diet Quality

The World Health Organization notes that healthy diets should universally “allow healthy growth and development, support all body functions, enable adequate levels of activity, prevent non-communicable diseases and food borne diseases and promote well-being at all stages of the life course”³⁸. Food-based dietary guidelines can translate healthy diet recommendations given countries’ local cultures, contexts, and food systems³⁸. In Canada, the most recent food-based dietary guidelines are contained in the 2019-CFG¹¹ and associated resources³⁹. The 2019-CFG represents a shift from prior approaches focused on single food groups, items, or constituents of concern towards a more holistic perspective¹¹, as it is the combination of foods and beverages that we consume that influences health⁷.

2.2 Assessing Diet Quality

Diet quality may be assessed relative to food-based dietary guidelines³⁹, for example, using indices. Indices are scoring metrics that measure diet quality in accordance with recommendations within a certain dietary guideline or pattern⁴⁰. For example, the Healthy Eating Index (HEI) can be used to assess alignment of dietary intake with the Dietary Guidelines for Americans^{41,42}. In 2022, the Healthy Eating Food Index-2019 (HEFI-2019) was released to measure the alignment of dietary patterns with the 2019-CFG healthy food choices recommendations^{21,43}.

Density-based scores, such as those derived from the HEI and the HEFI-2019, can be calculated in different ways. If replicate recalls are available for at least a sub-

sample, a multivariate method can be used to estimate HEFI-2019 scores based on simulated distributions of usual intake⁴⁴. However, replicate recalls can be costly and time intensive; thus, a single 24-hour recall per person is often more feasible⁴⁵. With data from a single 24-hour recall, the mean score, score of the mean ratios, or the population ratio can be applied to density-based scores⁴⁶. When the aim is to estimate mean dietary intake at the group or subgroup level, the population ratio method is favoured⁴⁶. However, because the population ratio results in a single score for a group or subgroup, which is not amenable to regression analyses, the mean score and score of the mean ratios are frequently used, with implications for accuracy and precision⁴⁶.

2.3 Diet Quality in Canada

One of the surveys used to gather population dietary intake data is the Canadian Community Health Survey-Nutrition (CCHS-N). CCHS-N is a nationally representative (with the exception of territories) cross-sectional survey that includes the administration of 24-hour dietary recalls and replicate recalls in a subset of participants¹⁴. Data from the CCHS-N demonstrate poor diet quality with disparities across sociodemographic subgroups^{21,22,24,47}. In 2004, the mean HEI-2015 score was 55 compared to 59 in 2015²⁴, with a higher score reflecting higher adherence to the Dietary Guidelines for Americans (maximum of 100 points)⁴². Though limited, evidence suggests the change in overall diet quality between 2004 to 2015 may be partially due to increased consumption within the vegetables, fruits, and grain product categories⁴⁸ and lower consumption of total sugars (total grams)⁴⁹. Moreover, evidence from the CCHS-N demonstrates that, although diet quality across groups improved modestly from 2004 to 2015, there are differences in diet quality by sex^{21,22}, age^{21,22}, income^{23,24}, education,

and racial-ethnic identity^{24,27}. For instance, Olstad et al. (2021) found that those with the lowest level of household income had HEI-2015 scores of 54 in 2004 and 57 in 2015, whereas those with the highest level of household income had HEI-2015 scores of 58 in 2004 and 61 in 2015. A similar trend was seen across education groups, with lower diet quality scores among those with lower compared to those with higher levels of education²⁴.

Though limited, recent dietary data suggests disparities in diet quality have persisted since 2015^{27,50,51}. For instance, data from the 2019 International Food Policy Study (IFPS), a repeat cross-sectional population-based study using an online 24-hour dietary recall, revealed differences in HEI-2015 scores among adults within Canada by perceived income adequacy^{27,52} and educational attainment^{27,52}. For instance, those who indicated it was difficult to make ends meet had a HEI-2015 score that was 2.39 points (95%CI -4.05 to -0.73) lower than those who reported it was easy to make ends meet, and those with post-secondary or more educational attainment had a HEI-2015 score that was 2.97 points (95%CI 1.69 to 4.26) higher than those with high school or less than high school education²⁷. Additionally, established mediators and moderators of dietary intake, such as levels of nutrition knowledge, differ across sociodemographic groups^{50,53,54}. Nutrition knowledge can influence a consumers' ability to identify healthy foods, while sociodemographic factors can influence one's level of nutrition knowledge, in turn impacting diet quality scores⁵⁴. For instance, using data from the 2018 IFPS, an analysis assessing food processing knowledge across five countries, including Canada, found that older respondents, females, and the 'majority' ethnic group had a higher level

of food processing knowledge compared to younger individuals, males, and ‘minority’ ethnic groups⁵⁰.

2.4 Potential Influences on Diet Quality

Comparison from one cross-sectional survey to another does not necessarily shed light on the influence of particular policies or events on diet quality. However, understanding possible influences on diet quality can inform hypotheses about how diet quality may be changing over time and provide context for interpretation of findings. The social ecological model can be used to conceptualize potential influences on diet quality at the individual and population levels. The social ecological model considers the complex interaction among individual factors and the political, physical, and social environments (Figure 2.1)^{52,53}.

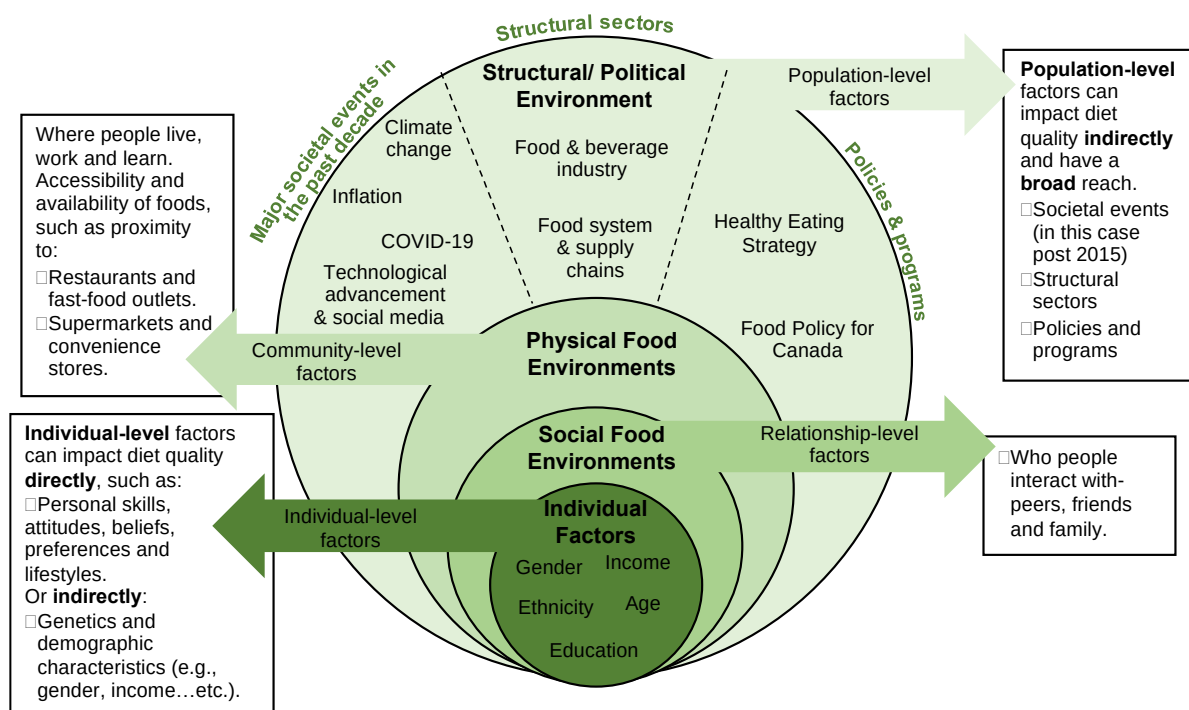


Figure 2.1: Social ecological model considering factors that may influence diet quality^{56–59}.

2.4.1 Individual-level Factors

The first level of the social ecological model includes individual-level factors, comprising personal attributes and sociodemographic characteristics^{55,58,60}. Differences in health across groups defined by their sociodemographic characteristics are mainly due to structural determinants of health, also called health inequities⁶⁰. Structural determinants include “all social and political mechanisms (governance, social and public policy, social and cultural values) that generate, configure, and maintain socioeconomic position”⁶⁰. Individual-level factors known to influence diet quality include sex^{21,22,25}, age^{21,22,25}, income, educational attainment^{23–26,61}, and racial-ethnic identity^{26,28,47}, among other factors.

Women often have higher diet quality compared to men, potentially partly because women place more importance on following dietary guidance and may have a greater desire to control their body weight⁶². Gender identity can also impact educational attainment⁶³ and income adequacy⁶⁴, additional influences on diet quality^{63,64}. Older age groups also tend to have higher diet quality compared to younger age groups^{21,22,25}. One explanation for this trend is that as individuals age, they tend to become more health-conscious⁶⁵, which could lead to healthier eating patterns. Age can also impact income adequacy⁶⁶.

The availability, accessibility, and affordability of healthy foods are not equal across income subgroups⁶¹. Drivers of income disparities can be linked to structural discrimination related to gender identity, racism, and education^{27,67,68}. These structural determinants can impact intermediary determinants of eating patterns, such as food security, nutrition knowledge, living conditions, and employment opportunities. Different

income groups may also respond differently to factors such as inflation⁶⁹. Those with greater educational attainment also often have higher diet quality compared to those with lower educational attainment^{23–26,61}. Educational attainment influences socioeconomic position, with lower diet quality associated with lower social position²⁴. Those with greater education are more likely to have more nutrition knowledge and ability to translate nutrition knowledge into practice^{53,54,70}. Differences in educational attainment can also mean different responses to other factors, for instance, those with a higher level of education may have a greater understanding of how consuming more plant products over animal products can support planetary health as well as human health⁷¹. Education may interact with other characteristics^{63,70}. For instance, the educational gradient can vary by racial-ethnic identity due to structural and institutional racism that can reduce access to and success in higher education^{60,67}.

Racial/ethnic identity is also related to diet quality. Experiences of racism have been associated with poorer diet quality among racial-ethnic identity groups^{47,72}. A study using 2015 CCHS-N data found that six racial-ethnic groups, including East/Southeast Asian, South Asian, Black, Middle Eastern, Latin American, and Other had higher HEI-2015 scores (59 to 62) compared to individuals who identified as White (56)⁴⁷. On the other hand, Canada's most racialized group, Indigenous adults, had the poorest diet quality (52)⁴⁷. Future research is needed to explore the impact of racism on diet quality among Indigenous people. Differences in diet quality scores across racial-ethnic groups can also be influenced by level of income²⁷, as well as one's culture and tradition⁷³. Genetics can also influence taste and food intolerances, thereby affecting diet quality^{74,75}.

2.4.2 Population-level Factors

Population-level factors include broad societal events and interventions, such as policies, standards, and regulations⁵⁶. Population-level factors can shape food systems, transform food environments, and influence what we consume. Population-level factors have the greatest reach and ability to shape the determinants of diet quality⁷⁶. In October 2016, Health Canada released the Healthy Eating Strategy, which is aimed at “making the healthier choice the easier choice for all Canadians”¹⁵. The Healthy Eating Strategy’s implemented changes include updates to the Nutrition Facts Table and ingredient lists in 2016; a ban on the use of partially hydrogenated oils (industrially produced trans fats) in 2018; revisions to Canada’s Food Guide in 2019; and updates to voluntary sodium reduction targets for processed foods in 2020¹⁵. Changes that have yet to be implemented or enforced include front-of-package nutrition symbols for prepackaged foods high in sodium, sugars and saturated fats (required by 2026); and restrictions on advertising certain foods to children and teens (not yet passed)¹⁵.

Elements targeting the food system, such as the ban on partially hydrogenated oils, may improve diet quality among the full population and narrow dietary inequities^{15,77}. In cases in which elements of the Healthy Eating Strategy aim to support ‘informed choice’, dietary inequities may persist over time or even widen as these changes largely consider individual behaviours and do not consider determinants that can influence diet quality⁷⁷. For instance, updates to the Nutrition Facts Table and ingredient lists make comparisons between products ‘easier’, potentially improving diet quality across Canada over time¹⁵. However, unless interventions are simultaneously created to improve nutrition knowledge, this intervention is unlikely to combat existing

dietary inequities as different groups have different levels of nutrition knowledge and health literacy^{50,78,79}. Canada also has a Food Policy, released in 2019 and incorporating the need to increase access to affordable and nutritious food, improve people's ability to make healthy and safe food choices, use environmentally sustainable food practices, and ensure farmers and food producers can adapt to sustainable and healthy Food Guides⁸⁰.

In addition to purposeful interventions to promote healthier eating, a range of events in recent years may have influenced dietary patterns. These influences include growing discourse surrounding plant-based dietary consumption^{34,80–82}. A survey released in October 2018 found that approximately 6.4 million adults in Canada restrict meat, partially or completely^{34,83}. Younger individuals and women were more likely to consume less meat due to health, animal welfare, or environmental reasons^{34,83}. The pandemic may also have impacted diet quality through a range of disruptions associated with measures to slow the spread of COVID-19. For instance, a prospective cohort study of adults in Quebec found a slight increase in diet quality and in consumption of fruit, vegetables, and whole grains between pre-lockdown (June 2019–February 2020) and the early months of the first lock-down (April–May 2020)¹⁸. Inflation has likely also influenced diet quality, with data from Statistics Canada revealing a major increase in the costs of numerous goods and services, including but not limited to food, shelter, transportation, and energy between 2018 and 2022³³. In 2022, inflation hit a 40-year high, with an annual Consumer Price Index increase of 7% compared to the previous year⁸⁴. Between 2018 and 2022, food prices in Canada increased by 26%, with 53% of the increase occurring within 2 years (2021 and 2022)³³.

Technology is also potentially relevant to diet quality, with a recent surge in the development and use of digital nutrition applications (apps), with the goal of improving nutrition education and dietary behaviour^{19,85,86}. Approximately 59% of smartphone users have downloaded health apps⁸⁵. Most nutritional apps, such as MyFitnessPal, EWG's Healthy Living, and Eat This Mush-Meal Planner, serve to track dietary consumption, generate a diet plan, or generate a healthy grocery list⁸⁵. Apps have also altered food accessibility, with the use of food delivery apps booming during the pandemic²⁰. Social media is also pertinent by facilitating the sharing of recipes, food fads, diet trends, and wellness programs^{36,37}.

2.5 Summary

Diet quality has not been examined at the population level in Canada in almost a decade, while numerous factors may have influenced quality over time. Available dietary data in Canada shows poor diet quality with disparities across certain sociodemographic groups. Improved understanding of diet quality trends will inform efforts to support healthy eating, including among subgroups that are not adequately considered in nutrition interventions and are disproportionately impacted by population-level factors.

Chapter 3: Study Rationale & Objectives

3.1 Rationale

The paucity of population-level dietary data limits the government's ability to implement policies that reflect population-level changes, as well as capacity to hold governments accountable and recognise when adjustments need to be made, including to ensure trends in diet quality are not diverging among subgroups. It is thus of interest to examine recent dietary data across consecutive years in Canada to support decision making to improve diet quality overall and across subgroups.

3.2 Objectives and Hypotheses

The objective of this thesis was to examine trends in diet quality from 2018 to 2022 among adults in Canada, overall and among subgroups characterized by sex, age, perceived income adequacy, educational attainment, and racial-ethnic identity. The application of a modified approach to the population ratio method allowed examination of mean diet quality scores, overall and for subgroups, adjusted for sociodemographic characteristics.

From 2018 to 2020, diet quality was expected to increase among the overall sample, given prior research suggesting an upward trend over time,²⁴ as well as ongoing initiatives to improve diet quality, such as the Healthy Eating Strategy¹⁵. During this time, all subgroups were expected to mirror the predicted upward trend in diet quality. From 2020 to 2022, diet quality was hypothesized to plateau due to shocks, including the COVID-19 pandemic and high rates of inflation. Given the hypothesized increase in diet quality followed by a plateau, a small increase in diet quality was

hypothesized among the overall sample from 2018 to 2022. At the subgroup level, diet quality was expected to decrease from 2020 to 2022 among those with lower educational attainment, those who indicated it was difficult to make ends meet, and racialized groups as it was anticipated that population-level shocks would have had a greater influence on these groups compared to those with higher educational attainment, who found it easy to make ends meet, and non-racialized groups. Accordingly, no overall change in diet quality from 2018 to 2022 was hypothesized for these subgroups.

Chapter 4: Diet quality from 2018 to 2022 among adults in Canada

Target journal: Applied Physiology, Nutrition and Metabolism (APNM). In preparation.

4.1 Abstract

Poor diet quality is a leading risk factor for chronic diseases. Population-level data suggest poor diet quality in Canada, with indications of disparities among population subgroups. We assessed differences in diet quality among adults in Canada from 2018 to 2022. Data were drawn from repeat cross-sectional surveys of adults in Canada from the International Food Policy Study (IFPS) (n=13,448). The Healthy Eating Food Index-2019 (HEFI-2019) was applied to 24-hour recall data to assess alignment of intake with the 2019 Canada's Food Guide healthy food choices recommendations. Mean HEFI-2019 scores were estimated overall and by sex, age, perceived income adequacy, educational attainment, and racial-ethnic identity. Paired *t* tests assessed changes in mean scores from year to year and between 2018 and 2022. Among the overall sample, there was weak evidence of a decrease in diet quality from 2018 (46.5) to 2019 (44.0) (mean difference -2.46, SE 1.39, *P*=0.078) and moderate evidence of an increase in mean total HEFI-2019 scores from 2021 (44.7) to 2022 (48.0) (mean difference 3.30, SE 1.57, *P*=0.035). However, there was no evidence of a meaningful change in diet quality from 2018 to 2022 (mean difference 1.54, SE 1.5, *P*=0.305). Variations in total scores were largely attributable to variations in mean Vegetables and fruits component scores. Similar patterns in scores across years were evident among subgroups, with no marked improvement in diet quality over time. The findings point to the need for concerted efforts to improve diet quality among adults in Canada.

4.2 Keywords

Adults, Canada, cross-sectional study, diet quality, Healthy Eating Food Index-2019 24-hour recall, population ratio

The Evolving Landscape of Diet Quality in Canada

What is the problem?

- Existing data suggest poor diet quality in Canada.
- Aside from national survey data from 2004 and 2015, existing data do not enable assessment of whether diet quality, including among subgroups, is changing over time.

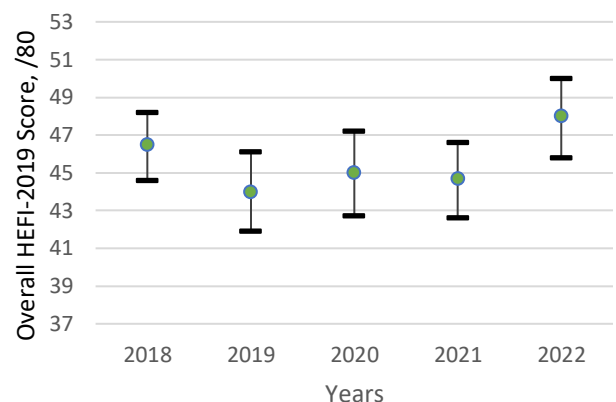
How does this article address the problem?

- Using 24-hour recall data for adults (n=13,448) in Canada, trends in diet quality from 2018 to 2022 were examined overall and among subpopulations characterized by sex, age, perceived income adequacy, educational attainment, and racial-ethnic identity.
- Diet quality was assessed using the Healthy Eating Food Index-2019 (HEFI-2019), which examines alignment of intake with the 2019 Canada's Food Guide healthy food choices recommendations.

What are the results?

- The mean total HEFI-2019 score among the overall sample, adjusted for sex, age, perceived income adequacy, educational status, and racial-ethnic identity, ranged from 44 to 48 of a maximum 80 points across years.
- There was weak evidence of a lower mean score in 2019 compared to 2018 (-2.46, SE 1.39, $P=0.078$) and moderate evidence of a higher mean score in 2022 compared to 2021 (3.3, SE 1.57, $P=0.035$).
- There was no evidence of a meaningful change from 2018 to 2022 (mean difference 1.54, SE 1.5, $P=0.305$).
- Similar trends were observed among most subgroups.

