FOOD STANDARDS Australia • New Zealand
Te Mana Kounga Kai - Ahitereiria me Aotearoa

# Health Star Rating – 2025 Monitoring

Consumer Research Report

Dec 2025

## Acknowledgement of Country

Food Standards Australia New Zealand (FSANZ) acknowledges the Traditional Owners and Custodians of Country throughout Australia and their continuing connection to land, sea and community. We pay our respects to the Peoples, the cultures and the Elders past and present. FSANZ also acknowledges and respects ngā iwi Māori as the tangata whenua of Aotearoa, New Zealand.


## Copyright statement

© Food Standards Australia New Zealand 2025

FSANZ supports and encourages the dissemination and exchange of information. Information in this report is provided under a Creative Commons Attribution 4.0 Australia (CC BY 4.0) Licence, except for the Food Standards Australia New Zealand logo. An electronic version of this work is available on our website at www.foodstandards.gov.au.

## Attribution

You may copy, distribute, transmit and adapt the material in this publication by the CC BY 4.0 licence for commercial and non-commercial purposes but must attribute the work in the following manner:

© Food Standards Australia New Zealand.

This attribution must not, in any way, suggest that FSANZ endorses you or your use of the work.


For more information, email information@foodstandards.gov.au.

# Executive summary

The interpretive, front-of-pack Health Star Rating (HSR) system was introduced in Australia and New Zealand in June 2014. It aims to provide convenient, easily understood nutrition information on food packaging to assist consumers in making informed, healthier food purchases. In September 2025, Food Standards Australia New Zealand (FSANZ) undertook a survey to monitor consumer awareness, use, understanding and trust of the HSR system in Australia and New Zealand, on behalf of the Australian Department of Health, Disability and Ageing and the New Zealand Ministry for Primary Industries. The survey builds on a 2024 monitoring survey by oversampling Focus Populations highlighted in the HSR Monitoring Framework. The 1,179 Australian (AU) participants included 278 Aboriginal and/or Torres Strait Islander Peoples, 241 Multicultural[1] and 271 consumers of low socio-economic status (SES). The 989 New Zealand (NZ) participants included 256 Māori, 212 Pacific Peoples and 240 consumers of low SES. These groups were compared to a 'general population' cohort in their respective countries (389 AU, 281 NZ). Key findings are outlined below. Any differences between Focus Populations and the general populations noted below are statistically significant[2]. Notably, it is not appropriate to statistically assess and compare Focus Populations to one another (e.g. Indigenous groups), given the unique context of each group.

**Awareness**

- When prompted, the majority of participants were aware of the HSR across all groups in Australia (85 – 95%) and New Zealand (85 – 88%).
- A greater proportion of the Australian General Population group (95%) were aware of the HSR relative to the Aboriginal and/or Torres Strait Islander (85%) and Low SES groups (86%).

**Trust**

- On average, all groups agreed that they trust the HSR, the HSR has a good reputation, the HSR is accurate and honest, and having a HSR on a product increases trust in the food company/product.
- The Aboriginal and/or Torres Strait Islander and Multicultural groups on average had greater trust in the HSR relative to the Australian General Population group.
- The most common reasons for trusting the HSR across all groups were "It helps me to choose healthier foods and drinks" (AU 49 – 57%; NZ 47 – 55%) and "It is easy, simple and quick to use" (AU 49 – 62%; NZ 49 – 66%).
- The most common reasons for distrusting the HSR varied across groups. Top reasons included:
    - "I am concerned that food companies influence it" (AU General Population 67%; Aboriginal and/or Torres Strait Islander 53%, Pacific Peoples 52%)

[1] People were allocated to the Multicultural group if they were either born in a non-English speaking country or spoke a language other than English at home.

[2] Significant throughout this document refers to being statistically significant ($p < 0.05$) unless stated otherwise.

- "It doesn't consider everything that influences a food or drink's healthiness" (AU Low SES 49%, Multicultural 52%, NZ Low SES 41%, Māori 56%)
- "I don't agree with the overall health star ratings given to some foods and drinks" (Multicultural 52%, NZ General Population 61%)
- "I don't understand how it is calculated" (Pacific Peoples 52%).

**Perceived knowledge**

- Across all groups, most participants indicated they knew at least a little bit about the HSR (AU 85 – 93%; NZ 82 – 87%).
- A greater proportion of the Aboriginal and/or Torres Strait Islander group rated they know a lot about the HSR (28%) relative to the General Population group (10%).

**Understanding of what can be compared using the HSR**

- The majority of participants across all groups in Australia (69 – 79%) and New Zealand (63 – 70%) correctly identified that the HSR can be used to compare food products that are similar.
- However, more than half of participants incorrectly chose that the HSR can be used to compare dissimilar products (AU 52 – 72%; NZ 50 – 62%).
- A greater proportion of the Aboriginal and/or Torres Strait Islander group incorrectly selected that the HSR can be used to compare dissimilar products (72%), relative to the General Population (55%).