Mean total HEFI-2019 score from 2018 to 2022 among overall sample



Key contributions

- Diet quality is suboptimal among adults in Canada, with no evidence of marked improvements from 2018 to 2022.
- Up-to-date evidence on diet quality over time can inform policies and programs to improve diet quality, including among subgroups.

4.4 Introduction

Poor diet quality can increase risk of chronic diseases, which affect approximately 44% of adults in Canada (Alam *et al.*, 2019; Canada, 2019). The burden due to disability and premature mortality of low fruit and vegetable intake has been estimated at \$4.4 billion per year in Canada (Krueger, Koot and Andres, 2017), whereas not meeting recommendations for eight foods identified as protective or harmful based on the Global Burden of Disease Study is estimated to be responsible for close to \$14 billion per year in health care and indirect costs (Lieffers *et al.*, 2018). High sugar-sweetened beverage intake was projected to lead to over 60,000 deaths and \$50 billion in health care costs in Canada over 25 years (Jones, A. *et al.*, 2017). Consequently, there is an unprecedented level of attention focused on the identification, implementation, and evaluation of interventions to support healthy eating. Understanding dietary patterns and how they are changing over time is crucial to informing and evaluating interventions to support healthy eating, including among groups experiencing inequities (WHO-UNICEF).

Comprehensive nutrition surveillance at the population level has been scarce in Canada, leading to gaps in our understanding of diet quality and how it may be changing and among whom. Detailed dietary intake data were collected using 24-hour dietary recalls from individuals living in Canada's provinces as part of the nutrition-focused cycles of the Canadian Community Health Survey in 2004 (Government of Canada, 2007a) and 2015 (Canada, 2018). Analyses of these data suggest that most adults have poor diet quality. The mean score on the Healthy Eating Index-2015, which assesses alignment of intake with the 2015 Dietary Guidelines for Americans (Krebs-

Smith *et al.*, 2018), was 55 out of 100 points in 2004, increasing modestly to 59 in 2015 (Olstad *et al.*, 2021). Other research suggests that improvements in diet quality between 2004 to 2015 may be partially due to increased consumption of foods recommended by dietary guidance, specifically within the vegetables, fruits, and grain products categories (Hack, Jessri and L'Abbé, 2020). Lower consumption of total sugars in grams was observed in 2015 compared to 2004, but the percentage of energy from total sugars did not change between 2004 and 2015 (Langlois *et al.*, 2019). Evidence from the nutrition-focused Canadian Community Health Survey cycles and other Canadian studies suggests disparities in diet quality among adults by sex (Moubarac *et al.*, 2017; Brassard, Elvidge Munene, St-Pierre, Gonzalez, *et al.*, 2022), age (Brassard, Elvidge Munene, St-Pierre, Gonzalez, *et al.*, 2022), income (Tarasuk, Fitzpatrick and Ward, 2010; Olstad *et al.*, 2021), education, and racial-ethnic identity (Olstad *et al.*, 2021, 2023; Doan *et al.*, 2022).

Since 2015, the Government of Canada has implemented aspects of the Healthy Eating Strategy, including the introduction of the 2019 Canada's Food Guide, which emphasizes consumption of plant-based protein foods and recommends limited intake of highly processed foods (Canada, 2016a). The Strategy also encompasses changes to nutrition labels, a ban on the use of industrially produced trans fats, and voluntary sodium reduction targets for the food industry (Canada, 2016a). Beyond policy interventions, global events such as the COVID-19 pandemic, high rates of inflation (Government of Canada, 2007b; Lamarche *et al.*, 2021; Acton *et al.*, 2022), growing awareness of the importance of eating patterns to planetary health (Friel, Barosh and Lawrence, 2014; *UNSCN Nutrition 44*; *EAT-Lancet Commission Summary Report*), and

rapid changes in technology and social media use (Coughlin *et al.*, 2015; Deloitte, 2021) may have influenced diet quality at the population level. These factors may also have widened disparities. For example, the surge in inflation that began globally in 2021, with large impacts on food prices, may have disproportionately impacted subgroups with lower income (Rochefort *et al.*, 2022; Charlebois and Somogyi, 2022).

The paucity of information on diet quality limits capacity to design and implement policies that reflect current trends and inequities. To inform actions to support healthy eating, the objective of this study was to examine differences in diet quality from 2018 to 2022 among adults in Canada, overall and among groups characterized by sex, age, perceived income adequacy, educational attainment, and racial-ethnic identity. From 2018 to 2020, among the overall sample, we hypothesised a continuation of the upward trend in diet quality previously observed (Olstad *et al.*, 2021), especially given the Healthy Eating Strategy's launch (Canada, 2016a). Diet quality was hypothesized to plateau from 2020 onwards due to shocks, including the COVID-19 pandemic and high rates of inflation. Based on the hypothesis that diet quality would initially improve and then stabilize, a small increase in diet quality was expected in the overall sample from 2018 to 2022. However, at the subgroup level, a decrease in diet quality from 2020 to 2022 was anticipated for individuals with lower educational attainment, those struggling to make ends meet, and racialized subgroups. This expectation stemmed from the predication that population-level shocks would disproportionately impact these groups compared to those with higher educational attainment, those who found it easy to make ends meet, and non-racialized subgroups. Therefore, minimal to no change in diet quality from 2018 to 2022 within these subgroups was hypothesized.

4.5 Materials and methods

4.5.1 Data Source

Data were drawn from repeat cross-sectional waves of the Canadian component of the International Food Policy Study (IFPS) (Hammond, 2023). Self-administered web-based surveys were completed by adults aged 18 to 100 years in November to December of each year from 2018 to 2022 (Hammond, 2023). Potential participants were recruited through the Nielson Consumer Insights Global Panel (Hammond, 2023). Invitations with unique survey access links were emailed to a random sample of panelists post demographic targeting; panelists with known ineligibility were not invited (Hammond, 2023). Quota sampling was used to ensure age and sex distributions that are reflective of the Canadian population (Hammond, 2023). Following screening, eligible participants were provided with study information and the opportunity to consent prior to completing the survey (Hammond, 2023). Remuneration for participation included point-based or monetary rewards, consistent with the usual incentive structure for the panel (Hammond *et al.*, 2022). Surveys were conducted in English or French. The study was reviewed by and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE# 30829).

4.5.2 Dietary Intake Data

Immediately following completion of the main survey, respondents were invited to complete a 24-hour dietary recall for the prior day using the Automated Self-Administered 24-hour Dietary Assessment Tool (ASA24) (*ASA24® Dietary Assessment Tool*). Using an adapted version of the USDA's Automated Multiple-Pass Method, ASA24 prompts respondents to recall all foods and beverages consumed on the prior

day from midnight to midnight and allows respondents to add or modify food and beverages at multiple points (Subar *et al.*, 2012; Kirkpatrick *et al.*, 2014). ASA24-Canada-2016 was used in 2018 and ASA24-Canada-2018 was used for the 2019 to 2022 surveys (Hammond, 2023). Both versions are linked to the 2015 Canadian Nutrient File and were adapted by Health Canada to include foods from the Canadian food supply (ASA24-Canada-2016; ASA24-Canada-2018).

Recall data were cleaned according to recommendations from the National Cancer Institute (Reviewing & Cleaning ASA24® Data) prior to analysis. Initial data screening suggested that a number of participants completed ASA24-Canada quickly, potentially due to fatigue since the recall was completed immediately after a survey with median completion times of 34 to 44 minutes across waves (Hammond, 2023). Participants who completed ASA24 in less than five minutes and did not report that they ate “less than usual” and who had low energy intake (<600kal for females and <650 kcal for males), as well as those with zero caloric intake, were excluded (Gabe, 2023). We further removed two individuals due to influential observations for energy intake. Due to missing data on educational status, data for 49 individuals across waves were excluded. Following these exclusions, a total of 13,448 participants had recall data available for analysis (**Table 4.1**).

Table 4.1: Number of participants who completed the International Food Policy Study surveys and ASA24 and those whose data were excluded and included in the analytic sample for each wave.

	2018	2019	2020	2021	2022	Totals
Completed survey	4,397	4,107	4,309	4,571	4,437	21,822
Completed ASA24-Canada	3,303	2,606	3,028	3,057	2,808	14,802
Exclusions	229	213	293	299	320	1,354
Analytic sample	3,074	2,393	2,735	2,758	2,488	13,448

4.5.3 Variables

Healthy Eating Food Index-2019

To assess diet quality, Healthy Eating Food Index-2019 (HEFI-2019) scores were derived based on the 24-hour recall data. The HEFI-2019 assesses the alignment of dietary intake with the healthy food choices recommendations from the 2019 Canada's Food Guide (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022) ([Appendix A: Table 1](#)). All food, beverage, and nutrient components within the HEFI-2019 are calculated as ratios. Five of the ten components capture consumption of food groups, including Vegetables and fruits, Whole-grain foods, Grain food ratio, Protein foods, and Plant-based protein foods. These are each expressed using reference amounts (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022), which are a scalable metric representing the amount of food typically consumed in one sitting (Canada, 2016b). All food components are scored as “adequacy” components (i.e., higher relative consumption is assigned higher scores) (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022). Two additional adequacy components capture the Food Guide's recommendations related to intake of beverages and of saturated relative to unsaturated fats (Canada, 2021). These two components are calculated based on

grams of intake. The remaining three components—Saturated fats, Free sugars, and Sodium—assess intake of nutrients advised to be consumed in “moderation” and are reverse scored (i.e., lower relative consumption is assigned higher scores) (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022). The Saturated fats and Free sugars components are based on the percentage of energy from these dietary components, whereas Sodium is based on milligrams relative to energy intake.

The total HEFI-2019 score is calculated by summing the 10 component scores to arrive at a total score out of 80, with higher scores reflecting greater alignment with the recommendations (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022). Satisfactory psychometric properties of the HEFI-2019, including construct validity and reliability, have been demonstrated (Brassard, Elvidge Munene, St-Pierre, Gonzalez, *et al.*, 2022).

Socio-demographic characteristics

Covariates of interest were based on prior research on diet quality (Tarasuk, Fitzpatrick and Ward, 2010; Moubarac *et al.*, 2017; Hack, Jessri and L'Abbé, 2020; Olstad *et al.*, 2021; Brassard, Elvidge Munene, St-Pierre, Gonzalez, *et al.*, 2022; Doan *et al.*, 2022; Olstad *et al.*, 2023). Evidence suggests people's socially constructed roles and behaviours as opposed to our biological attributes shape what we eat (Tannenbaum, Greaves and Graham, 2016). However, sex was used in place of gender identity because of small numbers of individuals in some gender subgroups and high concordance between sex and gender identity within the IFPS. Sex was queried using an item that asked, “what sex were you assigned at birth, meaning your original birth certificate?”, with two response options, female or male (Hammond, 2018).

Respondents were asked “How old are you?” (Hammond, 2018), with numeric responses entered. Age was categorized into groupings for analysis, including 18-29 years, 30-44 years, 45-59 years, and ≥ 60 years.

Perceived income adequacy was assessed using the question, “Thinking about your total monthly income, how difficult or easy is it for you to make ends meet?” (Hammond, 2018). Responses were collapsed into difficult (very difficult or difficult), neither (neither easy nor difficult), and easy (easy or very easy) (Doan *et al.*, 2022; Pepetone *et al.*, 2023). Participants who responded with don’t know and refuse to answer were included in a missing category.

Respondents were asked, “what is the highest level of formal education that you have completed?” (Hammond, 2018). Following previous research, responses were collapsed into 1) less than high school, 2) high school diploma, 3) some post-secondary (trade certificate or diploma from a technical/vocational school or apprenticeship training, diploma or certificate from community college or CEGEP (other than trades certificates or diplomas), Some university, or university certificate/diploma below the bachelor’s level), 4) Bachelor’s degree and 5) higher than a Bachelor’s degree (i.e., graduate degree) (Olstad *et al.*, 2021).

From 2019 to 2022, racial-ethnic identity was queried using the question, “In our society, people are often described by their race or racial background. For example, some people are considered “White” or “Black” or “East/Southeast Asian. Which race category best describes you?” (Hammond, 2018). A derived variable using the categories White only, East/Southeast Asian only, South Asian only, Black only,

Indigenous inclusive, and Mixed/other/not stated/missing (Hammond, 2019) was used. In 2018, the racial-ethnic identity question differed slightly (Hammond, 2018), but with a consistent derived variable.

4.5.4 Statistical Analysis

Analyses were conducted using SAS, version 9.4 (SAS Institute, Cary, NC), with SURVEY commands used to apply sample weights. The IFPS uses post-stratification sample weights constructed using a raking algorithm with Statistics Canada census estimates (Government of Canada, 2018, 2022) based on sex (male and female), age (18-29 years, 30-44 years, 45-59 years, and ≥ 60 years), highest level of education (less than high school diploma, high school diploma, trade certificate/diploma/some university, and bachelor's degree or more), and region (Atlantic Provinces, Quebec, Ontario, Prairie Provinces and British Columbia) (Hammond, 2023). All estimates are weighted unless otherwise specified.

Descriptive statistics (means and frequencies) were generated to characterize the sample. Mean HEFI-2019 total and component scores were estimated for the sample overall, and for subgroups defined by sex, age, perceived income adequacy, level of education, and racial-ethnic identity.

Density-based scores can be calculated in different ways (Kirkpatrick *et al.*, 2018). When only a single 24-hour recall is available per person, the population ratio method has been shown to more accurately estimate mean intake at the population level compared to person-level methods, such as estimating scores for each person and averaging them (Freedman *et al.*, 2008). Application of the population ratio involves

summing the intake of the dietary constituent that makes up the numerator across the total sample or subsample and dividing it by the sum of the total intake of the dietary constituent that makes up the denominator across the total sample or subsample (Freedman *et al.*, 2008). The resulting ratio is then compared to scoring standards to produce a mean component score for the population (Freedman *et al.*, 2008). The mean component scores are summed to produce a total mean diet quality score.

For the present analysis, a modified version of the population ratio, allowing for adjustment for covariates, was used. For example, the mean HEFI-2019 score for males was adjusted for the other covariates of interest to consider changes in diet quality from year to year among males independent of possible confounders such as income adequacy. Covariates were standardized to the distribution in the 2018 wave to increase comparability across waves.

Although there are ten components within the HEFI-2019 and therefore ten ratios involved in scoring, information on 16 dietary constituents is used to arrive at the numerators and denominators. For example, the numerator for the protein foods component includes summing values for four dietary constituents, animal-based protein foods, plant-based protein foods, unsweetened milk, and unsweetened plant-based protein beverages (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022). Prior to modeling, each of the dietary constituents considered was assessed to determine whether it was episodically consumed. Dietary components are typically considered episodically consumed when $\geq 10\%$ of the sample report non-consumption on the consumption day (Tooze *et al.*, 2006; Tooze, 2020). Nine dietary constituents used to calculate HEFI-2019 scores, including vegetables and fruit, whole-grain foods, non-

whole grain foods, animal-based protein foods, plant-based protein foods, other foods, water, and other healthy beverages and unsweetened milk, were considered episodically consumed. Plant-based protein beverages, part of the beverage component, was set to zero in the HEFI-2019 scoring algorithm as few individuals (zero to two across waves) reported consumption.

For each year, a series of linear regression models was run for the non-episodically consumed constituents used in scoring the HEFI-2019. Each included a different non-episodically consumed constituent as the dependent variable and all the covariates of interest as independent variables. The OUTPUT statement was used to estimate adjusted means for each dietary constituent for the sample overall and for each subgroup of interest by year, holding the other covariates constant according to the observed distribution in the 2018 wave.

For the episodically consumed components, two modeling steps were required to avoid violating the normality assumption of linear regression. First, logistic regression was used to predict the probability of consuming each episodically consumed constituent, adjusting for the covariates, in each year. Second, a series of linear regression models was used to predict the consumption-day amount of each episodically consumed constituent, adjusted for covariates, among those who reported consumption in each year. The OUTPUT statement was included in each regression model to output predicted probabilities of consumption and consumption-day amounts. Output datasets were merged, and the probability of consumption and consumption day amounts were multiplied to arrive at adjusted means for each dietary constituent for the sample overall and for each subgroup of interest for each year, holding the other

covariates constant according to the observed distribution in the 2018 wave. The HEFI-2019 scoring algorithm was then applied to the adjusted mean amounts for the relevant constituents to derive the numerators and denominators for each component and to compare the resulting ratios to the scoring standards. Mean component scores for the sample overall and for each subgroup were summed to arrive at mean total HEFI-2019 scores for each year.

Bootstrapping was used to estimate standard errors for the mean component and total scores. As noted above, the IFPS weights are based on sex, age, highest level of education, and region (Hammond, 2023). Certain groups had too few individuals to adequately replicate the sample. Three rounds of raking adjustments were therefore conducted. A wave ID variable was included to perform replicates on each wave separately. A total of 248 bootstraps was used, with 200 replicates deemed sufficient (Chong and Choo, 2011).

Confidence intervals are provided for mean scores and standard errors are provided for differences in scores. Empirical bootstrapped confidence intervals were used to approximate a normal distribution for the mean and to account for the truncation of HEFI-2019 scores due to the application of thresholds (Brassard, Elvidge Munene, St-Pierre, Guenther, *et al.*, 2022). Inference focused on differences from year to year as well as the overall difference from 2018 to 2022 among the overall sample and the subgroups, using paired *t* tests to compare differences in adjusted mean HEFI-2019 total and component scores. Interpretations focused on meaningful differences rather than application of arbitrary cut-offs such as $P < 0.05$ (Muff *et al.*, 2022). *P*-values are reported to support interpretation of the language of evidence, which considers *P*-values

along a continuous gradient to guide interpretations. Correction for multiple testing was not conducted (Althouse, 2016).

4.6 Results

Just over half of the sample within each wave identified their sex at birth as female and participants were relatively balanced across the age categories (**Table 4.2**). About a third (34.4% in the 2018 wave) of participants had completed some post-secondary education, close to a fifth (18% in the 2018 wave) had completed a bachelor's degree, and about one in ten (9% in 2018 wave) had completed more than a bachelor's degree. Across waves, about two thirds of participants found it easy (34% in 2018 wave) or neither easy nor difficult (37% in 2018 wave) to make ends meet. Over three quarters of participants across waves identified as White (77% in 2018 wave).

Table 4.2: Characteristics of adults in the 2018 to 2022 waves of the International Food Policy Study

	2018 (n=3088)	2019 (n=2399)	2020 (n=2747)	2021 (n=2769)	2022 (n=2,498)
n (%)					
Sex					
Males	1437 (48.2)	1129 (46.5)	1296 (47.5)	1329 (47.7)	1149 (46.7)
Females	1651 (51.8)	1270 (53.5)	1451 (52.5)	1440 (52.3)	1349 (53.3)
Highest level of education					
Less than high school	105 (13.2)	115 (13.5)	125 (14.3)	88 (13.6)	64 (10.6)
High school diploma	581 (25.3)	508 (24.8)	591 (25.2)	550 (24.7)	464 (25.5)
Some post-secondary	1193 (34.4)	941 (35.0)	1147 (34.3)	1058 (34.4)	975 (33.0)
Bachelor's degree	803 (18.0)	570 (18.2)	588 (17.5)	740 (18.8)	654 (21.0)
Higher than a bachelor's degree	393 (8.7)	260 (8.3)	288 (8.5)	327 (8.3)	334 (10.2)
Perceived Income Adequacy					
Difficult	768 (28.3)	657 (29.3)	612 (25.4)	661 (28.3)	690 (30.3)
Neither	1101 (36.5)	875 (37.3)	1044 (38.2)	899 (31.9)	903 (36.6)
Easy	1197 (34.4)	852 (32.8)	1057 (34.8)	1182 (38.9)	890 (32.3)
Missing	22 (0.77)	15 (0.6)	34 (1.6)	27 (1.0)	15 (0.85)

Racial-Ethnic Identity					
White	2404 (77)	1915 (80.0)	2159 (78)	2155 (76.9)	1918 (77.0)
Southeast Asian	189 (5.4)	181 (7.2)	246 (8.7)	248 (8.6)	219 (8.0)
South Asian	79 (2.2)	61 (2.4)	101 (3.8)	87 (3.2)	91 (3.6)
Black	50 (1.5)	58 (2.4)	56 (2.3)	64 (2.3)	53 (2.0)
Indigenous	87 (3.7)	64 (3.6)	51 (2.7)	77 (4.0)	75 (3.4)
Mixed/other	279 (10.0)	120 (4.5)	134 (4.9)	138 (5.1)	142 (6.0)
Age Group					
18-29 years	500 (20.3)	457 (20.5)	546 (20.3)	482 (18.1)	376 (17.0)
30-44 years	827 (26.8)	650 (26.7)	667 (25.7)	699 (26.4)	619 (26.0)
45-59 years	847 (27.5)	659 (25.5)	720 (25.8)	687 (27.0)	684 (24.6)
≥60 years	914 (25.4)	633 (27.5)	814 (28.2)	901 (28.9)	819 (32.3)

Cell sizes are unweighted (n) and may not align with the weighted distribution (%). Percentages may not sum to 100% due to rounding.