**Understanding of HSR development and governance**

- In Australia, over half of participants in each group correctly understood that the HSR system is supported by government (54 – 74%) and the HSR system was developed by nutrition experts (49 – 69%). However, only a third of participants understood that the food industry cannot choose the star rating for their products (30 – 34%).
- A greater proportion of the Aboriginal and/or Torres Strait Islander group understood the HSR system is supported by the government (74%) and developed by nutrition experts (69%) relative to the General Population (61% and 54%).
- In New Zealand, just under half of participants in each group correctly understood that the HSR system is supported by government (43 – 50%) and the HSR system was developed by nutrition experts (43 – 50%). Around a quarter of participants understood that the food industry cannot choose the star rating for their products (22 – 30%).

**Understanding of different HSR formats**

- As more information was added to the HSR format (e.g. the addition of energy (HSR + energy) or nutrient content information (HSR + tail)), a greater proportion incorrectly selected the label with the lower star rating as being healthier in a comparison task. This trend was seen across all groups.

- The majority of participants across all groups report using the stars and nutrient information available in the HSR format to decide which label is healthier, rather than focusing on the star rating or additional energy/nutrient content information alone.

**Preference for different HSR formats**

- Across all groups, the HSR format that included energy and nutrient information (HSR + tail) was preferred by most (AU 76 – 84%; NZ 76 – 83%).
- There was much lower preference for the HSR only format (AU 10 – 15%; NZ 10 – 17%) or the HSR format with energy information (HSR + energy) (AU 6 – 10%; NZ 6 – 7%).
- The most common reason for preferring the HSR label with nutrient information was "It has the information I need to make a decision". The most common reason for preferring the HSR only or the HSR with energy format was "It is the easiest to understand".

**Use and Influence**

- Across Australia and New Zealand, most people across all groups used the HSR at least 'sometimes' (AU 76 – 87%; NZ 63 – 69%).
- A greater proportion of the Aboriginal and/or Torres Strait Islander group (55%) and the Multicultural group (60%) used the HSR always/most of the time compared to the Australian General Population (42%).
- Across all groups, Australian consumers most commonly reported frequently looking out for the HSR on food products they buy (39 – 47%). In contrast, New Zealand groups most commonly reported only looking out for the HSR on certain types of food products (37 – 38%).
- Most participants in each group agreed they would use the HSR more if it was on most food and drink products (AU 66 – 79%; NZ 62 – 66%).
- Of participants that purchased a product displaying the HSR in the past 3 months, 67 – 81% in Australia and 62 – 66% in New Zealand said their purchasing decision was influenced by the HSR.
- Most participants across all groups reported the HSR would be likely to influence their future choices when buying food (AU 64 – 78%; NZ 53 – 59%).

# Contents

**Executive summary** 2

**Introduction** 6

Objectives of the Research 6

Methods 7

**Results** 13

Demographics 13

Awareness of the HSR 24

Trust of the HSR 27

Understanding of the HSR 34

Preference of HSR format 57

Use of the HSR 59

**Strengths and Limitations** 72

**References** 74

**Appendices** 75

# Introduction

The interpretive, front-of-pack Health Star Rating (HSR) system was introduced in Australia and New Zealand in June 2014. It aims to provide convenient, easily understood nutrition information on food packaging to assist consumers in making informed, healthier purchases.

Food Standards Australia New Zealand (FSANZ) is an Independent Statutory Authority with expertise in undertaking research on consumer attitudes, perceptions, and behaviours regarding food. FSANZ undertook the 2024 HSR monitoring for Area of Enquiry 2: Consumer use and understanding, under the Post Five Year Review Monitoring Framework on behalf of the Department of Health, Disability and Aging (DoHDA) and the Ministry for Primary Industries (MPI) (FSANZ 2025). The 2024 monitoring survey used a nationally representative sample to provide insights into how the HSR is used and understood across the entire Australian and New Zealand populations.

DoHDA and MPI engaged FSANZ to conduct the 2025 HSR consumer monitoring under the Year 5 Monitoring Plan. This survey builds on the 2024 monitoring by looking in depth at Focus Populations specified in the Post Five Year Review Monitoring Framework (DoHDA 2023). These include populations of low socio-economic status (SES) in both Australia and New Zealand, Aboriginal and/or Torres Strait Islander Peoples and Multicultural[3] populations in Australia, and Pacific Peoples and Māori in New Zealand.

## Objectives of the Research

The primary purpose of this survey was to monitor Focus Populations' current awareness, use, trust and understanding of the HSR. The second purpose of this survey was to inform Food Minister's considerations around mandating the HSR system.

The research aimed to answer the following questions:

- What proportion of consumers within different Focus Populations are aware of the HSR system?
- What proportion of consumers within Focus Populations trust the HSR system?
    - Why and why not?
- What proportion of consumers within Focus Populations use the HSR system?
    - Why and why not?
- Do consumers within Focus Populations understand how to use and interpret the HSR system correctly?
- How do different HSR variants with increasing levels of information impact Focus Population consumers' understanding and trust?
- What HSR format do Focus Populations prefer?

It was out of scope to assess change in any of these components over time, as there has been limited previous exploration into these Focus Populations. Additionally, FSANZ did not have

[3] This Focus Population was previously referred to in the monitoring framework as culturally and linguistically diverse (CALD). The preferred term is now Multicultural as per advice from the Department of Health, Disability and Ageing's Multicultural Health Team.

access to the raw data from previous monitoring surveys where this has been done to enable statistical comparisons. In addition, no comparison to the 2024 Monitoring survey was conducted as 1) it is unlikely any change has occurred since that time, and 2) due to the difference in samples between surveys.

# Methods

## Development of survey

The survey instrument was designed by FSANZ social scientists, in consultation with DoHDA, MPI, the HSR Advisory Committee, and Australian state, territory and New Zealand government representatives. In addition, three cultural advisors for Aboriginal and/or Torres Strait Islander Peoples, Māori and Pacific Peoples, respectively, were each consulted in the design and write up of this survey. Most survey questions were repeated from the 2024 Monitoring Survey which were originally adapted from existing Australian or New Zealand consumer surveys about the HSR system.

The survey was piloted with a sample of 380 participants from 25 – 27 Aug 2025. Participants were drawn from PureProfile's Australian and New Zealand market research consumer panels. Changes following piloting involved amending question 22 and converting the response options for question 25 from qualitative (open text box) to quantitative (multichoice). Pilot participants responses to amended questions were excluded from the final sample.

The final survey instrument consisted of 44 questions (43 quantitative, 1 qualitative), split across 6 sections:

- Demographics
- Awareness of the HSR
- Trust in the HSR
- Understanding of the HSR
- HSR format preference
- Use of the HSR

Key elements of each section are described below. The full survey instrument is provided in Appendix A.

### Demographics

Key demographics were gathered including age (years), gender, location, ethnicity identification/cultural background, household composition, education, language, country of birth, and household income (questions 1-10). Participants also self-rated their nutrition knowledge (question 11), health consciousness (question 12), whether any dietary factors influence their food choices (question 13), and their confidence in using food labels (question 14).

### Awareness of the HSR

To assess unprompted awareness of the HSR, participants were asked an open-ended question to identify anything shown on food packaging that can help them choose a healthier food (question 15). To assess prompted awareness, participants were then shown the HSR and asked if they were aware of it (question 16).

### Trust in the HSR

Trust in the HSR was assessed using agreement with four belief statements surrounding participants trust in the HSR, its reputation, its accuracy, and how it impacts trust in the food product/company (question 18). Participants were then asked to select reasons why they trusted or distrusted the HSR (question 19 and 20). Response options were based on qualitative responses from the 2024 consumer survey (FSANZ 2025).

### Understanding of the HSR

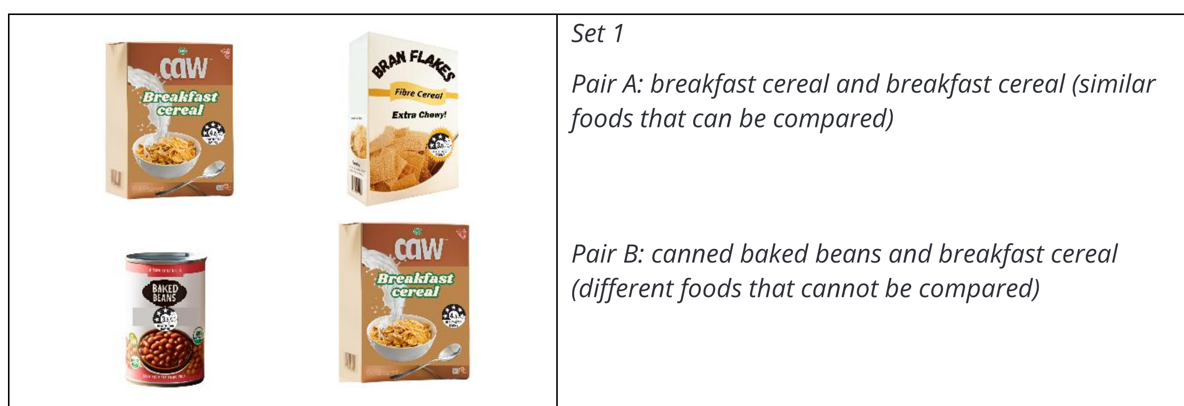
Subjective understanding was measured by asking participants to rate how much they know about the HSR (question 17). This was asked at the end of the 'Awareness' section to avoid an ordering effect.

Objective understanding was tested by exploring: 1) if participants understand what types of products can be compared using the HSR system; 2) their general knowledge of the HSR; and 3) if participants can make an overall healthier choice when presented with two HSR labels that vary on the number of stars presented. Further details on each of these areas are provided below.

1. Comparison between types of products (question 21)

To investigate if consumers understand what types of products can be compared using the HSR, participants were shown two pairs of food products, one after the other. For each pair they were asked to identify if the HSR can be used to decide which is the healthier product. To increase the generalisability of the results to multiple product types, participants were randomised to view one of two choice sets (Figure 1). Each choice set had two pairs of food products, including one pair where the HSR can be used to compare (i.e. foods that are similar such as breakfast cereals), and one pair where the HSR cannot be used to compare (i.e. dissimilar food products, such as yoghurt and juice). Each product displayed a HSR, with one product in each pair displaying 3.5 stars while the other displayed 4.5 stars. The order in which the pair of food products was shown was randomised.

Figure 1. Image sets to test understanding of what products can be compared using the HSR.