The mean total HEFI-2019 score among the overall sample ranged from a low of 44.0 in 2019 to a high of 48.0 in 2022 (**Figure 4.1**). There was weak evidence of a lower score in 2019 compared to 2018 (-2.46, SE 1.39, $P=0.078$), with no evidence of differences from 2019 to 2020 or 2020 to 2021, and moderate evidence of a higher score in 2022 compared to 2021 (mean difference 3.30, SE 1.57, $P=0.035$). The score of 48.0 observed in 2022 was not markedly higher than the score of 46.5 observed in 2018 (mean difference 1.54, SE 1.5, $P=0.305$) (**Table 4.3**).

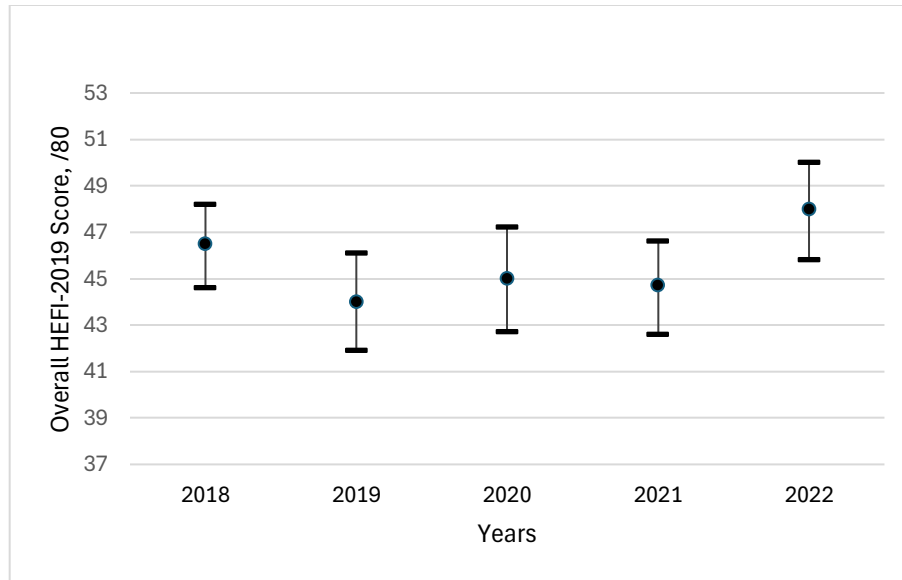


Figure 4. 1: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study (n=13,448)

The mean Protein foods component and Free sugars component scores were at the maximum across years (**Table 4.3**). Overall, Sodium had the lowest score compared to its maximum scoring standards, while scores for Vegetables and fruits and Whole grains were also low. Overall, there was little evidence of changes in mean component scores among the overall sample from year to year. The mean Vegetable and fruits component scores fluctuated from year to year, but evidence of differences was weak. There was moderate evidence of a small increase in the Fatty acid ratio score from 2021 to 2022 (0.58, SE 0.28, $P=0.043$) and weak evidence of a higher mean score in 2022 compared to 2018 (0.52, SE 0.27, $P=0.054$). Small fluctuations in other component scores were observed from year to year ([Appendix A](#), Table 2).

Table 4.3: Mean HEFI-2019 total and component scores, from 2018 to 2022, among adults within the International Food Policy Study (n= 13,448).

	2018	2019	2018 vs 2019		2020	2019 vs 2020		2021	2020 vs 2021		2022	2021 vs 2022		2018 vs 2022	
	Mean (95%CI)	Mean (95%CI)	MD (SE)	(P- value)	Mean (95%CI)	MD (SE)	(P- value)	Mean (95%CI)	MD (SE)	(P- value)	Mean (95%CI)	MD (SE)	(P- value)	MD (SE)	(P- value)
<i>Vegetables & fruits, /20</i>	10.7 (9.8-11.6)	9.5 (8.5-10.7)	-1.22 (0.67)	0.069	10.8 (10.0-11.9)	1.31 (0.70)	0.059	10.1 (9.2-11.1)	-0.63 (0.69)	0.363	11.6 (10.3-13.0)	1.44 (0.82)	0.080	0.90 (0.79)	0.260
<i>Whole-grain foods, /5</i>	1.2 (0.9-1.4)	1.5 (1.1-1.8)	0.28 (0.20)	0.158	1.4 (1.1-1.7)	-0.05 (0.22)	0.816	1.2 (1.0-1.4)	-0.2 (0.17)	0.250	1.2 (1.0-1.5)	0.01 (0.18)	0.957	0.04 (0.18)	0.829
<i>Grain foods ratio, /5</i>	1.3 (1.1-1.5)	1.4 (1.2-1.7)	0.09 (0.19)	0.639	1.5 (1.3-1.7)	0.08 (0.19)	0.677	1.3 (1.1-1.5)	-0.19 (0.16)	0.226	1.3 (1.0-1.5)	-0.03 (0.18)	0.868	-0.05 (0.18)	0.787
<i>Protein foods, /5</i>	5 (4.9-5.1)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0.04)	1
<i>Plant-based protein foods, /5</i>	1.5 (1.1-1.9)	1.1 (0.2-1.4)	-0.43 (0.46)	0.348	1.5 (1.2-1.7)	0.39 (0.43)	0.367	1.3 (0.9-1.7)	-0.15 (0.43)	0.589	1.2 (0.7-1.8)	-0.08 (0.34)	0.818	-0.27 (0.27)	0.440
<i>Beverages, /10</i>	7.8 (7.2-8.4)	7.6 (7.2-9.2)	-0.15 (0.62)	0.809	7.7 (7.0-8.3)	0.07 (0.63)	0.911	8.1 (7.6-8.5)	0.34 (0.40)	0.378	8 (7.4-8.5)	-0.04 (0.38)	0.916	0.22 (0.42)	0.604
<i>Fatty acids ratio, /5</i>	2.7 (2.4-3.1)	2.7 (2.4-3.1)	-0.02 (0.24)	0.934	2.5 (2.0-2.9)	-0.26 (0.27)	0.343	2.7 (2.3-3.1)	0.22 (0.30)	0.459	3.3 (2.8-3.7)	0.58 (0.29)	0.043	0.52 (0.27)	0.054
<i>Saturated fats, /5</i>	4 (3.5-4.7)	3.7 (3.1-4.2)	-0.33 (0.43)	0.447	3.5 (2.7-4.1)	-0.25 (0.46)	0.582	4 (3.4-4.6)	0.56 (0.47)	0.232	4.4 (3.8-5.0)	0.39 (0.44)	0.375	0.37 (0.46)	0.427
<i>Free sugars, /10</i>	10 (9.9-10.0)	10 (0)	0 (0.03)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0.05)	1	0 (0.06)	1
<i>Sodium, /10</i>	2.2 (1.3-2.9)	1.5 (1-2.2)	-0.68 (0.51)	0.186	1.2 (0.4-2.1)	-0.32 (0.53)	0.544	1 (0.1-1.7)	-0.23 (0.59)	0.696	2 (0.6-2.9)	1.04 (0.68)	0.128	-0.19 (0.70)	0.786
<i>Total HEFI-2019 score, /80</i>	46.5 (44.6-48.2)	44.0 (41.9-46.1)	-2.46 (1.39)	0.078	45.0 (42.7-47.2)	1 (1.52)	0.657	44.7 (42.6-46.6)	-0.3 (1.54)	0.845	48 (45.8-50.0)	3.3 (1.57)	0.035	1.54 (1.50)	0.305

Mean and 95%CI are reported for each year. Mean difference (MD) and standard errors (SE) are reported to describe year to year comparisons and accompanied by p-values.

The pattern in mean total HEFI-2019 scores from year to year among some subgroups followed that observed in the overall sample, with some evidence of higher mean scores in 2022 compared to 2021, but no evidence of a difference from 2018 compared to 2022. For example, among females, there was moderate evidence of a higher mean total HEFI-2019 score in 2022 compared to 2021 (3.87, SE 1.79, $P=0.03$), with a higher Fatty acids ratio score in 2022 (0.94, SE 0.34, $P=0.006$). The Fatty acids ratio score was relative stable in the years preceding 2022, but due to the increase in the score from 2021 to 2022, there was moderate evidence of a higher score in 2022 compared to 2018 (0.68, SE 0.34, $P=0.045$). Among males, there was little difference in total mean HEFI-2019 scores from year to year. There was moderate evidence of a small decline in the mean Vegetables and fruit score among males from 2018 to 2019 (-1.5, SE 0.69, $P=0.033$), followed by a small increase from 2019 to 2020 (1.58, SE 0.75, $P=0.034$) (**Figure 4.2** and [Appendix A](#), table 2).

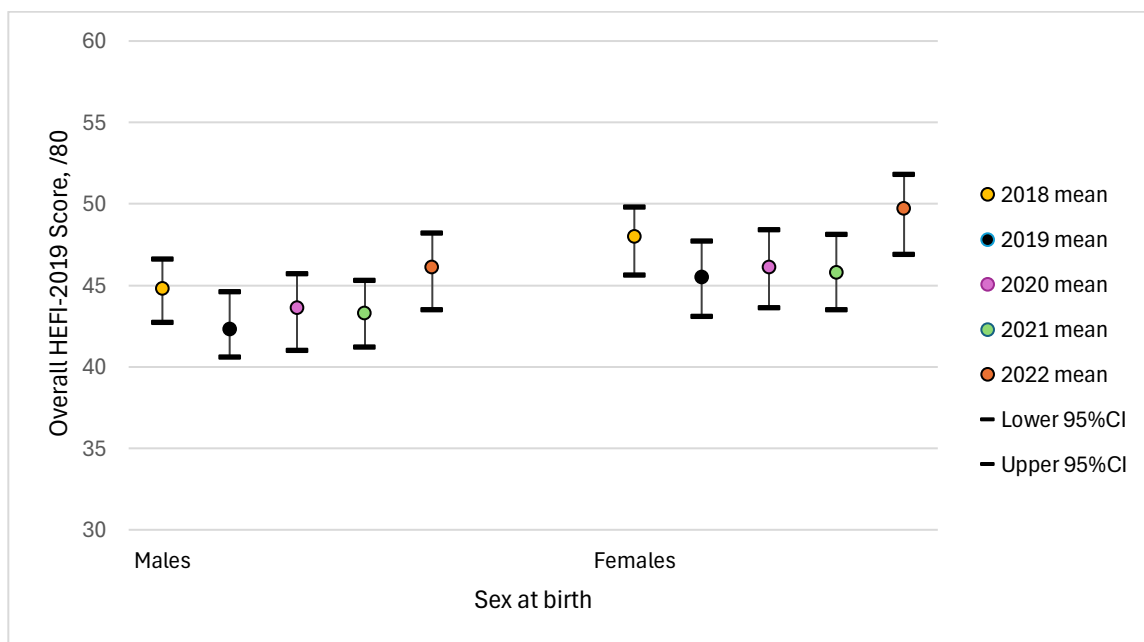


Figure 4. 2: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study by sex.

Among those aged 18 to 29 years, there was moderate evidence of a higher mean total HEFI-2019 score (4.0, SE 1.78, $P=0.025$) and Fatty acids ratio (0.8, SE 0.31, $P=0.010$) in 2022 compared to 2021 (**Figure 4.3** and [Appendix A](#), Table 2). Among those aged 45 to 59 years, there was moderate evidence of a lower total mean HEFI-2019 score (-3.2, SE 1.5, $P=0.033$) in 2020 compared to 2019. There was no evidence of differences from year to year among those aged 30 to 44 years or those aged ≥ 60 years, and no evidence of differences in total mean HEFI-2019 scores from 2018 to 2022 among any age group.

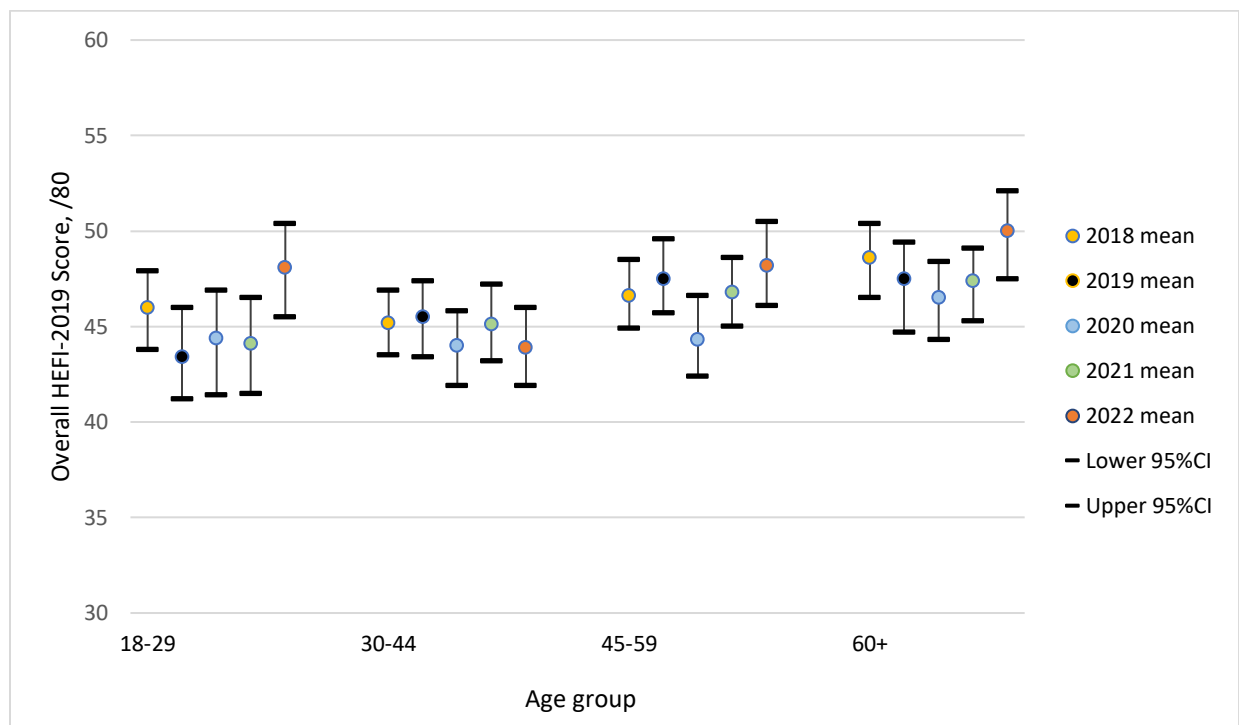


Figure 4. 3: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study by age group.

There was moderate evidence of a decline in the mean total HEFI-2019 score from 2018 to 2019 among those who found it easy to make ends meet (-2, SE 1.35, $P=0.027$), with moderate evidence of a decline in the Vegetable and fruits component

score (-1.4, SE 0.68, $P=0.039$). Among those who found it neither easy nor difficult to make ends meet, there was moderate evidence of an incline in the mean total HEFI-2019 score from 2021 to 2022 (3.4, SE 1.5, $P=0.029$), with strong evidence of an increase in the mean Fatty acids ratio score (0.8, SE 0.28, $P=0.004$). There was no evidence of differences from year to year among those who reported it was difficult to make ends meet (**Figure 4.4** and [Appendix A](#), Table 2). There was no evidence of differences in total mean HEFI-2019 scores from 2018 to 2022 in any income adequacy subgroup.

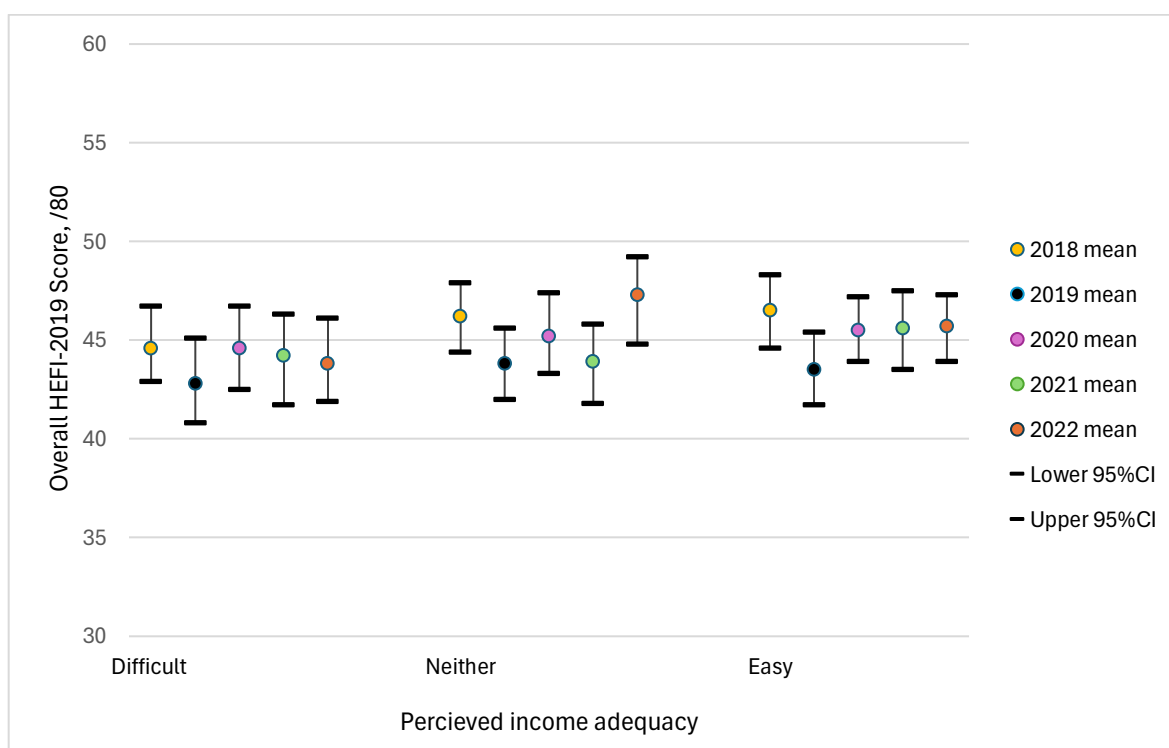


Figure 4. 4: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study by perceived income adequacy.

There was moderate evidence of a decline in the mean total HEFI-2019 score from 2018 to 2019 among those with less than a high school education (-6.52, SE 2.92, $P=0.025$). There was little or no evidence of a difference in mean total HEFI-2019

scores in other educational attainment subgroups from year to year, but there were some indications of differences in component scores from year to year (**Figure 4.5** and [Appendix A](#), Table 2). There was no evidence of differences in total HEFI-2019 score from 2018 to 2022 among any subgroups by educational attainment.

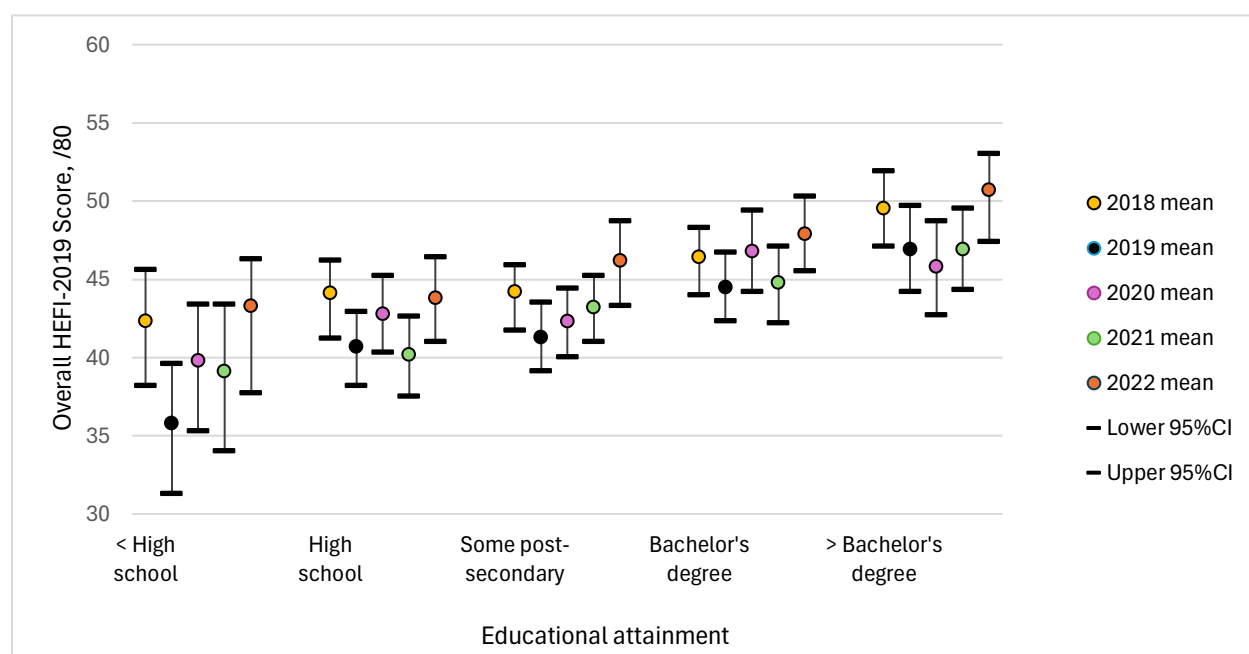


Figure 4. 5: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study by highest level of education.