*Set 2*

*Pair A: orange juice and yoghurt (different foods that cannot be compared)*

*Pair B: loaf of bread and loaf of bread (similar foods that can be compared)*

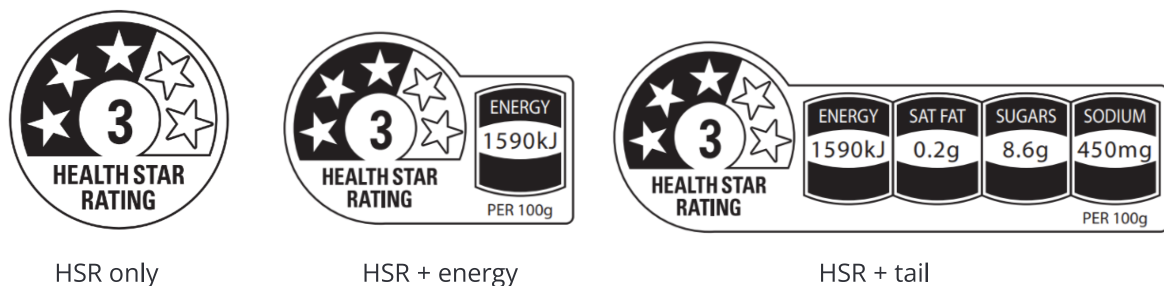
2. General knowledge of the HSR (question 22)

Participants were asked to select if statements were true or false regarding how the HSR was developed and who regulates the system.

3. Selecting the overall healthier label (question 23)

The survey also assessed whether consumers understand that more stars indicate an overall healthier product. This included investigating if this understanding is affected by the HSR format presented. Three different HSR formats were assessed (Figure 2), which increased in the amount of information provided. They included: the HSR only (HSR only), HSR + energy declaration (HSR + energy), and HSR + energy and prescribed nutrient declarations (HSR + tail). These three formats were the most frequently displayed formats of the HSR found on products found in an implementation monitoring survey conducted in New Zealand in 2018 (Ministry for Primary Industries 2018).

Figure 2. HSR formats investigated.




HSR only HSR + energy HSR + tail

Participants were presented with a pair of HSR labels that were of the same format and were asked to select which label would indicate an overall healthier product. The labels were shown on their own, not applied to a product. Participants were presented with three pairs in total, one pair for each of the three formats. Each label in the pair differed by the number of HSR stars. For the HSR + energy format, the labels presented in the pair differed by the number of HSR stars as well

as the energy amount. For the HSR + tail format, the labels presented in the pair differed by the number of HSR stars, as well as the energy amount, and the total saturated fat, sugars and sodium. Participants were asked to select the overall healthier label for each of the three pairs shown (see example of a pair in Figure 3). The correct answer was defined as the label with the higher star rating. The order of different HSR formats and the left/right presentation of the labels (if the higher stars were on the left or right) of the screen was randomised. 50% of participants saw pairs of HSR that differed by 0.5 stars for all of the three formats (i.e., HSR values of 3.5 and 4.0), while the other 50% saw pairs that differed by 1 star for all three formats (i.e., HSR values of 3.0 and 4.0) (See Appendix B for all label images). The nutritional profiles underpinning the labels were based on real products in the market from the same food category.

Figure 3. Example HSR label pair

For each pair of labels shown (3 in total) participants also rated how easy or hard it was to select the healthier label on a seven-point scale (1 - very hard, 7 - very easy) (question 24) and were asked to select a reason why they selected this as the healthier label, or if they selected unsure, why they were uncertain which label was healthier (question 25a and 25b). Variations in this question can be seen in Appendix C. Participant's attitude to each of the three HSR formats was assessed with three measures relating to participant's trust, and the suitability of the amount of information provided (question 26).

#### Preference of HSR format

Participants were asked to select their preferred HSR label format out of the three most common displays (question 35a; Figure 2). They were then asked to select reasons why this was their preferred format (question 36).

#### Use of the HSR

Participants self-reported how often they use the HSR (question 37) and how they use it (question 38). Participants were asked if they would use the HSR more if it was mandatory (question 39). Participants were asked if they had purchased a product with the HSR in the last three months (question 40), if it influenced their choice (question 41), and how it influenced their choice if it did (question 42). All participants were asked if they would use the HSR in the future (question 43) and if not, reasons for this (question 44).

*Sampling*

2,168 participants (1,179 Australians and 989 New Zealanders) completed the survey via PureProfile's online market research panel from 4 Sep – 30 Sep 2025. PureProfile is an Australian company with a panel of 450,000 members in Australia and 180,000 members in New Zealand. Participants had to be aged 18 years or older and be a household shopper (defined as someone who does all the shopping for their household or shares the shopping with others).

#### Focus Populations

Participants were assigned to an appropriate group based on the demographic information they provided. If they selected their cultural background as either Aboriginal and/or Torres Strait

Islander, or identified their ethnicity as Māori, or Pacific[4], they were allocated to these groups. People were allocated to the Multicultural group if they were either born in a non-English speaking country or spoke a language other than English at home. Low SES participants were identified by the area they live. For Australia, deciles 1 and 2 of the Index of Relative Socio-economic Advantage and Disadvantage were considered Low SES (Australian Bureau of Statistics 2021b). For New Zealand, deprivations scores of 9 and 10 of the NZ Deprivation Index (2023) were considered Low SES (University of Otago 2023).