There was moderate evidence of a decline in the mean total HEFI-2019 score from 2018 to 2019 among those who identified as White only (-3.2, SE 1.38, $P=0.021$). There was moderate to strong evidence of an increase in total HEFI-2019 scores from 2021 to 2022 among those who identified as Black only (7.7, SE 3.4, $P=0.023$) and Mixed/Other (9.3, SE 2.9, $P=0.001$). There were variations in the mean component scores from year to year, as well as moderate evidence of differences in component scores from 2018 to 2022 among racial/ethnic identity subgroups (**Figure 4.6** and [Appendix A](#), Table 2). There was strong evidence of an increase in the mean total

HEFI-2019 score from 2018 to 2022 among those in the Mixed/Other subgroup (9.4, SE 2.69, $P=0.0004$). There was no evidence of differences in mean total HEFI-2019 scores from 2018 to 2022 among the other racial/ethnic subgroups.

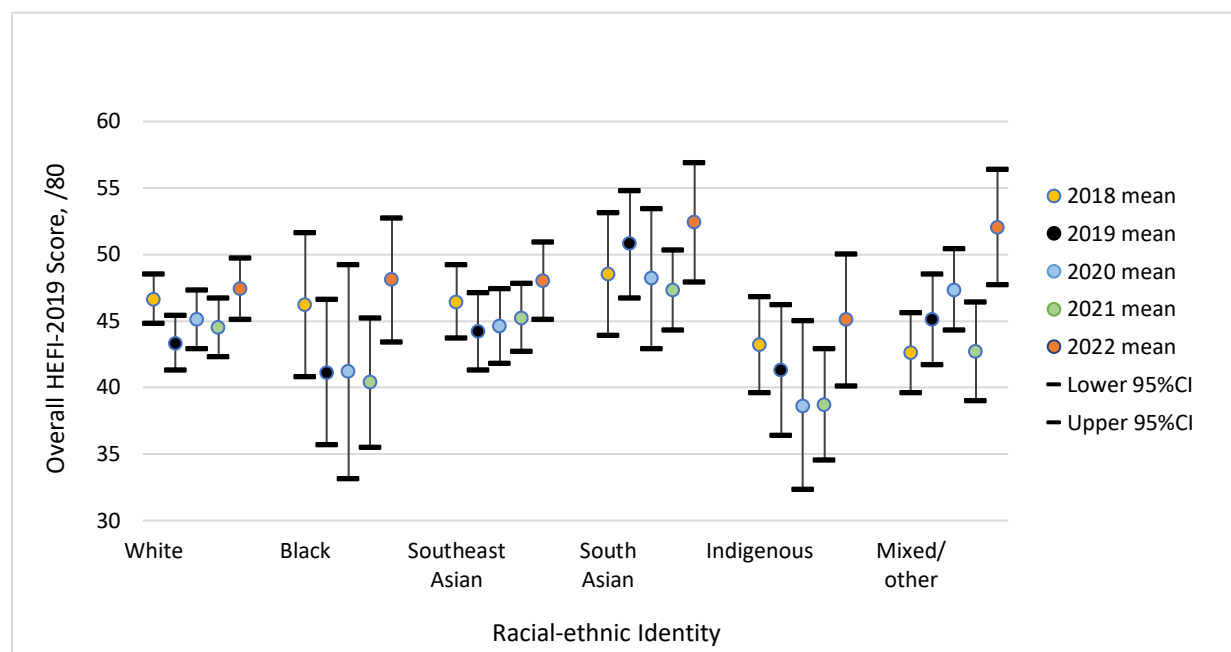


Figure 4. 6: Mean total HEFI-2019 scores from 2018 to 2022 among adults in the International Food Policy Study by racial-ethnic identity.

4.7 Discussion

This study examined diet quality among adults in Canada over five consecutive years. Unlike prior literature that suggested a modest improvement in diet quality among adults living in Canada's provinces from 2004 and 2015 (Olstad *et al.*, 2021), the current analysis shows little indication of change from 2018 to 2022. Though there were some fluctuations from year to year, the mean total HEFI-2019 score among the full sample in 2022—48—was not markedly different from that observed in 2018 at 46.5 of 80 possible points. There was little to no difference in diet quality from year to year or across the five years among the subgroups, apart from small declines from 2018 to 2019 and small improvements from 2021 to 2022 among some subgroups. Overall, diet quality remained poor from 2018 to 2022, including among more advantaged subgroups.

In contrast to our hypothesis, there was no evidence of an upward trend in diet quality from year to year between 2018 and 2020. Rather, diet quality was relatively consistent during this time. A prior study reported an increase in diet quality between 2004 and 2015 (Olstad *et al.*, 2021). However, it is possible that there were ebbs and flows in diet quality between 2004 and 2015 that were not evident due to a lack of ongoing dietary monitoring in Canada. The hypothesized increase in diet quality from 2018 to 2020 was also informed by the release of the new Food Guide in 2019, along with other aspects of the Healthy Eating Strategy that aim to positively impact the food supply and information available to consumers about the nutritional quality of foods (Canada, 2016a, 2020, 2021). However, there is a lag before new guidance influences food- and nutrition-related programs and can be translated to the public.

Diet quality was hypothesized to plateau from 2020 to 2022 as major disruptions associated with measures to limit the spread of COVID-19 in 2020 and beyond may have disturbed any positive influence of the updated dietary guidance, especially among particular subgroups. Thereafter, inflation rose sharply and food purchasing was indicated to be the number one concern related to day-to-day expenses (Government of Canada, 2023b). Nonetheless, diet quality as indicated by the total HEFI-2019 score was higher—by 3.3 points among the full sample—in 2022 compared to 2021. Similarly, using 24-hour recall data from the National Health and Nutrition Examination Study, Chen and Sturm (2022) found that diet quality—characterized using the Healthy Eating Index-2015—was higher as economic conditions worsened during and following the 2008-2009 Great Recession in the United States. As economic conditions improved, diet quality scores were lower. The authors suggested that the trends in diet quality may be due to a shift away from food prepared outside of the home (Chen and Sturm, 2022). It is possible that with the rise in food prices due to inflation, a similar shift has occurred in Canada, potentially facilitated in the post-lockdown period. Many people turned to cooking and baking during the pandemic (Özen *et al.*, 2022; Deloitte, no date). Other research suggested a small increase in diet quality during the early lockdown in 2020 (Lamarche *et al.*, 2021). When they were able to gather for meals, it is possible people shared more home-cooked and healthier meals than if they were dining alone. Additionally, the pandemic may have been a catalyst for a cultural shift towards valuing health and wellness (Grunert *et al.*, 2021; Özen *et al.*, 2022).

The pandemic also increased online shopping, with consumers becoming more reliant on retail e-commerce food platforms (Government of Canada, 2023a; Gupta *et*

al., 2024). A study comparing online and in-store grocery purchasing found that online shopping was associated with higher spending overall, but lower spending on foods such as candy, cold or frozen desserts, and grain-based desserts (Zatz *et al.*, 2021). It is also possible that interventions such as those that form the Healthy Eating Strategy are having the desired effect on diet quality after having been in place for several years. It is possible that numerous potential influences on diet quality may be canceling each other out. However, based on the current analysis, it is not possible to disentangle the influence of various factors on diet quality nor to attribute any changes in diet quality to specific events or policies.

The differences in the mean total HEFI-2019 score from year to year were largely due to fluctuations in the Vegetables and fruits score, with some small differences in scores for other components. Similarly, Lamarche *et al.* (2021) observed an increase in Vegetable and fruit consumption from 2019 to 2020 among adults living in Quebec (Lamarche *et al.*, 2021). However, Bell *et al.* (2023) reported a decrease in Vegetable and fruit consumption from September 2020 to March 2021 in university students living in Ontario (Bell *et al.*, 2023), though this was a period marked by pandemic disruptions. Overall, the findings suggest the need for attention to improve intake of not only fruits and vegetables, but also whole grains and sodium, in relation to dietary guidance.

In line with the lack of differences in diet quality in the overall sample from 2018 to 2022, there were no marked differences in mean total HEFI-2019 scores, except for among the Mixed/Other racial-ethnic identity subgroup. Additionally, there was an increase in the Fatty acids score from 2018 to 2022, driven by an increase from 2021 to 2022, among several subgroups, including females, individuals with a bachelor's

education, those aged 18 to 29, and those identifying as White or South Asian. Ongoing surveillance is needed to determine whether this is the start of an upward trend in diet quality from the perspective of fatty acids.

The magnitude of the differences observed in total HEFI-2019 scores among the overall sample from year to year was about 3 points, with the total score ranging to 80 points. Though the magnitude of change that is meaningful has not been established, in the evaluation of the HEFI-2019, a difference of 3.1 points (95% CI, 2.0 to 4.1) between females and males was interpreted to support the index's construct validity by differentiating groups with known differences in diet quality (Brassard eval paper). A study examining the association between diet quality, expressed by HEFI-2019 scores, and cardiovascular disease risk using data from the United Kingdom noted that a 6.5-point increase from a median HEFI-2019 total score of 46.6 reduced cardiovascular disease risk by 9% (Brassard, Manikpurage, Thériault, Arsenault, *et al.*, 2022). It is plausible that an increase of 3 points at the population level from year to year could have meaningful implications for health, though only if such an upward trend is sustained over time.

Several methodological considerations are relevant to the interpretation of the findings. A strength of the study is the use of the same measures to collect data at a consistent time of year over several consecutive years. However, the data are from repeat cross-sectional surveys that do not allow examination of trends in diet quality among the same individuals from year to year, though standardization to the 2018 wave strengthens comparisons over time. Additionally, the IFPS relies on non-probability-based sampling methods, introducing potential selection biases (Hammond *et al.*, 2022;

Hammond, 2023). The use of sampling weights improves the generalizability of the findings to adults in Canada, although the exclusion of individuals who did not complete ASA24-Canada or had indications of possible data quality issues may lessen generalizability.

Individual's identities interact in complex ways (Doan *et al.*, 2022), yet our examination did not consider potential interactions among sociodemographic characteristics, such as identifying as Indigenous and reporting difficulty making ends meet. Further, wide confidence intervals were observed for subgroups with small sample sizes, including those identifying as Black, with implications for the precision of the estimates. It is crucial to enhance data collection efforts to include the diversity of individuals living in Canada.

Given the large number of possible comparisons, we limited our inferences to changes from year to year, as well as overall from 2018 to 2022, among the sample overall and the subgroups of interest. The presentation of confidence intervals for the mean total and component scores allows readers to compare among groups with particular characteristics, adjusted for other characteristics, in each year.

We used a modified population ratio to better reflect usual diet quality as compared to person-level scores. Further, data from 24-hour recalls have been shown to be less affected by systematic error than data from long-term tools such as food frequency questionnaires (Subar, 2003; Kirkpatrick *et al.*, 2014, 2022). Nonetheless, all self-reported dietary intake data are affected by error and the short duration of many ASA24-Canada recalls within IFPS raised concerns about data quality, with exclusions

applied to mitigate this issue. Further, density-based variables, such as those used in the HEFI-2019, appear to be less affected by measurement error than variables expressing absolute intake (Kirkpatrick *et al.*, 2022). Mean total and component HEFI-2019 scores were fairly consistent overall with those estimated for individuals aged two years and above using data from the 2015 Canadian Community Health Survey (Brassard, Elvidge Munene, St-Pierre, Gonzalez, *et al.*, 2022).

It is possible that social desirability and other sources of bias led to overestimation of HEFI-2019 scores, for example, if foods perceived to be less healthy are underreported. To the extent that such biases were relatively consistent across the period of interest, observed changes from year to year are informative. Data collection, including the 24-hour recalls, was completed in November to December of each year (Hammond, 2023). This timing may have influenced food availability and preferences due to seasonal differences in the food supply, although studies in North America suggest minimal seasonal variation in dietary intake (Bernstein *et al.*, 2016; Crane *et al.*, 2019).

We introduced a modified method for calculating HEFI-2019 (and other density-based diet quality indices) scores using the population ratio, which has been shown to provide a more accurate estimate of a population's mean intake than averaging individual-level scores because it pools data across people (Freedman *et al.*, 2008). The modified method presented allows for adjustment for potential confounders, such that trend in diet quality among specific subgroups, such as women, can be considered independent of other factors, such as perceived income adequacy.

There is some evidence of an improvement in diet quality on average toward the end of the period studied, though extension of the analyses to subsequent years is needed to assess whether this represents a longer-term improvement in diet quality among adults in Canada. Such monitoring should include subgroups demonstrated to have lower diet quality, as the current study does not suggest marked improvements in HEFI-2019 scores among any groups within the period studied. Given low diet quality overall, concerted efforts are needed to improve diet quality among adults in Canada, considering the range of potential influences on dietary patterns and the need for tailored interventions to address possible barriers to healthy foods among those experiencing disparities.

4.8 Conclusion

To our knowledge, this is the first examination of diet quality among adults across five consecutive years in Canada, covering 2018 to 2022. Overall, no notable trend in diet quality was found, though there was evidence of an incline in diet quality toward the end of the period of interest. Similar patterns in scores across years were evident among subgroups, with no marked improvement in diet quality over time. The findings point to the need for concerted efforts to improve diet quality among adults overall and to narrow disparities that may contribute to health inequities.

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Chapter 5: General Discussion

5.1 Summary of key findings

Limited comprehensive nutrition surveillance at the population level in Canada has resulted in significant gaps in our understanding of diet quality and how it may be changing over time. Chapter 4 presents an examination of diet quality over five consecutive years, 2018 to 2022, among adults in Canada. A trend in diet quality was not observed from 2018 to 2022. Rather, some fluctuations in Healthy Eating Food Index-2019 scores were evident from year to year. The variability in mean total HEFI-2019 scores over time was primarily driven by fluctuations in the Vegetable and fruit component score. We also explored potential differences over time across subgroups by sex, age group, educational attainment, perceived income adequacy, and racial-ethnic identity, with similar findings for subgroups as for the overall sample. Overall, diet quality was low among all subgroups at all time points. It is possible that fluctuations in diet quality could in part be due to the numerous overlapping population-level changes in a relatively short period of time, though this study did not focus on disentangling the influence of these changes on diet quality.

5.2 Study strengths

To our knowledge, this study is the first to capture diet quality across five consecutive years in Canada. The findings of ebbs and flows in diet quality underscore the necessity of ongoing dietary data collection to inform adaptations of existing

interventions and the design and implementation of new interventions, including in response to sudden and evolving population-level events.

The use of the IFPS weights and our efforts to retain representativeness in the bootstrap replications improved the generalizability of results to the broader population of adults in Canada. Further, covariates were standardized to the distribution in the 2018 wave, which increased the comparability and strengthen inferences made about diet quality over time.

The population ratio method is the preferred method to calculate mean diet quality scores when a single 24-hour recall is available per participant⁴⁶, but the inability to adjust for covariates limits its applications. The modified population ratio introduced in this thesis can be applied in future studies that use data from a single 24-hour recall to describe diet quality among groups and subgroups, adjusting for a range of characteristics.

5.3 Study limitations

The present study also had several limitations. As mentioned in Chapter 4, the use of repeat cross-sectional surveys and potential biases associated with self-reported dietary data underscore the need for cautious interpretation. Additionally, due to an inadequate sample size in the territories, the survey sample includes only adults residing in the provinces⁸⁷. Based on the limited research on eating patterns in northern communities, diet quality is expected to be lower among adults in the territories than in the provinces. Greater effort is needed to gather dietary data in the territories, particularly in remote northern communities, to inform policies to improve the extreme

dietary inequities typically faced, such as high prevalence of food insecurity and geographic inequities in food access⁷⁷.

Sociocultural factors including gender have a greater influence on what we eat as opposed to biological attributes such as sex⁸⁸, but due to small cell sizes in some gender categories, regression analyses would not produce a reliable p-value, which serves as the foundation for using the language of evidence⁸⁹. However, in 2018, less than 1% of IFPS respondents reported a gender identity that was different than their biological sex⁵⁰. Since there is high concordance between sex and gender, sex was used to ease interpretation of results and avoid eliminating data for individuals with non-binary gender identities.

Given concerns about the short completion time of ASA24-Canada among some IFPS respondents, we compared HEFI-2019 scores from adults in the 2018 IFPS to those based on the 2015 CCHS-N. The scores closely matched with the exception of Free sugars and Sodium (**Figure 5.1**).

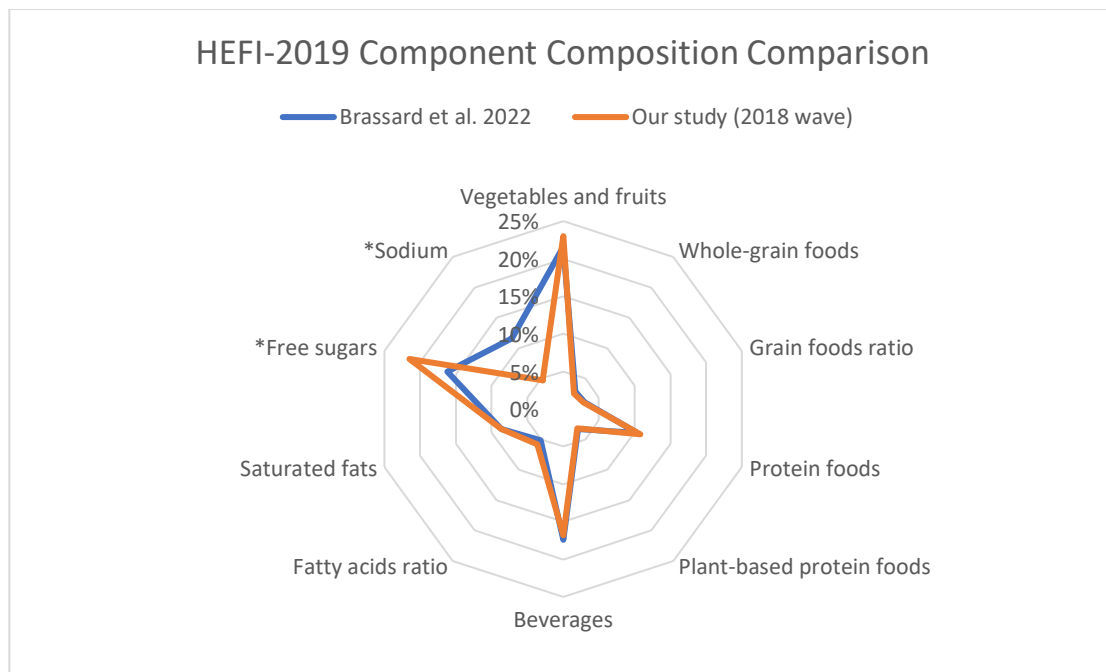


Figure 5. 1: Radar plot of HEFI-2019 component composition in Brassard et al. 2022 compared to this study²¹. Composition was calculated by taking the component score over the total score for each study.

One plausible reason for the difference in Free sugars scores could stem from the survey methodologies employed. Specifically, the IFPS survey precedes the completion of ASA24-Canada and extensively queries participants about sugars and sugary beverages. Consequently, respondents were prompted about the unhealthiness of free sugars, which could have impacted their reporting in ASA24-Canada. Mean absolute sodium intake in the 2018 IFPS wave was similar to that in the 2015 CCHS-N, but when expressed relative to energy, discrepancies emerge, 1838mg/1000kcal and 1489mg/1000kcal, respectively⁹⁰. Differences in the Sodium component score could in part be due to low reported calorie intake in the IFPS survey.

The modified population ratio pools data from a single recall per person to estimate diet quality across groups and subgroups. This approach does not consider

the distribution of individual scores, which is useful for understanding variability and drawing conclusions about meaningful changes.

5.3 Implications for future research

Examining diet quality during a dynamic period underscores the need for frequent collection of dietary data to support evidence-based nutrition policies. Given the financial constraints associated with national dietary data collection, such as replicate recalls in the CCHS-N, it is improbable that 24-hour recalls will be conducted annually at the national level in the foreseeable future. In the interim, studies should use existing dietary data to assess changes in diet quality and to better understand the changes in food composition that may underlie changes in overall diet quality. Insights from such research can inform the development of new policy initiatives to support healthy eating, including targeted initiatives to reduce dietary disparities and ensure equitable adherence to the 2019-CFG across diverse population groups.

This research could not go beyond describing the population-level changes that have occurred during the examined period, 2018 to 2022, but future research should explore if and how diet quality changes overall and among certain groups are attributable to events, such as the rise in technology and social media use, inflation, and the ongoing climate crisis. For instance, social media has shown to be a key medium for nutrition information and misinformation, particularly among adolescent and young adults^{36,37}. Accompanying quantitative data analyses with an in-depth policy analysis can assist with considering how dietary guidance and other nutrition policies may be impacting diet quality.

As suggested in Brassard et al (2022), future research is needed to determine a target HEFI-2019 score that is considered to reflect adequate adherence to the 2019-CFG healthy food choices recommendations²¹. A total HEFI-2019 score target can be informed by studies examining how diet quality is associated with disease risk. A recent study examining the impact of adherence to the 2019-CFG recommendations on cardiovascular disease risk on adults in the United Kingdom demonstrated that an increase of 6.5 HEFI-2019 points (from a median of 46.6) could reduce the risk of cardiovascular disease by 9% and an increase of 11.5 points could reduce risk by 24%⁹¹.

5.4 Conclusion

This research was the first to examine diet quality trends in the Canadian context in recent years. Assessing dietary data across five consecutive years provides a comprehensive understanding of diet quality trends during a period that was defined by uncertainty and change. The analyses in Chapter 4 demonstrate that across time, diet quality remains suboptimal, overall and among subgroups. There was little indication of meaningful changes from 2018 to 2022, with moderate evidence of higher diet quality in 2022 compared to 2021. The findings emphasize the importance of collecting dietary intake data on an ongoing basis to better understand whether fluctuations in diet quality represent longer-term trends.

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Appendix A: Supplementary materials for Chapter 4

Table 1: Healthy Eating Food Index-2019 (HEFI-2019) component characteristics, ratios and scoring standards⁴³.

#	Component type	Component name	Adequacy or moderation component	Component ratio type	Component ratios	Scoring standards (threshold assigning points)	Standard for minimum score	Standard for maximum score
1	Foods	Vegetables and fruits	Adequacy	Proportion of plate model	total vegetables & fruits (RA)/ total foods (RA)	≥ 0.50	0	20
2		Whole-grain foods	Adequacy	Proportion of grain foods	total whole-grain foods (RA)/ total foods (RA)	≥ 0.25	0	5
3		Grain foods ratio	Adequacy	Proportion of plate model	total whole-grain foods (RA)/ total grain foods (RA)	1.0	0	5
4		Protein foods	Adequacy	Proportion of plate model	total protein foods (RA)/ total foods (RA)	≥ 0.25	0	5
5		Plant-based protein foods	Adequacy	Proportion of protein foods	total plant-based protein foods (RA)/ total protein foods (RA)	≥ 0.50	0	5
6	Beverages	Beverages	Adequacy	Proportion of beverages	water & unsweetened beverages (g)/ total beverages (g)	1.0	0	10
7	Nutrients	Fatty acids ratio	Adequacy	Proportion of fats	total unsaturated fats (g)/ total Saturated fats (g)	≥ 2.6	≥ 1.1	5
8		Saturated fats	Moderation	Proportion of energy	total saturated fat (kcal)/ total energy (kcal)	$< 10\%E$	$\geq 15\%E$	5
9		Free sugars	Moderation	Proportion of energy	total free sugars (kcal)/ total energy (kcal)	$< 10\%E$	$\geq 20\%E$	10
10		Sodium	Moderation	Energy adjusted density	total sodium (mg)/ total energy (kcal)	< 0.9	≥ 2.0	10
-	Total							80

Table 2: Total and component Healthy Eating Food Index-2019 scores by subgroup from 2018 to 2022 from adults in the International Food Policy Study

	2018	2019	2018 vs 2019		2020	2019 vs 2020		2021	2020 vs 2021		2022	2021 vs 2022		2018 vs 2022	
	Mean (95%CI)	Mean (95%CI)	MD (SE)	P- value	Mean (95%CI)	MD (SE)	P- value	Mean (95%CI)	MD (SE)	P- value	Mean (95%CI)	MD (SE)	P- value	MD (SE)	P- value
SEX															
Males															
<i>Vegetables & Fruits, /20</i>	10 (9.2-10.9)	8.5 (7.7-10.0)	-1.5 (0.69)	0.033	10.1 (9.2-11.3)	1.58 (0.75)	0.034	9.1 (8.2-10.2)	-0.93 (0.73)	0.205	10.5 (9.3-12.1)	1.35 (0.87)	0.121	0.47 (0.84)	0.557
<i>Whole-grain foods, /5</i>	1.2 (1.0-1.4)	1.5 (1.2-1.8)	0.28 (0.2)	0.166	1.4 (1.2-1.7)	-0.06 (0.22)	0.784	1.2 (1.0-1.5)	-0.2 (0.18)	0.269	1.2 (1.0-1.5)	0.01 (0.2)	0.959	0.03 (0.19)	0.876
<i>Grain foods ratio, /5</i>	1.3 (1.1-1.6)	1.4 (1.1-1.7)	0.08 (0.2)	0.686	1.5 (1.2-1.7)	0.06 (0.19)	0.757	1.3 (1.1-1.5)	-0.21 (0.16)	0.189	1.3 (1-1.5)	-0.01 (0.19)	0.957	-0.08 (0.19)	0.683
<i>Protein foods, /5</i>	5 (4.9-5)	5 (0)	0 (0.02)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.5 (1.0-1.8)	0.9 (0.2-1.3)	-0.55 (0.42)	0.192	1.3 (1.0-1.6)	0.41 (0.39)	0.297	1.3 (0.8-1.6)	-0.08 (0.27)	0.769	1.2 (0.6-1.7)	-0.08 (0.34)	0.815	-0.3 (0.35)	0.392
<i>Beverages, /10</i>	7.3 (6.6-8.0)	7.2 (6.5-9.0)	-0.16 (0.75)	0.831	7.1 (5.8-7.9)	-0.06 (0.84)	0.943	7.4 (6.8-7.9)	0.29 (0.59)	0.625	7.5 (6.7-8.1)	0.06 (0.48)	0.900	0.13 (0.51)	0.802
<i>Fatty acids ratio, /5</i>	2.6 (2.3-3)	2.7 (2.3-3)	0.02 (0.24)	0.933	2.5 (2-2.9)	-0.17 (0.29)	0.561	2.8 (2.4-3.2)	0.3 (0.30)	0.331	3 (2.6-3.4)	0.23 (0.28)	0.405	0.38 (0.25)	0.128
<i>Saturated fats, /5</i>	3.9 (3.3-4.4)	3.7 (3.1-4.3)	-0.17 (0.43)	0.696	3.7 (3.0-4.4)	0 (0.47)	1	4.2 (3.8-4.8)	0.55 (0.466)	0.238	4.3 (3.7-5)	0.1 (0.428)	0.815	0.48 (0.45)	0.292
<i>Free sugars, /10</i>	10 (10)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (9.9-10)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	1.9 (1.0-2.7)	1.5 (0.9-2.1)	-0.47 (0.51)	0.360	0.9 (0.1-1.8)	-0.53 (0.53)	0.317	1 (0-1.8)	0.03 (0.594)	0.959	2.1 (0.8-3.0)	1.16 (0.686)	0.09	0.19 (0.68)	0.781
TOTAL	44.8 (42.7-46.6)	42.3 (40.6-44.6)	-2.46 (1.44)	0.088	43.6 (41.0-45.7)	1.25 (1.61)	0.440	43.3 (41.2-45.3)	-0.29 (1.59)	0.855	46.1 (43.5-48.2)	2.82 (1.57)	0.072	1.32 (1.51)	0.874
Females															
<i>Vegetables & Fruits, /20</i>	11.3 (10.3-12.4)	10.3 (9.2-11.4)	-1.00 (0.77)	0.186	11.3 (10.4-12.6)	1.03 (0.76)	0.178	11 (10-12.1)	-0.31 (0.74)	0.676	12.6 (11.3-14.0)	1.56 (0.87)	0.075	1.26 (0.86)	0.144

<i>Whole-grain foods, /5</i>	1.1 (0.9-1.3)	1.4 (1.1-1.8)	0.28 (0.20)	0.173	1.4 (1.1-1.7)	-0.04 (0.22)	0.860	1.2 (1-1.4)	-0.19 (0.17)	0.285	1.2 (0.9-1.5)	0 (0.18)	1	0.05 (0.18)	0.781
<i>Grain foods ratio, /5</i>	1.3 (1.1-1.5)	1.4 (1.1-1.8)	0.11 (0.19)	0.571	1.5 (1.3-1.7)	0.08 (0.2)	0.689	1.3 (1.1-1.6)	-0.18 (0.16)	0.268	1.3 (1-1.5)	-0.04 (0.18)	0.829	-0.03 (0.18)	0.871
<i>Protein foods, /5</i>	5 (4.8-5)	5 (0)	0 (0.07)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0.07)	1
<i>Plant-based protein foods, /5</i>	1.5 (1.1-2.0)	1.2 (0.3-1.5)	-0.31 (0.49)	0.533	1.6 (1.3-1.9)	0.37 (0.47)	0.431	1.4 (0.9-1.7)	-0.21 (0.31)	0.492	1.3 (0.7-1.9)	-0.08 (0.36)	0.828	-0.23 (0.37)	0.540
<i>Beverages, /10</i>	8.2 (7.7-8.7)	8 (7.6-9.3)	-0.16 (0.53)	0.763	8.2 (7.7-8.7)	0.16 (0.52)	0.761	8.6 (8.1-9.0)	0.38 (0.31)	0.233	8.5 (7.9-8.9)	-0.1 (0.35)	0.775	0.28 (0.37)	0.455
<i>Fatty acids ratio, /5</i>	2.9 (2.4-3.3)	2.8 (2.4-3.2)	-0.05 (0.29)	0.863	2.5 (2.0-2.9)	-0.35 (0.29)	0.228	2.6 (2.2-3.1)	0.14 (0.31)	0.660	3.5 (3.0-4.1)	0.94 (0.34)	0.006	0.68 (0.34)	0.045
<i>Saturated fats, /5</i>	4.2 (3.5-5)	3.7 (3.2-4.4)	-0.48 (0.50)	0.341	3.2 (2.4-4)	-0.51 (0.49)	0.304	3.8 (3.2-4.5)	0.57 (0.51)	0.269	4.5 (3.6-5)	0.69 (0.50)	0.169	0.27 (0.53)	0.610
<i>Free sugars, /10</i>	10 (9.4-10)	10 (0)	0 (0.14)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (9.9-10)	0 (0.8)	1	0 (0.16)	1
<i>Sodium, /10</i>	2.4 (1.5-3.2)	1.5 (0.9-2.3)	-0.9 (0.57)	0.117	1.4 (0.5-2.3)	-0.12 (0.58)	0.836	0.9 (0-1.8)	-0.48 (0.65)	0.461	1.9 (0.4-2.9)	0.91 (0.768)	0.236	-0.59 (0.78)	0.452
TOTAL	48 (45.6-49.8)	45.5 (43.1-47.7)	-2.5 (1.6)	0.106	46.1 (43.6-48.4)	0.64 (1.66)	0.700	45.8 (43.5-48.1)	-0.29 (1.69)	0.864	49.7 (46.9-51.8)	3.87 (1.79)	0.030	1.66 (1.73)	0.338

HIGHEST LEVEL OF EDUCATION

Less than high school

<i>Vegetables & Fruits, /20</i>	10 (7.7-12)	5.8 (4.3-7.6)	-4.12 (1.4)	0.003	7.2 (5.3-9.1)	1.37 (1.3)	0.295	6.5 (4.6-8.6)	-0.76 (1.38)	0.583	8.8 (6.1-11.4)	2.38 (1.788)	0.183	-1.13 (1.77)	0.524
<i>Whole-grain foods, /5</i>	0.8 (0.5-1.1)	1.3 (0.7-1.7)	-0.46 (0.3)	0.136	1.1 (0.7-1.6)	-0.14 (0.3)	0.687	1 (0.6-1.4)	-0.15 (0.30)	0.621	0.7 (0.3-1.2)	-0.32 (0.31)	0.304	-0.15 (0.27)	0.584
<i>Grain foods ratio, /5</i>	0.9 (0.5-1.3)	1.2 (0.7-1.7)	0.35 (0.3)	0.221	1.1 (0.8-1.5)	-0.08 (0.3)	0.792	1 (0.6-1.4)	-0.15 (0.27)	0.586	0.6 (0.3-1.0)	-0.37 (0.28)	0.191	-0.25 (0.27)	0.354
<i>Protein foods, /5</i>	4.9 (4.0-5)	5 (4.4-5)	0.06 (0.3)	0.845	5 (5)	0 (0.1)	1	5 (4.9-5)	0 (0)	1	5 (4.3-5)	0 (0.2)	1	0.05 (0.35)	0.886
<i>Plant-based</i>	1.6 (0.7-2.4)	0.6 (0.1-1.1)	-0.99 (0.5)	0.053	0.8 (0.4-1.2)	0.26 (0.3)	0.449	1.3 (0.4-2.1)	0.44 (0.48)	0.362	1.1 (0.1-2.0)	-0.17 (0.651)	0.794	-0.46 (0.64)	0.475

<i>protein foods, /5</i>															
<i>Beverages, /10</i>	7.9 (6.5-9.1)	6.9 (5.5-8.9)	-0.96 (1.1)	0.38	8.1 (6.8-8.7)	1.16 (1)	0.237	6.9 (5.8-8.1)	-1.13 (0.80)	0.161	7.5 (5.7-9.1)	0.6 (1.07)	0.575	-0.33 (1.10)	0.764
<i>Fatty acids ratio, /5</i>	2.7 (1.9-3.7)	1.8 (1.2-2.5)	-0.86 (0.6)	0.131	2.3 (1.6-3)	0.5 (0.5)	0.312	2.7 (2.0-3.7)	0.38 (0.57)	0.510	3 (2.1-4.1)	0.29 (0.68)	0.672	0.31 (0.68)	0.648
<i>Saturated fats, /5</i>	3.8 (2.0-5)	2 (0.5-3.5)	-1.77 (1.1)	0.122	3.6 (2.5-4.8)	1.58 (1)	0.106	4 (2.6-5)	0.45 (0.89)	0.614	5 (3.1-5)	0.96 (0.87)	0.261	1.22 (1)	0.226
<i>Free sugars, /10</i>	9.8 (7.1-10)	10 (7.8-10)	0.16 (1.2)	0.889	10 (8.3-10)	0 (0.8)	1	9.6 (6.6-10)	-0.36 (1.14)	0.752	10 (7.3-10)	0.36 (1.32)	0.786	0.16 (1.26)	0.899
<i>Sodium, /10</i>	0 (0-1.7)	1.2 (0-2.4)	1.15 (0.9)	0.179	0.5 (0-1.9)	-0.65 (0.9)	0.451	1.1 (0-3)	0.56 (1.03)	0.589	1.6 (0-4.1)	0.55 (1.60)	0.732	1.61 (1.47)	0.274
<i>TOTAL</i>	42.3 (38.2-45.6)	35.8 (31.3-39.6)	-6.52 (2.92)	0.025	39.8 (35.3-43.4)	4 (3)	0.179	39.1 (34.0-43.4)	-0.72 (3.23)	0.823	43.3 (37.7-46.3)	4.27 (3.43)	0.213	1.03 (3.09)	0.739
High school															
<i>Vegetables & Fruits, /20</i>	9.7 (8.4-10.9)	7.9 (6.9-9.3)	-1.79 (0.88)	0.043	9.2 (8-10.4)	1.26 (0.85)	0.140	8.3 (7.1-9.4)	-0.9 (0.84)	0.285	9.7 (8.3-11.6)	1.4 (1.02)	0.170	-0.03 (1.06)	0.977
<i>Whole-grain foods, /5</i>	1.1 (0.8-1.4)	1.4 (1.1-1.8)	0.34 (0.25)	0.173	1.3 (1-1.6)	-0.08 (0.25)	0.748	1.1 (0.9-1.3)	-0.27 (0.186)	0.146	1.1 (0.8-1.4)	-0.01 (0.194)	0.958	-0.02 (0.21)	0.927
<i>Grain foods ratio, /5</i>	1.2 (0.8-1.5)	1.2 (1-1.5)	0.08 (0.21)	0.706	1.4 (1.1-1.7)	0.17 (0.19)	0.391	1.2 (0.9-1.4)	-0.23 (0.17)	0.193	1.1 (0.8-1.4)	-0.1 (0.2)	0.617	-0.08 (0.21)	0.715
<i>Protein foods, /5</i>	5 (4.9-5)	5 (0)	0 (0.05)	1	5 (4.9-5)	0 (0.03)	1	5 (0)	0 (0.03)	1	5 (0)	0 (0)	1	0 (0.05)	1
<i>Plant-based protein foods, /5</i>	1.6 (1.1-2)	0.8 (0.2-1.2)	-0.74 (0.41)	0.07	1.3 (0.9-1.6)	0.43 (0.38)	0.258	1.3 (0.8-1.7)	0.03 (0.306)	0.921	0.9 (0.3-1.4)	-0.41 (0.33)	0.227	-0.69 (0.34)	0.046
<i>Beverages, /10</i>	7.1 (6.3-7.7)	7 (6-9)	-0.04 (0.82)	0.961	7.3 (6.3-7.9)	0.26 (0.84)	0.758	7.8 (7.3-8.3)	0.53 (0.48)	0.275	7.6 (6.8-8.4)	-0.2 (0.48)	0.680	0.55 (0.54)	0.313
<i>Fatty acids ratio, /5</i>	2.8 (2.4-3.3)	2.5 (2.1-2.9)	-0.03 (0.30)	0.325	2.5 (1.9-3)	-0.05 (0.33)	0.881	2.2 (1.8-2.6)	-0.31 (0.348)	0.373	3 (2.5-3.5)	0.86 (0.34)	0.011	0.2 (0.35)	0.564
<i>Saturated fats, /5</i>	4.2 (3.3-5)	3.6 (2.9-4.3)	-0.62 (0.53)	0.245	3.5 (2.6-4.5)	-0.06 (0.574)	0.916	3 (2.2-8.7)	-0.57 (0.617)	0.355	3.9 (3.1-4.8)	0.96 (0.57)	0.093	-0.29 (0.58)	0.621
<i>Free sugars, /10</i>	10 (9.2-10)	10 (0)	0 (0.21)	1	10 (9.9-10)	0 (0.06)	1	10 (9.9-10.1)	0 (0.08)	1	10 (8.9-10)	0 (0.31)	1	0 (0.37)	1