If participants met the criteria for multiple groups, groups were prioritised in the following order until quotas were met:

- Australia: Aboriginal and/or Torres Strait Islander, Low Socioeconomic Status, Multicultural, General Population
- New Zealand: Pacific Peoples, Māori, Low Socioeconomic Status, General Population.

The General Population sample was nationally representative by the soft quotas of age, gender and location in each country. It was not possible to achieve the same representative across harder to reach groups. Details of the sample achieved are outlined in Tables 1 – 4.

#### *Analysis*

Analysis was carried out by FSANZ using IBM SPSS Statistics software, Version 28 and Rstudio v4.4.0. Significance was set at the .05 level unless otherwise specified.

### Data cleaning and manipulation

For any inferential statistics (details below), education (question 7) was recategorised into those who had completed tertiary education (defined as those who selected 'Undergraduate degree' or 'Postgraduate degree') and those who had no tertiary education (defined as those who selected 'high school or below' or 'vocational/trade qualification'). Household income (question 6 and 10) was recategorised into Equivalised Annual Household Income (EHHI)[5] (low income (≤ $41,599); middle income ($41,600–$77,999); high income (≥ $78,000)) that takes into account differences in household composition and size. Dietary factors (question 13) were split into whether a respondent selected a medical-related dietary factor (food allergy, digestive concerns, diet-related health concerns, pregnancy or breast-feeding, coeliac disease) and lifestyle-related dietary factors (watching weight, vegetarian or vegan, religious/ethical beliefs, training for sports).

For the length of time taken to identify the healthier HSR label, outliers were removed (HSR only n = 148; HSR + energy n = 155; HSR + tail n = 124). Outliers were defined as either 1.5 x the Interquartile Range of the sample (IQR) below the 25$^{th}$ quartile or 1.5 x the IQR above the 75$^{th}$ quartile (Dash 2023).

### Descriptive statistics

Descriptive statistics (percentages, means, standard deviations) are reported where appropriate.

---

[4] Backgrounds that were coded as Pacific included: Samoan, Cook Island Māori, Tongan, and Niuean.

[5] Equivalised annual household income is an adjusted measure that takes into account the size of the household and the age of its members. This variable reflects that a larger household would normally need more income than a smaller household to achieve the same standard of living. Equivalised annual household income was calculated according to the OECD-modified equivalence scale using the average income for each income bracket response. option. EHHI tiers were determined to allow comparison between groups. Tiers were based on the approximate distribution of EHHI's.

### Confirmatory factor analysis

Confirmatory factor analysis was undertaken to confirm that all four questions in 19 that assessed participants trust in the HSR measured the same underlying construct (see Appendix D for full details of the factor analysis). Once this was confirmed, an implied index was created with participants overall trust for the HSR and this was used as a predictor variable for participants trust in the HSR in regression analysis (details below).

### Between group comparisons

Where appropriate between group comparisons were conducted for key outcome measures. Statistical analysis was conducted to compare whether any difference in the outcome variable differed between the general population group in each country (Australia or New Zealand) and Each Focus Population in that country. No comparison between Focus Populations was conducted.

Differences in means between Focus Populations and the general population for trust factors, health consciousness and nutrition knowledge were tested using ANOVAs/t-tests with Bonferroni-corrected p values/alphas. Chi-square test of homogeneity was used to test whether there were any statistically significant differences in the proportions for prompted awareness, understanding, perceived knowledge and frequency of HSR use. If there was a statistically significant difference in the proportions, a post hoc test using a z-test of **two proportions** (with Bonferroni correction) was used to determine where the differences were.

### Regression analysis

A multilevel logistic regression was used to identify factors that were associated with selecting the correct HSR label whilst accounting for the fact that participants answered the same set of questions for each HSR format (Appendix E). A multi-level model can account for the fact that repeating a similar question may influence the way participants answer it the next time. For example, because a participant saw the HSR + tail format first, this may impact the way they answered the same questions for other HSR formats. A multilevel (hierarchical) regression was used to identify factors that were associated with participants ease of use, level of trust and perceived adequacy of information for the HSR labels (Appendix F).

For predictor variables where the number of participants was less than 30, these participants were excluded from regression analyses. This included prefer not to say and non-binary for gender.

### Cochrane’s Q-test

Cochrane’s Q-tests were used to check the difference in the proportion of participants within each Focus Population who objectively understood the different HSR formats. That is, whether there was a difference in understanding of each HSR format within each Focus Population. Not between groups. Unsure was coded as no for this analysis. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons to assess what differences there were. Adjusted p values are presented.

# Results

## Demographics

### Australia

The General Population group was representative of gender and location but somewhat skewed to an older demographic and those with a higher education, relative to the most recent census figures (Australian Bureau of Statistics 2021a).

The Aboriginal and/or Torres Strait Islander group was slightly skewed towards younger participants, as well as those with a higher education and those with children at home, relative to the General Population group.

There was an even spread across the EHHI tiers for each of the Focus Populations except for the Low SES group, which, as intended, was skewed towards the lower tiers. The Low SES sample was also slightly skewed towards females and those with lower education, relative to the General Population group.

Most (81%) of the Multicultural group spoke a language other than English at home, while 67% were born in a non-English-speaking country. Relative to the General Population sample, this group was skewed towards younger participants and those with higher education.

A detailed overview of the key demographics of Australian participants is provided in Table 1 and 2 below.

Table 1. Age, gender, level of education, household composition, equivalised annual household income, shopper status and languages spoken at home of Australian participants.

| | **Aboriginal and/or Torres Strait Islander** *n = 278* *n (%)* | **Low SES** *n = 271* *n (%)* | **Multicultural** *n = 241* *n (%)* | **General Population** *n = 389* *n (%)* |
|---|---|---|---|---|
| **Age group** | | | | |
| Mean age (*SD*) | 39.87 (13.0) | 49.28 (16.3) | 43.87 (14.9) | 50.98 (16.7) |
| 18–24 years | 25 (9.0) | 9 (3.3) | 24 (10.0) | 12 (3.1) |
| 25–34 years | 85 (30.6) | 54 (19.9) | 52 (21.6) | 71 (18.3) |
| 35–44 years | 80 (28.8) | 54 (19.9) | 57 (23.7) | 75 (19.3) |
| 45–54 years | 47 (16.9) | 54 (19.9) | 56 (23.2) | 55 (14.1) |
| 55–64 years | 27 (9.7) | 38 (14.0) | 22 (9.1) | 71 (18.3) |
| 65+ years | 14 (5.0) | 62 (22.9) | 30 (12.4) | 105 (27.0) |
| **Gender** | | | | |
| Male | 132 (47.5) | 101 (37.3) | 102 (42.3) | 177 (45.5) |
| Female | 146 (52.5) | 169 (62.4) | 139 (57.7) | 212 (54.5) |

| | Aboriginal and/or Torres Strait Islander *n = 278* *n (%)* | Low SES *n = 271* *n (%)* | Multicultural *n = 241* *n (%)* | General Population *n = 389* *n (%)* |
|---|---|---|---|---|
| Nonbinary and Other | 0 (0.0) | 1 (0.4) | 0 (0.0) | 0 (0.0) |
| Prefer not to say | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| **Education** | | | | |
| High school or below | 67 (24.1) | 100 (36.9) | 39 (16.2) | 108 (27.8) |
| Vocational/trade qualification | 63 (22.7) | 84 (31.0) | 26 (10.8) | 113 (29.0) |
| Undergraduate degree | 64 (23.0) | 54 (19.9) | 92 (38.2) | 120 (30.8) |
| Postgraduate degree | 84 (30.2) | 33 (12.2) | 84 (34.9) | 48 (12.3) |
| **Household Composition** | | | | |
| Children < 15 years in household | 150 (54.0) | 80 (29.5) | 89 (36.9) | 107 (27.5) |
| No children < 15 years in household | 128 (46.0) | 191 (70.5) | 152 (63.1) | 282 (72.5) |
| **Equivalised Annual Household Income Tiers#** | | | | |
| Low income (≤ $41,599) | 95 (34.2) | 117 (43.2) | 67 (27.8) | 117 (30.1) |
| Middle income ($41,600–$77,999) | 85 (30.6) | 86 (31.7) | 73 (30.3) | 128 (32.9) |
| High income (≥ $78,000) | 88 (31.7) | 44 (16.2) | 83 (34.4) | 118 (30.3) |
| Prefer not to say | 10 (3.6) | 24 (8.9) | 18 (7.5) | 26 (6.7) |
| **Shopper Status** | | | | |
| Does the majority of food shopping | 50 (18.0) | 87 (32.1) | 75 (31.1) | 81 (20.8) |
| Shares the food shopping | 228 (82.0) | 184 (67.9) | 166 (68.9) | 308 (79.2) |
| **Language spoken at home** | | | | |
| English | 258 (92.8) | 244 (90.0) | 45 (18.7) | 389 (100.0) |
| Other | 20 (7.2) | 27 (10.0) | 196 (81.3) | 0 (0.0) |
| **Born in a country that speaks another language other than English** | | | | |

| | Aboriginal and/or Torres Strait Islander *n = 278* *n (%)* | Low SES *n = 271* *n (%)* | Multicultural *n = 241* *n (%)* | General Population *n = 389* *n (%)* |
|---|---|---|---|---|
| English speaking country | 256 (92.1) | 233 (86.0) | 80 (33.2) | 359 (92.3) |
| Non-English-speaking country | 22 (7.9) | 38 (14.0) | 161 (66.8) | 30 (7.7) |

# Equivalised annual household income was calculated according to the OECD-modified equivalence scale using the average income for each income bracket response option.