<i>Sodium, /10</i>	1.5 (0.4-2.5)	1.2 (0.5-2)	-0.3 (0.66)	0.652	1.3 (0.3-2.3)	0.1 (0.65)	0.877	0.4 (0-1.5)	-0.91 (0.68)	0.185	1.5 (0-2.6)	1.08 (0.77)	0.163	-0.03 (0.83)	0.971
<i>TOTAL</i>	44.1 (41.2-46.2)	40.7 (38.2-42.9)	-3.33 (1.77)	0.060	42.8 (40.3-45.2)	2 (1.71)	0.242	40.2 (37.5-42.6)	-2.6 (1.79)	0.147	43.8 (41-46.4)	3.57 (1.93)	0.064	-0.36 (1.94)	0.853
Some post-secondary															
<i>Vegetables & Fruits, /20</i>	10 (9-10.9)	7.9 (6.9-9.3)	-2.09 (0.80)	0.009	9.6 (8.8-10.7)	1.71 (0.80)	0.03	9.4 (8.3-10.4)	-0.23 (0.74)	0.758	11 (9.6-12.6)	1.6 (0.93)	0.087	0.98 (0.93)	0.294
<i>Whole-grain foods, /5</i>	1.0 (0.8-1.2)	1.5 (1.1-1.8)	0.42 (0.20)	0.038	1.3 (1.1-1.6)	-0.15 (0.22)	0.495	1.1 (0.9-1.4)	-0.16 (0.18)	0.385	1.1 (0.9-1.5)	-0.01 (0.2)	0.96	0.1 (0.19)	0.606
<i>Grain foods ratio, /5</i>	1.2 (1-1.4)	1.4 (1.1-1.7)	0.24 (0.2)	0.230	1.4 (1.1-1.6)	-0.07 (0.19)	0.718	1.3 (1.0-1.5)	-0.09 (0.15)	0.562	1.2 (0.9-1.5)	-0.08 (0.19)	0.680	0 (0.2)	1
<i>Protein foods, /5</i>	5 (4.8-5)	5 (0)	0 (0.06)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0.06)	1
<i>Plant-based protein foods, /5</i>	1.3 (0.8-1.7)	0.9 (0.2-1.2)	-0.4 (0.40)	0.327	1.3 (1-1.6)	0.41 (0.38)	0.286	1.3 (0.8-1.7)	-0.07 (0.28)	0.802	1.0 (0.5-1.5)	-0.24 (0.33)	0.479	-0.3 (0.32)	0.358
<i>Beverages, /10</i>	7.7 (7.1-8.4)	7.6 (6.9-9.2)	-0.12 (0.68)	0.854	7.3 (6.5-7.9)	-0.3 (0.67)	0.658	8.1 (7.7-8.6)	0.82 (0.44)	0.063	7.9 (7.2-8.4)	-0.24 (0.41)	0.564	0.16 (0.46)	0.731
<i>Fatty acids ratio, /5</i>	2.5 (2.2-2.9)	2.4 (2-2.8)	-0.09 (0.25)	0.723	2.2 (1.8-2.6)	-0.18 (0.26)	0.503	2.5 (2.12-9)	0.31 (0.29)	0.285	2.9 (2.5-3.4)	0.43 (0.30)	0.157	0.47 (0.28)	0.098
<i>Saturated fats, /5</i>	3.7 (3.0-4.4)	3.1 (2.5-3.8)	-0.52 (0.47)	0.273	3.1 (2.3-3.7)	0 (0.48)	1	3.6 (3-4.3)	0.52 (0.49)	0.294	4 (3.3-4.7)	0.33 (0.50)	0.512	0.33 (0.52)	0.528
<i>Free sugars, /10</i>	10 (0)	10 (0)	0 (0.04)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (9.8-10)	0 (0)	1	0 (0.10)	1
<i>Sodium, /10</i>	1.7 (0.6-2.6)	1.4 (0.7-2.2)	-0.29 (0.65)	0.632	1.0 (0.1-2)	-0.42 (0.59)	0.476	0.8 (0-1.8)	-0.21 (0.62)	0.728	2.1 (0.8-3.0)	1.29 (0.72)	0.074	0.37 (0.75)	0.623
<i>TOTAL</i>	44.2 (41.7-45.9)	41.3 (39.1-43.5)	-2.88 (1.57)	0.066	42.3 (40-44.4)	1.01 (1.61)	0.531	43.2 (41-45.2)	0.88 (1.57)	0.576	46.2 (43.3-48.7)	3.07 (1.68)	0.069	2.08 (1.68)	0.216
Bachelor's degree															
<i>Vegetables & Fruits, /20</i>	10.7 (9.7-11.6)	10.1 (9.1-11.1)	-0.06 (0.69)	0.386	11.5 (10.5-12.7)	1.44 (0.73)	0.050	10.6 (9.4-11.8)	-0.93 (0.80)	0.249	11.4 (10.1-13)	0.88 (0.92)	0.339	0.79 (0.84)	0.352

Whole-grain foods, /5	1.2 (1-1.4)	1.4 (1.0-1.7)	0.14 (0.20)	0.489	1.4 (1.23-1.7)	0.1 (0.22)	0.659	1.2 (1-1.4)	-0.24 (0.19)	0.211	1.2 (0.9-1.5)	-0.01 (0.2)	0.960	-0.01 (0.19)	0.958
Grain foods ratio, /5	1.4 (1.1-1.6)	1.3 (1.1-1.7)	-0.03 (0.19)	0.875	1.5 (1.3-1.8)	0.19 (0.19)	0.338	1.3 (1-1.5)	-0.25 (0.17)	0.142	1.2 (0.9-1.5)	-0.05 (0.18)	0.788	-0.14 (0.19)	0.466
Protein foods, /5	5 (0)	5 (0)	0 (0.03)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0.03)	1
Plant-based protein foods, /5	1.5 (1-1.9)	1.1 (0.2-1.4)	-0.36 (0.46)	0.435	1.5 (1.2-1.7)	0.34 (0.43)	0.438	1.2 (0.7-1.6)	-0.25 (0.28)	0.379	1.3 (0.6-1.8)	0.09 (0.35)	0.800	-0.18 (0.36)	0.619
Beverages, /10	7.9 (7.3-8.4)	7.7 (7.2-9.2)	-0.14 (0.61)	0.819	7.9 (7.2-8.5)	0.15 (0.63)	0.814	8 (7.4-8.5)	0.12 (0.42)	0.776	8 (7.4-8.6)	0.02 (0.43)	0.962	0.15 (0.45)	0.741
Fatty acids ratio, /5	2.7 (2.4-3.1)	2.8 (2.4-3.3)	0.15 (0.27)	0.586	2.6 (2.2-3.1)	-0.17 (0.32)	0.597	2.7 (2.3-3.2)	0.06 (0.35)	0.862	3.4 (3-4)	0.72 (0.31)	0.023	0.76 (0.29)	0.010
Saturated fats, /5	3.9 (3.2-4.6)	3.7 (3.1-4.3)	-0.17 (0.50)	0.735	3.9 (3.1-4.7)	0.16 (0.53)	0.763	4.1 (3.4-4.8)	0.2 (0.53)	0.710	4.6 (4-5)	0.54 (0.46)	0.248	0.73 (0.48)	0.130
Free sugars, /10	10 (0)	10 (0)	0 (0.04)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (9.80-10)	0 (0.11)	1	0 (0.11)	1
Sodium, /10	2.3 (1.5-3.1)	1.4 (0.8-2.0)	-0.92 (0.52)	0.076	1.4 (0.5-2.3)	0.05 (0.56)	0.929	0.8 (0-1.6)	-0.65 (0.63)	0.302	1.7 (0.2-2.7)	0.9 (0.74)	0.229	-0.62 (0.74)	0.404
TOTAL	46.4 (44-48.3)	44.5 (42.3-46.7)	-1.91 (1.54)	0.213	46.8 (44.2-49.4)	2.26 (1.70)	0.186	44.8 (42.2-47.1)	-1.95 (1.81)	0.283	47.9 (45.5-50.3)	3.09 (1.79)	0.085	1.49 (1.65)	0.367

More than a Bachelor's degree

Vegetables & Fruits, /20	11.6 (10.4-12.9)	10.6 (9.2-12.3)	-1.05 (0.95)	0.269	11.3 (10.1-12.5)	0.72 (0.97)	0.458	10.7 (9.4-12)	-0.55 (0.89)	0.540	12.7 (11.3-14.2)	1.94 (0.99)	0.051	1.06 (0.98)	0.280
Whole-grain foods, /5	1.3 (1-1.6)	1.6 (1.2-2.1)	0.31 (0.25)	0.229	1.5 (1.2-1.9)	-0.13 (0.27)	0.640	1.3 (1-1.7)	-0.18 (0.23)	0.439	1.4 (1-1.7)	0.05 (0.23)	0.832	0.05 (0.22)	0.825
Grain foods ratio, /5	1.4 (1.2-1.7)	1.5 (1.2-1.9)	0.1 (0.23)	0.676	1.6 (1.3-1.9)	0.08 (0.25)	0.750	1.4 (1.1-1.7)	-0.25 (0.21)	0.243	1.5 (1.1-1.8)	0.09 (0.22)	0.690	0.02 (0.22)	0.927
Protein foods, /5	5 (4.8-5)	5 (0)	0 (0.07)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0.07)	1
Plant-based	1.8 (1.2-2.4)	1.3 (0.3-1.8)	-0.5 (0.57)	0.386	1.7 (1.2-2.1)	0.41 (0.54)	0.452	1.6 (1-2.1)	-0.11 (0.38)	0.773	1.5 (0.8-2.2)	-0.09 (0.44)	0.840	-0.29 (0.47)	0.540

<i>protein foods, /5</i>															
<i>Beverages, /10</i>	7.9 (7.2-8.6)	7.7 (7-9.2)	-0.23 (0.68)	0.735	8 (7.1-8.6)	0.34 (0.69)	0.622	8.1 (7.5-8.8)	0.12 (0.48)	0.803	8.3 (7.5-8.9)	0.12 (0.47)	0.801	0.35 (0.49)	0.476
<i>Fatty acids ratio, /5</i>	3.2 (2.7-3.8)	3 (2.6-3.6)	-0.14 (0.38)	0.717	2.5 (2-3.1)	-0.51 (0.39)	0.197	2.9 (2.4-3.5)	0.4 (0.4)	0.326	3.5 (2.8-4.1)	0.54 (0.42)	0.204	0.29 (0.41)	0.484
<i>Saturated fats, /5</i>	4.7 (3.9-5)	4.4 (3.7-5.1)	-0.27 (0.48)	0.580	3.2 (2.5-4.1)	-1.18 (0.55)	0.034	4.5 (3.8-5)	1.26 (0.56)	0.02	4.7 (3.8-5)	0.2 (0.52)	0.703	0.01 (0.51)	0.984
<i>Free sugars, /10</i>	10 (9.7-10)	10 (0)	0 (0.08)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0.08)	1
<i>Sodium, /10</i>	2.7 (1.6-3.6)	1.8 (0.8-2.8)	-0.86 (0.73)	0.240	1.0 (0-2.1)	-0.79 (0.73)	0.281	1.4 (0.2-2.3)	0.42 (0.77)	0.587	2.4 (0.9-3.3)	0.94 (0.82)	0.252	-0.29 (0.82)	0.724
<i>TOTAL</i>	49.5 (47.1-51.9)	46.9 (44.2-49.7)	-2.64 (1.89)	0.163	45.8 (42.7-48.7)	-1.06	0.607	46.9 (44.3-49.5)	1.12 (2.01)	0.579	50.7 (47.4-53)	3.78 (2)	0.059	1.2 (1.9)	0.528

PERCEIVED INCOME ADEQUACY

Easy

<i>Vegetables & Fruits, /20</i>	10.9 (10.0-11.9)	9.5 (8.7-10.3)	-1.4 (0.68)	0.039	10.8 (10.1-11.8)	1.3 (0.64)	0.0448	10.4 (9.5-11.3)	-0.4 (0.65)	0.540	10.9 (10.0-11.9)	0.5 (0.68)	0.468	0 (0.72)	1
<i>Whole-grain foods, /5</i>	1.1 (1.0-1.3)	1.5 (1.2-1.7)	0.4 (0.165)	0.015	1.2 (1-1.4)	-0.3 (0.165)	0.07	1.3 (1.1-1.5)	0.1 (0.14)	0.502	1.1 (0.9-1.4)	-0.2 (0.16)	0.230	0 (0.14)	1
<i>Grain foods ratio, /5</i>	1.4 (1.2-1.6)	1.5 (1.3-1.8)	0.1 (0.18)	0.588	1.4 (1.2-1.6)	-0.1 (0.22)	0.654	1.4 (1.1-1.6)	0 (0.25)	0.654	1.3 (1-1.5)	-0.1 (0.27)	0.715	-0.1 (0.21)	0.637
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.3 (0.9-1.6)	1.2 (0.9-1.5)	0.4 (0.22)	0.073	1.6 (1.3-1.9)	-0.1 (0.25)	0.698	1.5 (1.1-1.9)	-0.3 (0.27)	0.273	1.2 (0.8-1.5)	-0.2 (0.34)	0.558	-0.1 (0.25)	0.691
<i>Beverages, /10</i>	7.7 (7.2-8.2)	7.5 (7.1-7.9)	-0.2 (0.34)	0.558	7.6 (7.1-8.1)	0.1 (0.34)	0.770	8.1 (7.6-8.5)	0.5 (0.34)	0.151	7.9 (7.3-8.4)	-0.2 (0.34)	0.563	0.2 (0.37)	0.587
<i>Fatty acids ratio, /5</i>	2.8 (2.5-3.3)	2.5 (2.2-2.9)	-0.3 (0.264)	0.256	2.7 (2.4-3)	0.2 (0.24)	0.408	2.8 (2.4-3.1)	0.1 (0.24)	0.688	2.9 (2.5-3.2)	0.1 (0.26)	0.708	0.1 (0.26)	0.705
<i>Saturated fats, /5</i>	4 (3.4-4.7)	3.4 (2.8-4.1)	-0.6 (0.48)	0.212	3.8 (3.3-4.3)	0.4 (0.42)	0.344	4 (3.4-4.5)	0.2 (0.38)	0.603	3.9 (3.3-4.5)	-0.1 (0.42)	0.815	-0.1 (0.31)	0.751
<i>Free sugars, /10</i>	10 (9.8-10)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1

<i>Sodium, /10</i>	2.2 (1.3-2.9)	1.4 (0.8-2)	-0.8 (0.5)	0.112	1.4 (0.7-2.1)	0 (0.46)	1	1.2 (0.5-2)	-0.2 (0.52)	0.703	1.6 (0.8-2.4)	0.4 (0.59)	0.501	-0.6 (0.59)	0.310
<i>TOTAL</i>	46.5 (44.6-48.3)	43.5 (41.7-45.4)	-3 (1.35)	0.027	45.5 (43.9-47.2)	2 (1.30)	0.125	45.6 (43.5-47.5)	0.1 (1.32)	0.939	45.7 (43.9-47.3)	0.1 (1.32)	0.939	-0.8 (1.29)	0.536
Difficult															
<i>Vegetables & Fruits, /20</i>	9.7 (8.8-10.5)	9.3 (8.2-10.1)	-0.4 (0.64)	0.532	10 (8.9-11.2)	0.7 (0.78)	0.370	9.3 (8.1-10.4)	-0.7 (0.84)	0.409	9.7 (8.5-10.8)	0.4 (0.84)	0.637	0 (0.72)	1
<i>Whole-grain foods, /5</i>	1.2 (1-1.5)	1.2 (1-1.5)	0 (0.19)	1	1.3 (1.1-1.5)	0.1 (0.18)	0.587	1.2 (1-1.5)	-0.1 (0.17)	0.571	1.2 (1-1.5)	0 (0.19)	1	0 (0.19)	1
<i>Grain foods ratio, /5</i>	1.4 (1.2-1.7)	1.3 (1.1-1.6)	-0.1 (0.19)	0.610	1.5 (1.3-1.7)	0.2 (0.18)	0.288	1.2 (1-1.5)	-0.3 (0.17)	0.094	1.2 (1.1-1.6)	0	1	-0.2 (0.20)	0.317
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.4 (1-1.8)	1 (0.7-1.3)	-0.4 (0.26)	0.129	1.4 (1.1-1.9)	0.4 (0.25)	0.113	1.6 (1.1-2.1)	0.2 (0.32)	0.534	1.3 (0.9-1.6)	-0.3 (0.31)	0.348	-0.1 (0.28)	0.725
<i>Beverages, /10</i>	7.2 (6.6-7.8)	7.5 (7-8.1)	0.3 (0.42)	0.479	7.8 (7.2-8.3)	0.3 (0.41)	0.469	7.5 (6.9-8.1)	-0.3 (0.42)	0.476	7.9 (7.3-8.4)	0.4 (0.412)	0.332	0.7 (0.42)	0.096
<i>Fatty acids ratio, /5</i>	2.6 (2.3-3)	2.7 (2.3-3.2)	0.1 (0.29)	0.734	2.6 (2.2-3)	-0.1 (0.29)	0.731	2.7 (2.3-3.1)	0.1 (0.294)	0.734	2.8 (2.3-3.2)	0.1 (0.303)	0.741	0.2 (0.29)	0.493
<i>Saturated fats, /5</i>	3.7 (3-4.4)	3.4 (2.6-4.3)	-0.3 (0.52)	0.569	3.8 (3.1-4.4)	0.4 (1)	0.689	4.2 (3.4-4.9)	0.4 (0.5)	0.424	3.2 (2.6-3.9)	-1 (0.51)	0.05	-0.5 (0.53)	0.345
<i>Free sugars, /10</i>	10 (9.9-10)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	2.4 (1.5-3.2)	1.3 (0.6-2)	-1.1 (0.58)	0.060	1.1 (0.3-1.9)	-0.2 (0.57)	0.72	1.3 (0.2-2.1)	0.2 (0.62)	0.747	1.4 (0.6-2.3)	0.1 (0.64)	0.877	-1 (0.60)	0.100
<i>TOTAL</i>	44.6 (42.9-46.7)	42.8 (40.8-45.1)	-1.8 (1.5)	0.247	44.6 (42.5-46.7)	1.8 (1.4)	0.226	44.2 (41.7-46.3)	-0.4 (1.5)	0.797	43.8 (41.9-46.1)	-0.4 (1.5)	0.797	-0.8 (1.48)	0.590
Neither															
<i>Vegetables & Fruits, /20</i>	10.7 (9.9-11.6)	9.5 (8.8-10.3)	-1.2 (0.56)	0.033	10.8 (9.9-12)	1.3 (0.72)	0.071	9.6 (8.7-10.5)	-1.2 (0.78)	0.124	11 (10-12)	1.4 (0.78)	0.073	0.3 (0.72)	0.677

<i>Whole-grain foods, /5</i>	1.2 (1-1.4)	1.3 (1.1-1.5)	0.1 (0.22)	0.654	1.4 (1.2-1.6)	0.1 (0.14)	0.479	1.2 (1-1.4)	-0.2 (0.14)	0.178	1.3 (1-1.6)	0.1 (0.17)	0.574	0.1 (0.17)	0.561
<i>Grain foods ratio, /5</i>	1.4 (1.1-1.6)	1.3 (1.1-1.5)	-0.1 (0.14)	0.479	1.5 (1.2-1.7)	0.2 (0.14)	0.157	1.3 (1.1-1.5)	-0.2 (0.14)	0.157	1.3 (1.1-1.6)	0 (0.14)	1	-0.1 (0.14)	0.479
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.6 (1.2-1.9)	1.2 (0.9-1.5)	-0.4 (0.28)	0.157	1.5 (1.2-1.8)	0.3 (0.28)	0.288	1.3 (0.9-1.7)	-0.2 (0.28)	0.479	1.2 (0.8-1.5)	-0.1 (0.28)	0.723	-0.4 (0.28)	0.157
<i>Beverages, /10</i>	7.8 (7.3-8.2)	7.3 (6.9-7.9)	-0.5 (0.36)	0.165	7.7 (6.9-8.2)	0.4 (0.42)	0.345	7.8 (7.4-8.3)	0.1 (0.36)	0.781	8.3 (7.8-8.7)	0.5 (0.36)	0.165	0.5 (0.36)	0.165
<i>Fatty acids ratio, /5</i>	2.8 (2.4-3.2)	2.7 (2.4-3.1)	-0.1 (0.28)	0.723	2.6 (2.3-3)	-0.1 (0.28)	0.723	2.4 (2.1-2.8)	-0.2 (0.28)	0.479	3.1 (2.7-3.6)	0.8 (0.28)	0.004	0.4 (0.28)	0.157
<i>Saturated fats, /5</i>	3.8 (3.2-4.5)	3.6 (2.9-4.1)	-0.2 (0.42)	0.637	3.8 (3.3-4.4)	0.2 (0.42)	0.637	3.9 (3.3-4.5)	0.1 (0.43)	0.819	4.3 (3.5-5)	0.4 (0.48)	0.406	0.5 (0.46)	0.286
<i>Free sugars, /10</i>	10 (0)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	2 (1.3-2.7)	1.8 (1.2-2.4)	-0.2 (0.5)	0.692	1 (0.1-1.8)	-0.8 (0.53)	0.131	1.4 (0.5-2.2)	0.4 (0.58)	0.490	1.8 (0.7-2.8)	0.4 (0.65)	0.538	-0.2 (0.65)	0.760
TOTAL	46.2 (44.4-47.9)	43.8 (42-45.6)	-2.4 (1.2)	0.059	45.2 (43.3-47.4)	1.4 (1.4)	0.321	43.9 (41.8-45.8)	-1.3 (1.4)	0.324	47.3 (44.8-49.2)	3.4 (1.5)	0.029	1.1 (1.5)	0.463
Missing															
<i>Vegetables & Fruits, /20</i>	10 (6.8-12.8)	9.2 (4.4-12)	-0.8 (2.5)	0.748	10 (6.9-13.5)	0.8 (2.6)	0.754	11.8 (8-16.5)	1.8 (2.8)	0.520	16.5 (9.8-20)	4.7 (3.5)	0.185	6.5 (3.08)	0.035
<i>Whole-grain foods, /5</i>	1.2 (0.5-2.3)	2 (0.4-4.1)	0.8 (1)	0.432	2.3 (0.6-3.8)	0.3 (1.3)	0.818	1.1 (0.4-1.8)	-1.2 (1)	0.232	1.2 (0.3-3.2)	0.1 (0.8)	0.901	0 (0.83)	1
<i>Grain foods ratio, /5</i>	1.1 (0.5-1.8)	1.7 (0.3-3.9)	0.6 (0.95)	0.528	2.1 (0.7-2.9)	0.4 (1.05)	0.704	1.3 (0.5-2.2)	-0.8 (0.72)	0.267	1.1 (0.4-2.5)	-0.2 (0.68)	0.769	0 (0.64)	1
<i>Protein foods, /5</i>	4.7 (2.4-5)	5 (0)	0.3 (0.81)	0.711	4 (2.6-5)	-1.1 (0.68)	0.106	5 (4.3-5)	1.1 (0.7)	0.120	3.9 (2.1-5)	-1.1 (0.89)	0.217	-0.8 (1.18)	0.500
<i>Plant-based protein foods, /5</i>	2.1 (0.4-4.3)	0.4 (0-1.4)	-1.7 (1.09)	0.121	1 (0.2-2.1)	0.6 (0.63)	0.345	0.9 (0.1-2.2)	-0.09 (0.74)	0.903	1.1 (2-4.6)	0.23 (14.5)	0.987	-0.87 (14.52)	0.952