Table 2. Location of Australian participants.

| | Aboriginal and/or Torres Strait Islander n (%) | Low SES n (%) | Multicultural n (%) | General Population n (%) |
|---|---|---|---|---|
| **Australian State of Territory** | | | | |
| Australian Capital Territory | 4 (1.4) | 0 (0.0) | 8 (3.3) | 9 (2.3) |
| New South Wales | 134 (48.2) | 56 (20.7) | 85 (35.3) | 121 (31.1) |
| Northern Territory | 4 (1.4) | 0 (0.0) | 1 (0.4) | 4 (1.0) |
| Queensland | 65 (23.4) | 70 (25.8) | 28 (11.6) | 73 (18.8) |
| South Australia | 11 (4.0) | 30 (11.1) | 18 (7.5) | 32 (8.2) |
| Tasmania | 8 (2.9) | 19 (7.0) | 2 (0.8) | 12 (3.1) |
| Victoria | 40 (14.4) | 81 (29.9) | 76 (31.5) | 94 (24.2) |
| Western Australia | 12 (4.3) | 15 (5.5) | 23 (9.5) | 44 (11.3) |
| **Metro or Regional Location** | | | | |
| Metro Australia | 186 (66.9) | 134 (49.4) | 227 (94.2) | 290 (74.6) |
| Regional Australia | 92 (33.1) | 137 (50.6) | 14 (5.8) | 99 (25.4) |

### New Zealand

The General Population group was broadly representative of location but skewed to females, an older demographic, and those with a higher education, relative to the most recent census figures (Stats NZ 2023). The Māori group and Pacific Peoples group appeared to be slightly younger and consist of a greater proportion of lower education, and those with children at home, relative to the General Population group. The Māori, Pacific Peoples and the Low SES groups all appeared to be skewed towards those with a lower EHHI relative to the General Population. A detailed overview of the key demographics of the New Zealand participants is provided in Table 3 and 4

below.

Table 3. Age, gender, level of education, household composition, equivalised annual household income, shopper status and languages spoken at home of participants from New Zealand.

| | Māori<br>*n = 256* | Pacific Peoples<br>*n = 212* | Low SES<br>*n = 240* | General Population<br>*n = 281* |
|---|---|---|---|---|
| **Age group** | | | | |
| Mean age (*SD*) | 42.71 (15.5) | 39.04 (13.3) | 47.70 (16.5) | 49.08 (16.1) |
| 18–24 years | 29 (11.3) | 29 (13.7) | 21 (8.8) | 17 (6.0) |
| 25–34 years | 60 (23.4) | 62 (29.2) | 37 (15.4) | 47 (16.7) |
| 35–44 years | 68 (26.6) | 51 (24.1) | 53 (22.1) | 51 (18.1) |
| 45–54 years | 35 (13.7) | 36 (17.0) | 43 (17.9) | 59 (21.0) |
| 55–64 years | 34 (13.3) | 24 (11.3) | 40 (16.7) | 55 (19.6) |
| 65+ years | 30 (11.7) | 10 (4.7) | 46 (19.2) | 52 (18.5) |
| **Gender** | | | | |
| Male | 82 (32.0) | 62 (29.2) | 98 (40.8) | 103 (36.7) |
| Female | 174 (68.0) | 148 (69.8) | 142 (59.2) | 178 (63.3) |
| Nonbinary and Other | 0 (0.0) | 1 (0.5) | 0 (0.0) | 0 (0.0) |
| Prefer not to say | 0 (0.0) | 1 (0.5) | 0 (0.0) | 0 (0.0) |
| **Education** | | | | |
| High school or below | 90 (35.2) | 92 (43.4) | 77 (32.1) | 65 (23.1) |
| Vocational/trade qualification | 72 (28.1) | 44 (20.8) | 59 (24.6) | 77 (27.4) |
| Undergraduate degree | 64 (25.0) | 49 (23.1) | 63 (26.3) | 95 (33.8) |
| Postgraduate degree | 30 (11.7) | 27 (12.7) | 41 (17.1) | 44 (15.7) |
| **Household Composition** | | | | |
| Children < 15 years in household | 106 (41.4) | 123 (58.0) | 80 (33.3) | 73 (26.0) |
| No children < 15 years in household | 150 (58.6) | 89 (42.0) | 160 (66.7) | 208 (74.0) |
| **Equivalised Annual Household Income Tiers#** | | | | |
| Low income (≤ $41,599) | 107 (41.8) | 112 (52.8) | 98 (40.8) | 90 (32.0) |
| Middle income ($41,600–$77,999) | 72 (28.1) | 53 (25.0) | 71 (29.6) | 93 (33.1) |
| High income (≥ $78,000) | 59 (23.0) | 29 (13.7) | 52 (21.7) | 69 (24.6) |

| | Māori<br>*n = 256* | Pacific Peoples<br>*n = 212* | Low SES<br>*n = 240* | General Population<br>*n = 281* |
|---|---|---|---|---|
| Prefer not to say | 18 (7.0) | 18 (8.5) | 19 (7.9) | 29 (10.3) |
| **Shopper Status** | | | | |
| Does the majority of food shopping | 77 (30.1) | 96 (45.3) | 80 (33.3) | 91 (32.4) |
| Shares the food shopping | 179 (69.9) | 116 (54.7) | 160 (66.7) | 190 (67.6) |
| **Language spoken at home** | | | | |
| English | 188 (73.4) | 93 (43.9) | 189 (78.8) | 224 (79.7) |
| Other | 68 (26.6) | 119 (56.1) | 51 (21.3) | 57 (20.3) |
| **Born in a country that speaks another language other than English** | | | | |
| English speaking country | 226 (88.3) | 156 (73.6) | 186 (77.5) | 219 (77.9) |
| Non-English-speaking country | 30 (11.7) | 56 (26.4) | 54 (22.5) | 62 (22.1) |

# Equivalised annual household income was calculated according to the OECD-modified equivalence scale using the average income for each income bracket response option.