<i>Beverages, /10</i>	8 (5.8-10)	9.1 (5.2-10)	1.06 (1.66)	0.524	8 (5-9.8)	-1.06 (12.1)	0.930	9 (7.6-9.9)	1 (12.05)	0.933	7 (1.3-10)	-2 (2.08)	0.338	-1 (2.23)	0.654
<i>Fatty acids ratio, /5</i>	2.3 (1.5-3.5)	3.6 (2.5-5)	1.3 (0.85)	0.127	1.2 (0-3.2)	-2.4 (1.13)	0.04	3.9 (2.4-5)	2.7 (1.2)	0.024	5 (3.4-5)	1.1 (0.9)	0.223	2.7 (0.65)	0.000
<i>Saturated fats, /5</i>	5 (2.7-5)	5 (3.9-5)	0 (0.74)	1	0.5 (0-3.9)	-4.5 (1.3)	0.0007	4.9 (2.9-5)	4.4 (1.43)	0.002	5 (4.2-5)	0.1 (0.66)	0.88	0 (0.72)	1
<i>Free sugars, /10</i>	10 (7.7-10)	10 (0)	0 (0.69)	1	10 (0)	0 (0)	1	10 (8.2-10)	0 (0.45)	1	7 (1.1-10)	-2.9 (3)	0.332	-2.9 (3.0)	0.340
<i>Sodium, /10</i>	2.8 (0-6.2)	0.5 (0-3)	-2.2 (2.16)	0.308	1.5 (0-5.2)	1 (1.93)	0.604	0 (0-1)	-1.5 (1.68)	0.374	3.7 (0-7.9)	3.7 (2.5)	0.139	1 (3.15)	0.750
<i>TOTAL</i>	47.2 (40.2-52.3)	46.5 (39.5-53)	-0.7 (4.66)	0.880	40.5 (16.1-49.2)	-6 (12.85)	0.640	47.9 (40.9-54.5)	7.4 (12.94)	0.567	51.7 (38.6-56.6)	3.8 (15.44)	0.805	4.5 (15.33)	0.769

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<i>White</i>															
<i>Vegetables & Fruits, /20</i>	10.8 (10-11.7)	9.8 (8.9-11.1)	-1 (0.63)	0.117	11.3 (10.4-12.5)	1.5 (0.69)	0.03	10.5 (9.4-11.5)	-0.8 (0.71)	0.714	11.8 (10.6-13.2)	1.3 (0.82)	0.114	1 (0.76)	0.561
<i>Whole-grain foods, /5</i>	1.2 (1-1.4)	1.3 (1.1-1.6)	0.1 (0.162)	0.561	1.4 (1.1-1.6)	0.1 (0.18)	0.587	1.2 (1-1.5)	-0.2 (0.16)	0.219	1.1 (0.9-1.3)	-0.1 (0.17)	0.557	-0.1 (0.16)	0.542
<i>Grain foods ratio, /5</i>	1.5 (1.2-1.7)	1.5 (1.3-1.8)	0 (0.19)	1	1.6 (1.4-1.8)	0.1 (0.18)	0.59	1.5 (1.2-1.7)	-0.1 (0.15)	0.520	1.3 (1-1.6)	-0.2 (0.18)	0.282	-0.2 (0.19)	0.297
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.7 (1.2-2.1)	1.2 (0.3-1.6)	-0.5 (0.5)	0.318	1.5 (1.2-1.8)	0.3 (0.47)	0.528	1.3 (0.9-1.7)	-0.2 (0.26)	0.457	1.4 (0.9-1.9)	0.1 (0.33)	0.766	-0.3 (0.36)	0.406
<i>Beverages, /10</i>	7.6 (7.1-8.2)	7.6 (7.1-9.1)	0 (0.61)	1	7.5 (6.5-8.2)	-0.1 (0.7)	0.886	7.5 (7-8)	0.847	0.457	7.6 (7-8.2)	0 (0.42)	1	0 (0.44)	1
<i>Fatty acids ratio, /5</i>	2.5 (2.2-2.8)	2.3 (2-2.6)	-0.2 (0.21)	0.345	2.1 (1.7-2.5)	-0.2 (0.23)	0.393	2.4 (2-2.8)	0.3 (0.25)	0.238	3 (2.6-3.4)	0.6 (0.26)	0.02	0.5 (0.24)	0.038
<i>Saturated fats, /5</i>	3.6 (3.1-4.3)	3.1 (2.5-3.6)	-0.5 (0.41)	0.232	2.9 (2.2-3.5)	-0.2 (0.44)	0.650	3.5 (3-4.1)	0.6 (0.45)	0.186	4 (3.3-4.6)	0.5 (2.91)	0.864	0.4 (0.46)	0.391
<i>Free sugars, /10</i>	10 (9.6-10)	10 (0)	0 (0.12)	1	10 (0)	0 (0)	1	10 (9.9-10)	0 (0.07)	1	10 (9.3-10)	0 (0.22)	1	0 (0.24)	1
<i>Sodium, /10</i>	2.7 (1.9-3.4)	1.4 (0.9-2)	-1.3 (0.47)	0.005	1.7 (1-2.5)	0.3 (0.49)	0.543	1.5 (0.6-2.1)	-0.2 (0.54)	0.713	2.1 (1-2.9)	0.6 (0.63)	0.341	-0.6 (0.63)	0.341

<i>TOTAL</i>	46.6 (44.3-48.1)	43.3 (41.3-45.4)	-3.2 (1.38)	0.021	45.1 (42.8-47)	1.7 (1.5)	0.259	44.5 (42.5-46.9)	-0.6 (1.5)	0.701	47.4 (44.9-49.5)	2.9 (1.5)	0.069	0.8 (1.49)	0.592
Southeast Asian															
<i>Vegetables & Fruits, /20</i>	11 (9.5-12.5)	8.7 (7.3-10.3)	-2.3 (1.06)	0.031	10.4 (9-12.1)	1.7 (1.06)	0.111	10.1 (8.7-11.4)	-0.3 (1.03)	0.771	11.2 (9.5-13.1)	1.1 (1.08)	0.312	0.2 (1.15)	0.862
<i>Whole-grain foods, /5</i>	1 (0.7-1.3)	1.6 (1.1-2.2)	0.6 (0.29)	0.042	1.3 (1-1.7)	-0.3 (0.31)	0.334	1.2 (0.9-1.5)	-0.1 (0.22)	0.659	1.2 (0.9-1.7)	0 (0.25)	1	0.2 (0.25)	0.428
<i>Grain foods ratio, /5</i>	1.1 (0.8-1.4)	1.3 (0.9-1.7)	0.2 (0.24)	0.412	1.3 (1-1.5)	0 (0.23)	1	1.2 (0.9-1.4)	-0.1 (0.18)	0.586	1.2 (0.8-1.5)	0 (0.22)	1	0.1 (0.22)	0.661
<i>Protein foods, /5</i>	5 (4.6-5)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.1 (0.7-1.7)	0.8 (0.2-1.2)	-0.3 (0.40)	0.462	1.4 (1-1.9)	0.6 (0.39)	0.130	1.4 (0.7-1.9)	0 (0.39)	1	1 (0.3-1.6)	-0.4 (0.45)	0.377	-0.1 (0.39)	0.798
<i>Beverages, /10</i>	8.2 (7.5-9.1)	7.9 (7.1-9.4)	-0.3 (0.71)	0.672	8 (7.2-8.6)	0.1 (0.69)	0.885	8.6 (8.1-9.1)	0.6 (0.44)	0.181	8.7 (8-9.2)	0.1 (0.39)	0.798	0.1 (0.39)	0.798
<i>Fatty acids ratio, /5</i>	3.1 (2.6-3.8)	3.3 (2.7-3.8)	0.2 (0.41)	0.632	3 (2.5-3.6)	-0.3 (0.39)	0.448	3.2 (2.6-3.8)	0.2 (0.43)	0.644	3.5 (2.9-4.1)	0.3 (0.45)	0.507	0.4 (0.43)	0.361
<i>Saturated fats, /5</i>	4.6 (3.7-5)	4.2 (3.4-5)	-0.4 (0.57)	0.490	4.1 (3.2-4.9)	-0.1 (0.58)	0.864	4.7 (3.7-5)	0.6 (0.55)	0.278	4.8 (3.9-5)	0.1 (0.49)	0.839	0.2 (0.53)	0.707
<i>Free sugars, /10</i>	10 (0)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	1.2 (0-2.6)	1.4 (0.4-2.4)	0.2 (0.8)	0.804	0.1 (0-1.4)	-1.3 (0.63)	0.041	0 (0-1.3)	-0.1 (0.54)	0.853	1.4 (0-2.6)	1.4 (0.78)	0.075	0.2 (0.96)	0.835
<i>TOTAL</i>	46.4 (43.7-48.9)	44.2 (40.9-46.9)	-2.2 (2.03)	0.278	44.6 (42.1-47.7)	0.4 (2.03)	0.844	45.2 (42.6-47.7)	0.6 (1.91)	0.753	48 (44.9-50.8)	2.8 (1.96)	0.153	1.6 (2.03)	0.432
South Asian															
<i>Vegetables & Fruits, /20</i>	8.6 (6.9-10.6)	11.2 (9.8-12.9)	2.6 (1.28)	0.043	10 (8.4-11.6)	-1.2 (1.2)	0.321	8.8 (7.4-10.4)	-1.2 (1.15)	0.298	11.3 (8.7-14.3)	2.5 (1.5)	0.114	2.7 (1.68)	0.108
<i>Whole-grain foods, /5</i>	2 (1.4-3.1)	2.2 (1.5-3)	0.2 (0.58)	0.733	2.3 (1.5-3.2)	0.1 (0.61)	0.871	1.6 (1.1-2.2)	-0.7 (0.54)	0.196	1.8 (1.2-2.4)	0.2 (0.41)	0.632	-0.2 (0.53)	0.709
<i>Grain foods ratio, /5</i>	1.8 (1.2-2.4)	1.8 (1.3-2.3)	0 (0.39)	1	2.1 (1.5-2.7)	0.3 (0.40)	0.460	1.4 (1-1.8)	-0.7 (0.37)	0.063	1.5 (1.1-2)	0.1 (0.31)	0.748	-0.3 (0.39)	0.444

<i>Protein foods, /5</i>	5 (4.7-5)	5 (4.1-5)	0 (0.25)	1	5 (4.9-5)	0 (0.24)	1	5 (0)	0 (0.06)	1	5 (4.4-5)	0 (0.17)	1	0 (0.19)	1
<i>Plant-based protein foods, /5</i>	2.4 (1.3-3.5)	2.2 (0.4-3.4)	-0.2 (1.05)	0.849	1.2 (0.6-1.8)	-1 (0.91)	0.273	1 (0.5-1.6)	-0.2 (0.4)	0.619	1.9 (0.8-3)	0.9 (0.62)	0.147	-0.5 (0.80)	0.535
<i>Beverages, /10</i>	7.5 (6.7-8.5)	7 (5.8-8.9)	-0.5 (0.91)	0.586	7.8 (6.3-8.8)	0.8 (1.01)	0.431	8.6 (7.6-9.3)	0.8 (0.78)	0.306	7.4 (6.1-8.3)	-1.2 (0.77)	0.121	-0.1 (0.78)	0.898
<i>Fatty acids ratio, /5</i>	3 (2.3-3.7)	3.8 (2.6-5)	0.8 (0.68)	0.241	2.7 (1.4-3.9)	-1.1 (0.87)	0.206	3.2 (2.5-4.3)	0.5 (0.78)	0.524	4.6 (3.8-5)	1.4 (0.58)	0.016	1.6 (0.52)	0.002
<i>Saturated fats, /5</i>	4.5 (3.1-5)	5 (4.6-5)	0.5 (0.57)	0.384	3.8 (1.3-5)	-1.2 (1.02)	0.243	5 (4-5)	1.2 (1.23)	0.330	5 (4.8-5)	0 (0.28)	1	0.5 (0.56)	0.374
<i>Free sugars, /10</i>	10 (7.4-10)	10 (0)	0 (0.84)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (9.8-10)	0(0)	1	0 (0.84)	1
<i>Sodium, /10</i>	3.7 (2.1-5)	2.7 (1.3-4.2)	-1 (1.03)	0.332	3.3 (1.7-4.9)	0.6 (1.09)	0.585	2.7 (1.2-3.9)	-0.6 (1.08)	0.580	3.8 (2.5-5.2)	1.1 (1)	0.273	0.1 (1.03)	0.922
<i>TOTAL</i>	48.5 (43.7-52.4)	50.8 (46.9-55.1)	2.3 (3.09)	0.457	48.2 (42.4-53.1)	-2.6 (3.37)	0.440	47.3 (43.7-49.5)	-0.9 (3.06)	0.769	52.4 (47.8-57)	5.1 (2.7)	0.063	3.9 (3.23)	0.228

Black

<i>Vegetables & Fruits, /20</i>	9.6 (7.6-11.5)	8.6 (6.4-11.2)	-1 (1.64)	0.542	10 (6.7-13.3)	1.4 (2.16)	0.516	7.8 (6.2-9.7)	-2.2 (1.96)	0.262	11.1 (8.8-14)	3.3 (1.59)	0.038	1.5 (1.66)	0.368
<i>Whole-grain foods, /5</i>	1.7 (1.1-2.7)	1.3 (0.7-2.1)	-0.4 (0.51)	0.438	1.8 (1.2-2.5)	0.5 (0.47)	0.292	0.9 (0.5-1.3)	-0.9 (0.37)	0.016	0.9 (0.3-1.7)	0 (0.38)	1	-0.8 (0.48)	0.102
<i>Grain foods ratio, /5</i>	1.6 (1.1-2.3)	1.3 (0.8-1.9)	-0.3 (0.41)	0.472	2 (1.4-2.5)	0.7 (0.41)	0.087	0.9 (0.5-1.2)	-1.1 (0.34)	0.001	1.1 (0.4-1.8)	0.2 (0.38)	0.607	-0.5 (0.45)	0.270
<i>Protein foods, /5</i>	5 (4.9-5)	5 (4.9-5)	0 (0.1)	1	5 (0)	0 (0.03)	1	5 (0)	0 (0.02)	1	5 (0)	0 (0.03)	1	0 (0.10)	1
<i>Plant-based protein foods, /5</i>	1.4 (0.2-2.6)	0.8 (0.1-1.5)	-0.6 (0.74)	0.421	0.9 (0.5-2)	0.1 (0.49)	0.839	1.1 (0.3-1.9)	0.2 (0.51)	0.695	1.1 (0.3-2)	0 (0.58)	1	-0.3 (0.74)	0.687
<i>Beverages, /10</i>	5.8 (4.1-7.3)	6.4 (4.3-8.7)	0.6 (1.32)	0.651	4.6 (2.8-7)	-1.8 (1.49)	0.230	8.2 (6.6-9.3)	3.6 (1.29)	0.005	8 (5.9-9.2)	-0.2 (1.17)	0.864	2.2 (1.26)	0.082
<i>Fatty acids ratio, /5</i>	4.1 (3.2-5)	2.6 (1.9-3.7)	-1.5 (0.68)	0.029	1.9 (1.3-2.9)	-0.7 (0.62)	0.260	2.2 (1.3-3.3)	0.3 (0.66)	0.652	3.6 (3-4.3)	1.4 (0.61)	0.023	-0.5 (0.62)	0.425
<i>Saturated fats, /5</i>	5 (4.9-5)	4.5 (3-5)	-0.5 (0.58)	0.391	4.4 (3.1-5)	-0.1 (0.80)	0.901	3.5 (1.7-5)	-0.9 (1.02)	0.380	4.1 (2.9-5)	0.6 (1.07)	0.575	-0.9 (0.64)	0.161

<i>Free sugars, /10</i>	9.1 (4.9-10)	10 (7.8-10)	0.9 (1.62)	0.579	7.5 (3.2-10)	-2.5 (2.21)	0.259	10 (0)	2.5 (2.13)	0.242	10 (8-10)	0 (0.58)	1	0.9 (1.60)	0.574
<i>Sodium, /10</i>	2.8 (1.1-4.8)	0.5 (0-1.8)	-2.3 (1.08)	0.033	3.0 (1.1-4.9)	2.5 (1.11)	0.025	0.8 (0-2.4)	-2.2 (1.22)	0.072	3.1 (1.5-4.6)	2.3 (1.1)	0.037	0.3 (1.23)	0.807
<i>TOTAL</i>	46.2 (40.3-51.1)	41.1 (35.1-45.7)	-5.1 (3.89)	0.190	41.2 (33.7-48.6)	0.1 (4.94)	0.983	40.4 (36-45.6)	-0.8 (4.77)	0.866	48.1 (42.3-51.8)	7.7 (3.4)	0.023	1.9 (3.62)	0.599
Indigenous															
<i>Vegetables & Fruits, /20</i>	9.8 (7.7-11.9)	8.2 (6.2-10.6)	-1.6 (1.5)	0.286	8 (5.1-11.1)	-0.2 (1.89)	0.915	9.1 (7-11.7)	1.1 (1.95)	0.573	11.3 (8.7-14.1)	2.2 (1.86)	0.238	1.5 (1.75)	0.393
<i>Whole-grain foods, /5</i>	0.9 (0.5-1.2)	1 (0.5-1.7)	0.1 (0.34)	0.775	1.2 (0.8-2)	0.2 (0.43)	0.642	1 (0.5-1.5)	-0.2 (0.40)	0.621	0.8 (0.4-1.4)	-0.2 (0.35)	0.571	-0.1 (0.3)	0.738
<i>Grain foods ratio, /5</i>	1.1 (0.8-1.5)	1 (0.5-1.6)	-0.1 (0.33)	0.767	1.7 (1-2.5)	0.7 (0.46)	0.131	1 (0.5-1.5)	-0.7 (0.44)	0.112	1 (0.5-1.7)	0 (0.36)	1	-0.1 (0.33)	0.767
<i>Protein foods, /5</i>	5 (4.9-5)	5 (0)	0 (0.05)	1	3.9 (2.7-5)	-1.1 (0.66)	0.095	5 (0)	1.1 (0.66)	0.095	5 (4.6-5)	0 (0.1)	1	0 (0.11)	1
<i>Plant-based protein foods, /5</i>	2.5 (1.1-3.9)	0.6 (0.1-1.3)	-1.9 (0.77)	0.014	1.1 (0.5-1.8)	0.5 (0.47)	0.291	1.8 (0.3-1.5)	0.7 (0.431)	0.105	1.6 (0.5-2.5)	-0.2 (0.56)	0.721	-0.9 (0.84)	0.284
<i>Beverages, /10</i>	7.8 (6.6-8.8)	6.6 (5.1-8.7)	-1.2 (1.04)	0.252	8 (6-9)	1.4 (1.21)	0.250	7.3 (5.6-8.4)	-0.7 (1.07)	0.516	6.1 (4.5-7.9)	-1.2 (1.10)	0.275	-1.7 (1.00)	0.091
<i>Fatty acids ratio, /5</i>	1.6 (0.9-2.7)	2.3 (1.7-3)	0.7 (0.58)	0.234	1.8 (1-3)	-0.5 (0.58)	0.395	1.8 (1.2-2.8)	0 (0.63)	1	2.6 (1.9-3.4)	0.8 (0.54)	0.14	1 (0.60)	0.095
<i>Saturated fats, /5</i>	1 (0-3.8)	4.1 (3.1-5)	3.1 (1.3)	0.019	2.1 (0.2-4.1)	-2 (1.13)	0.077	2.1 (0.8-3.8)	0 (1.26)	1	3.9 (2.4-5)	1.8 (1.04)	0.083	2.9 (1.39)	0.037
<i>Free sugars, /10</i>	10 (8.7-10)	9.8 (6.7-10)	-0.2 (1.09)	0.855	10 (6-10)	0.2 (1.52)	0.895	10 (7.4-10)	0 (1.28)	1	10 (8.5-10)	0 (0.81)	1	0 (0.56)	1
<i>Sodium, /10</i>	3.5 (1.3-5.2)	2.6 (0.7-4.7)	-0.9 (1.49)	0.546	0.8 (0-3.7)	-1.8 (1.49)	0.228	0.5 (0-2.1)	-0.3 (1.28)	0.814	2.7 (0.5-4.7)	2.2 (1.27)	0.083	-0.8 (1.56)	0.608
<i>TOTAL</i>	43.2 (39.4-46.6)	41.3 (35.9-45.7)	-1.9 (3.08)	0.537	38.6 (32-44.5)	-2.7 (4.09)	0.509	38.7 (34.7-42.7)	0.1 (3.89)	0.979	45.1 (39.6-49.3)	6.4 (3.29)	0.052	1.9 (3.09)	0.538
Mixed/other															
<i>Vegetables & Fruits, /20</i>	9 (7.7-10.3)	10.4 (8.9-11.8)	1.4 (1.08)	0.196	11.3 (10.1-13)	0.9 (1.1)	0.414	8.5 (6.6-10.2)	-2.8 (1.2)	0.019	13.6 (11.5-16.1)	5.1 (1.5)	0.0007	4.8 (1.39)	0.0009

<i>Whole-grain foods, /5</i>	1 (0.8-1.2)	1.4 (1.1-2)	0.4 (0.25)	0.110	1.4 (0.9-1.9)	0 (0.31)	1	0.9 (0.6-1.3)	-0.5 (0.28)	0.080	1.4 (0.9-1.8)	0.5 (0.29)	0.089	0.4 (0.26)	0.136
<i>Grain foods ratio, /5</i>	1.1 (0.8-1.3)	1.6 (1.2-2.1)	0.5 (0.26)	0.062	1.6 (1.2-2)	0 (0.32)	1	1.2 (0.9-1.6)	-0.4 (0.29)	0.168	1.8 (1.3-2.3)	0.6 (0.33)	0.069	0.7 (0.29)	0.017
<i>Protein foods, /5</i>	5 (4.9-5)	5 (0)	0 (0.04)	1	5 (4.9-5)	0 (0.05)	1	5 (4.4-5)	0 (0.17)	1	5 (0)	0 (0.17)	1	0 (0.04)	1
<i>Plant-based protein foods, /5</i>	1.2 (0.7-1.6)	1.1 (0.2-1.6)	-0.1 (0.49)	0.839	2 (1.3-2.7)	0.9 (0.56)	0.112	1.2 (0.5-2)	-0.8 (0.53)	0.136	1.5 (0.6-2.4)	0.3 (0.59)	0.614	0.3 (0.51)	0.556
<i>Beverages, /10</i>	7.2 (6.1-8)	8.2 (7.1-9.5)	1 (0.78)	0.203	8.8 (7-9.4)	0.6 (0.95)	0.529	8.3 (7.6-9)	-0.5 (0.83)	0.547	7.6 (6.4-8.5)	-0.7 (0.68)	0.305	0.4 (0.77)	0.607
<i>Fatty acids ratio, /5</i>	2.4 (2-3)	2.4 (1.9-3.1)	0 (0.39-3)	1	2.5 (2-3)	0.1 (0.40)	0.804	2.7 (1.9-3.4)	0.2 (0.47)	0.673	3.2 (2.4-4.2)	0.5 (0.58)	0.389	0.8 (0.49)	0.107
<i>Saturated fats, /5</i>	3.6 (2.8-4.7)	3.1 (2.2-4.1)	-0.5 (0.66)	0.452	3.6 (2.6-4.6)	0.5 (0.72)	0.488	3 (2.1-4)	-0.6 (0.72)	0.405	4.5 (3.2-5)	1.5 (0.73)	0.041	0.9 (0.71)	0.205
<i>Free sugars, /10</i>	10 (-)	10 (-)	0 (0)	-	10 (9.6-10)	0 (0.16)	1	10 (8.7-10)	0 (0.44)	1	10 (9.4-10)	0 (0.44)	1	0 (0.15)	1
<i>Sodium, /10</i>	2.1 (0.9-3.3)	1.8 (0.7-3.2)	-0.3 (0.91)	0.744	1.1 (0-2.6)	-0.7 (0.96)	0.466	1.8 (0.5-3.2)	0.7 (0.98)	0.479	3.5 (1.8-4.9)	1.7 (1.06)	0.109	1.4 (1.02)	0.171
<i>TOTAL</i>	42.6 (40.1-45.9)	45.1 (41.9-48.4)	2.5 (2.3)	0.277	47.3 (43.7-50.2)	2.2 (2.32)	0.345	42.7 (38.9-46.3)	-4.6 (2.44)	0.059	52 (47.7-56.8)	9.3 (2.9)	0.001	9.4 (2.69)	0.0004

AGE GROUP

18-29 years

<i>Vegetables & Fruits, /20</i>	10.5 (9.5-11.4)	9.5 (8.4-10.9)	-1 (0.75)	0.187	10.7 (9.8-12)	1.2 (0.8)	0.136	10 (8.9-11.1)	-0.7 (0.79)	0.381	11.5 (10.2-12.9)	1.5 (0.90)	0.097	1 (0.86)	0.249
<i>Whole-grain foods, /5</i>	1.1 (0.8-1.3)	1.4 (1.1-1.7)	0.3 (0.2)	0.138	1.3 (1.1-1.6)	-0.1 (0.22)	0.649	1.2 (0.9-1.4)	-0.1 (0.18)	0.587	1.2 (0.9-1.5)	0 (0.2)	1	0.1 (0.19)	0.606
<i>Grain foods ratio, /5</i>	1.2 (1-1.4)	1.3 (1-1.6)	0.1 (0.2)	0.617	1.4 (1.1-1.6)	0.1 (0.2)	0.617	1.2 (1-1.5)	-0.2 (0.16)	0.219	1.2 (0.9-1.5)	0 (0.18)	1	0 (0.19)	1
<i>Protein foods, /5</i>	5 (4.9-5)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.5 (1-2)	1.0 (0.2-1.4)	-0.5 (0.45)	0.271	1.4 (1.1-1.7)	0.4 (0.42)	0.341	1.3 (0.8-1.7)	-0.1 (0.29)	0.732	1.2 (0.6-1.8)	-0.1 (0.36)	0.782	-0.3 (0.37)	0.424

<i>Beverages, /10</i>	7.7 (7.1-8.3)	7.4 (6.9-9.1)	-0.3 (0.66)	0.652	7.6 (6.4-8.2)	0.2 (0.76)	0.794	8 (7.5-8.6)	0.4 (0.55)	0.471	8 (7.3-8.5)	0 (0.45)	1	0.3 (0.46)	0.516
<i>Fatty acids ratio, /5</i>	2.7 (2.4-3.1)	2.6 (2.3-3)	-0.1 (0.26)	0.702	2.4 (1.9-2.8)	-0.2 (0.29)	0.493	2.6 (2.2-3.1)	0.2 (0.31)	0.529	3.5 (3-4)	0.9 (0.33)	0.006	0.8 (0.31)	0.010
<i>Saturated fats, /5</i>	4 (3.2-4.7)	3.5 (2.9-4.2)	-0.5 (0.49)	0.314	3.4 (2.6-4.2)	-0.1 (0.51)	0.845	3.9 (3.2-4.6)	0.5 (0.53)	0.346	4.5 (3.7-5)	0.6 (0.5)	0.238	0.5 (0.53)	0.345
<i>Free sugars, /10</i>	10 (9.4-10)	10 (-)	0 (0)	1	10 (-)	0 (0)	1	10 (-)	0 (0)	1	10 (9.8-10.2)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	2.3 (1.5-3.1)	1.6 (1.1-2.4)	-0.7 (0.55)	0.203	1.1 (0.1-2.1)	-0.5 (0.59)	0.397	0.9 (0-1.8)	-0.2 (0.65)	0.761	2 (0.6-3.1)	1.1 (0.76)	0.148	-0.3 (0.76)	0.693
<i>TOTAL</i>	46 (43.8-47.9)	43.4 (41.2-46)	-2.6 (1.5)	0.095	44.4 (41.4-46.9)	1 (1.7)	0.566	44.1 (41.5-46.5)	-0.3 (1.76)	0.864	48.1 (45.5-50.4)	4 (1.78)	0.025	2.1 (1.70)	0.217

30-44 years

<i>Vegetables & Fruits, /20</i>	10.7 (9.9-11.7)	9.6 (8.9-10.8)	-1.1 (0.65)	0.094	10 (9.3-10.7)	0.4 (0.62)	0.523	10.3 (9.4-11.1)	0.3 (0.58)	0.605	9.9 (9-11.6)	-0.4 (0.77)	0.607	-0.8 (0.78)	0.308
<i>Whole-grain foods, /5</i>	1.2 (1-1.4)	1.4 (1.1-1.7)	0.2 (0.19)	0.298	1.4 (1.1-1.6)	0 (0.21)	1	1.2 (1-1.4)	-0.2 (0.15)	0.205	1.2 (1-1.4)	0 (0.15)	1	0 (0.15)	1
<i>Grain foods ratio, /5</i>	1.3 (1.2-1.5)	1.5 (1.2-1.8)	0.2 (0.17)	0.252	1.5 (1.2-1.7)	0 (0.19)	1	1.4 (1.2-1.6)	-0.1 (0.15)	0.522	1.2 (1-1.5)	-0.2 (0.15)	0.20	-0.1 (0.15)	0.505
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.4 (1.1-1.7)	1.3 (0.3-1.6)	-0.1 (0.5)	0.841	1.4 (1.1-1.7)	0.1 (0.49)	0.838	1.3 (0.9-1.6)	-0.1 (0.25)	0.694	1.3 (0.7-1.7)	0 (0.31)	1	-0.1 (0.32)	0.754
<i>Beverages, /10</i>	7.7 (7.2-8.2)	7.8 (7.4-9.2)	0.1 (0.56)	0.860	7.6 (6.9-8.1)	-0.2 (0.59)	0.735	8 (7.6-8.3)	0.4 (0.35)	0.260	7.7 (7.2-8.2)	-0.3 (0.33)	0.363	0 (0.36)	1
<i>Fatty acids ratio, /5</i>	2.7 (2.4-3)	3.1 (2.8-3.4)	0.4 (0.24)	0.096	2.6 (2.2-3)	-0.5 (0.26)	0.056	2.8 (2.5-3.2)	0.2 (0.26)	0.446	2.9 (2.5-3.3)	0.1 (0.25)	0.694	0.2 (0.25)	0.432
<i>Saturated fats, /5</i>	4 (3.5-4.6)	4.3 (3.8-4.8)	0.3 (0.4)	0.458	3.5 (2.9-4.1)	-0.8 (0.41)	0.052	4.2 (3.7-4.7)	0.7 (0.40)	0.084	3.8 (3.1-4.3)	-0.4 (0.39)	0.305	-0.2 (0.43)	0.642
<i>Free sugars, /10</i>	10 (0)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1

<i>Sodium, /10</i>	1.2 (0.5-2)	1.5 (0.8-2.2)	0.3 (0.51)	0.557	1.1 (0.3-1.9)	-0.4 (0.51)	0.433	0.9 (0.3-1.7)	-0.2 (0.53)	0.706	1.1 (0-1.9)	0.2 (0.59)	0.735	-0.1 (0.61)	0.869
<i>TOTAL</i>	45.2 (43.5-46.9)	45.5 (43.4-47.4)	0.3 (1.37)	0.827	44 (41.9-45.8)	-1.5 (1.42)	0.291	45.1 (43.2-47.2)	1.1 (1.37)	0.422	43.9 (41.9-46)	-1.2 (1.48)	0.418	-1.3 (1.45)	0.370
45-59 years															
<i>Vegetables & Fruits, /20</i>	10.7 (10-11.7)	10.7 (9.8-12)	0 (0.68)	1	10.1 (9.3-10.9)	-0.6 (0.66)	0.364	11.1 (10.2-12)	1 (0.61)	0.104	11 (10.2-12.6)	-0.1 (0.76)	0.895	0.3 (0.75)	0.692
<i>Whole-grain foods, /5</i>	1.3 (1.1-1.5)	1.5 (1.2-1.8)	0.2 (0.19)	0.310	1.3 (1.1-1.5)	-0.2 (0.21)	0.350	1.3 (1.1-1.4)	0 (0.16)	1	1.4 (1.1-1.5)	0.1 (0.16)	0.542	0.1 (0.16)	0.542
<i>Grain foods ratio, /5</i>	1.5 (1.3-1.7)	1.7 (1.3-2)	0.2 (0.2)	0.323	1.5 (1.3-1.7)	-0.2 (0.21)	0.350	1.6 (1.4-1.8)	0.1 (0.16)	0.540	1.6 (1.4-1.8)	0 (0.18)	1	0.1 (0.18)	0.590
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.6 (1.2-1.9)	1.4 (0.3-1.7)	-0.2 (0.25)	0.438	1.4 (1-1.6)	0 (0.21)	1	1.4 (1-1.7)	0 (0.24)	1	1.6 (1.1-2.2)	0.2 (0.33)	0.55	0 (0.35)	1
<i>Beverages, /10</i>	7.7 (7.2-8.3)	7.9 (7.4-9.3)	0.2 (0.57)	0.726	7.8 (7.2-8.3)	-0.1 (0.57)	0.861	8 (7.5-8.3)	0.2 (0.32)	0.54	8 (7.4-8.4)	0 (0.32)	1	0.3 (0.36)	0.414
<i>Fatty acids ratio, /5</i>	2.7 (2.4-3.1)	2.8 (2.5-3.1)	0.1 (0.24)	0.686	2.4 (2-2.8)	-0.4 (0.27)	0.138	2.9 (2.5-3.3)	0.5 (0.27)	0.07	3.2 (2.8-3.6)	0.3 (0.27)	0.278	0.5 (0.27)	0.070
<i>Saturated fats, /5</i>	4.1 (3.5-4.8)	4.3 (3.9-4.9)	0.2 (0.41)	0.632	3.3 (2.5-3.9)	-1 (0.47)	0.034	4.2 (3.6-4.7)	0.9 (0.46)	0.053	4.5 (3.8-5)	0.3 (0.40)	0.457	0.4 (0.43)	0.353
<i>Free sugars, /10</i>	10 (9.9-10)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (10)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	2 (1.3-2.8)	2.3 (1.6-2.9)	0.3 (0.52)	0.567	1.6 (0.8-2.6)	-0.7 (0.55)	0.206	1.5 (0.7-2.2)	-0.1 (0.56)	0.860	1.9 (0.8-2.8)	0.4 (0.64)	0.536	-0.1 (0.65)	0.879
<i>TOTAL</i>	46.6 (44.9-48.5)	47.5 (45.7-49.6)	0.9 (1.4)	0.524	44.3 (42.4-46.6)	-3.2 (1.5)	0.033	46.8 (45-48.6)	2.5 (1.4)	0.077	48.2 (46.1-50.5)	1.4 (1.4)	0.327	1.6 (1.46)	0.275
60+ years															
<i>Vegetables & Fruits, /20</i>	11.2 (10.4-12.2)	10.3 (9.4-11.5)	-0.9 (0.68)	0.190	10.8 (10.1-11.6)	0.5 (0.66)	0.454	11 (10.2-11.9)	0.2 (0.58)	0.733	12.3 (11.3-13.7)	1.3 (0.72)	0.073	1.1 (0.75)	0.142

<i>Whole-grain foods, /5</i>	1.5 (1.3-1.7)	1.7 (1.3-2)	0.2 (0.21)	0.362	1.5 (1.3-1.8)	-0.2 (0.24)	0.408	1.3 (1.1-1.5)	-0.2 (0.18)	0.267	1.4 (1.2-1.6)	0.1 (0.17)	0.561	-0.1 (0.17)	0.574
<i>Grain foods ratio, /5</i>	1.9 (1.6-2.1)	1.8 (1.5-2.2)	-0.1 (0.23)	0.664	1.9 (1.6-2.1)	0.1 (0.23)	0.664	1.6 (1.4-1.8)	-0.3 (0.16)	0.067	1.7 (1.4-2)	0.1 (0.18)	0.579	-0.2 (0.19)	0.313
<i>Protein foods, /5</i>	5 (0)	5 (0)	0 (0)	1	5 (-)	0 (0)	1	5 (0)	0 (0)	1	5 (0)	0 (0)	1	0 (0)	1
<i>Plant-based protein foods, /5</i>	1.7 (1.3-2.1)	1.4 (0.4-1.7)	-0.3 (0.55)	0.588	1.5 (1.1-1.8)	0.1 (0.53)	0.850	1.4 (1-1.8)	-0.1 (0.27)	0.717	1.7 (0.9-2.2)	0.3 (0.37)	0.423	0 (0.39)	1
<i>Beverages, /10</i>	8.1 (7.6-8.5)	8.2 (7.7-9.4)	0.1 (0.5)	0.843	8.1 (7.5-8.5)	-0.1 (0.50)	0.843	8.1 (7.7-8.5)	0 (0.29)	1	8.1 (7.7-8.6)	0 (0.29)	1	0 (0.32)	1
<i>Fatty acids ratio, /5</i>	2.8 (2.4-3.2)	2.9 (2.5-3.3)	0.1 (0.29)	0.730	2.6 (2.2-3)	-0.3 (0.29)	0.300	2.9 (2.5-3.3)	0.3 (0.27)	0.276	2.8 (2.4-3.2)	-0.1 (0.28)	0.724	0 (0.29)	1
<i>Saturated fats, /5</i>	4.4 (3.8-5)	4.4 (3.6-4.9)	0 (0.45)	1	3.4 (2.7-4)	-1 (0.48)	0.037	4.4 (3.9-4.9)	1 (0.45)	0.027	4.6 (3.9-5)	0.2 (0.41)	0.631	0.2 (0.43)	0.642
<i>Free sugars, /10</i>	10 (0)	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	10 (0)	0 (0)	1	0 (0)	1
<i>Sodium, /10</i>	2.1 (1.2-2.8)	1.8 (1-2.5)	-0.3 (0.55)	0.586	1.7 (1-2.6)	-0.1 (0.53)	0.850	1.5 (0.8-2.3)	-0.2 (0.54)	0.713	2.3 (1.1-3.3)	0.8 (0.67)	0.233	0.2 (0.67)	0.766
<i>TOTAL</i>	48.6 (46.5-50.4)	47.5 (44.7-49.4)	-1.1 (1.5)	0.474	46.5 (44.3-48.4)	-1 (1.5)	0.515	47.4 (45.3-49.1)	0.9 (1.4)	0.530	50 (47.5-52.1)	2.6 (1.5)	0.091	1.4 (1.55)	0.369