Table 4. Location of New Zealand participants.

| | Māori n (%) | Pacific Peoples n (%) | Low SES n (%) | General Population n (%) |
|---|---|---|---|---|
| **New Zealand Regions** | | | | |
| Auckland | 62 (24.2) | 143 (67.5) | 56 (23.3) | 103 (36.7) |
| Bay of Plenty | 20 (7.8) | 6 (2.8) | 9 (3.8) | 14 (5.0) |
| Canterbury | 32 (12.5) | 8 (3.8) | 24 (10.0) | 49 (17.4) |
| Gisborne | 1 (0.4) | 0 (0.0) | 8 (3.3) | 0 (0.0) |
| Hawkes Bay | 13 (5.1) | 3 (1.4) | 13 (5.4) | 6 (2.1) |
| Manawatu-Whanganui | 18 (7.0) | 5 (2.4) | 22 (9.2) | 15 (5.3) |
| Marlborough | 1 (0.4) | 0 (0.0) | 0 (0.0) | 1 (0.4) |
| Nelson | 3 (1.2) | 1 (0.5) | 2 (0.8) | 5 (1.8) |
| Northland | 13 (5.1) | 6 (2.8) | 13 (5.4) | 4 (1.4) |
| Otago | 11 (4.3) | 2 (0.9) | 16 (6.7) | 13 (4.6) |
| Southland | 5 (2.0) | 2 (0.9) | 4 (1.7) | 3 (1.1) |
| Taranaki | 6 (2.3) | 2 (0.9) | 12 (5.0) | 6 (2.1) |
| Tasman | 0 (0.0) | 0 (0.0) | 0 (0.0) | 3 (1.1) |
| Waikato | 37 (14.5) | 9 (4.2) | 35 (14.6) | 15 (5.3) |
| Wellington | 33 (12.9) | 25 (11.8) | 18 (7.5) | 43 (15.3) |
| West Coast | 1 (0.4) | 0 (0.0) | 8 (3.3) | 1 (0.4) |
| **Metro or Regional Location** | | | | |
| Metro New Zealand | 230 (89.8) | 202 (95.3) | 225 (93.8) | 260 (92.5) |
| Regional New Zealand | 26 (10.2) | 10 (4.7) | 15 (6.3) | 21 (7.5) |

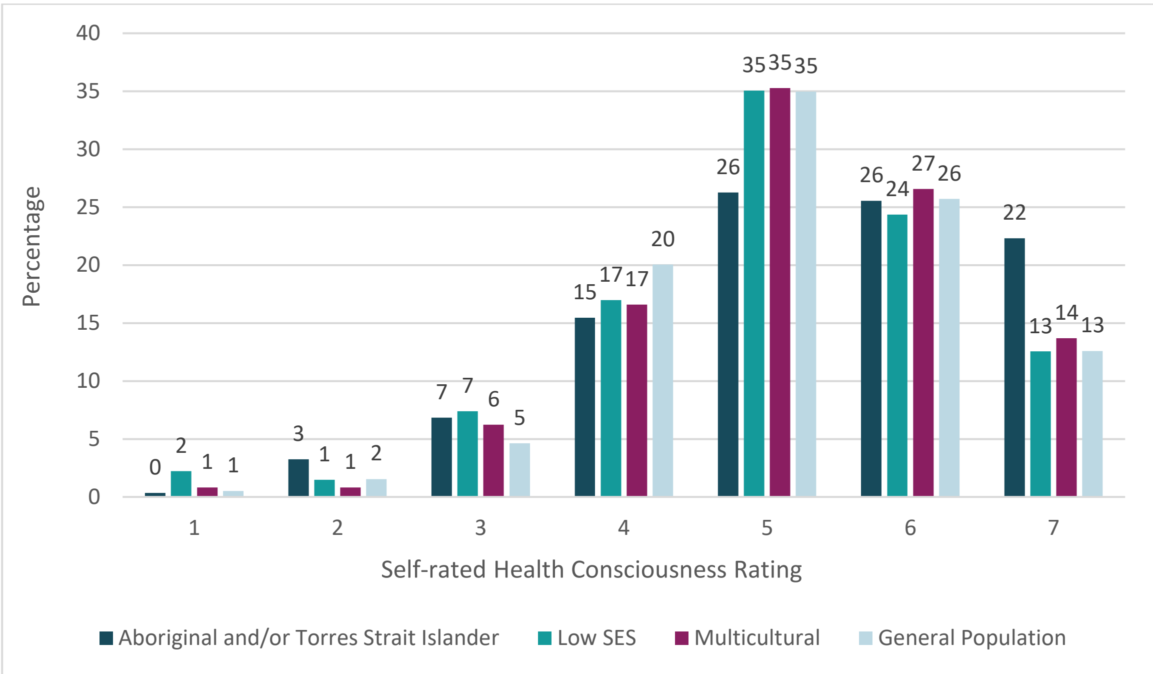
## Health Consciousness and Nutrition Knowledge

### Australia

All groups self-rated their mean level of health consciousness, nutrition knowledge and confidence using nutrition labels above the midpoint of 4 (Figure 4, Figure 5).

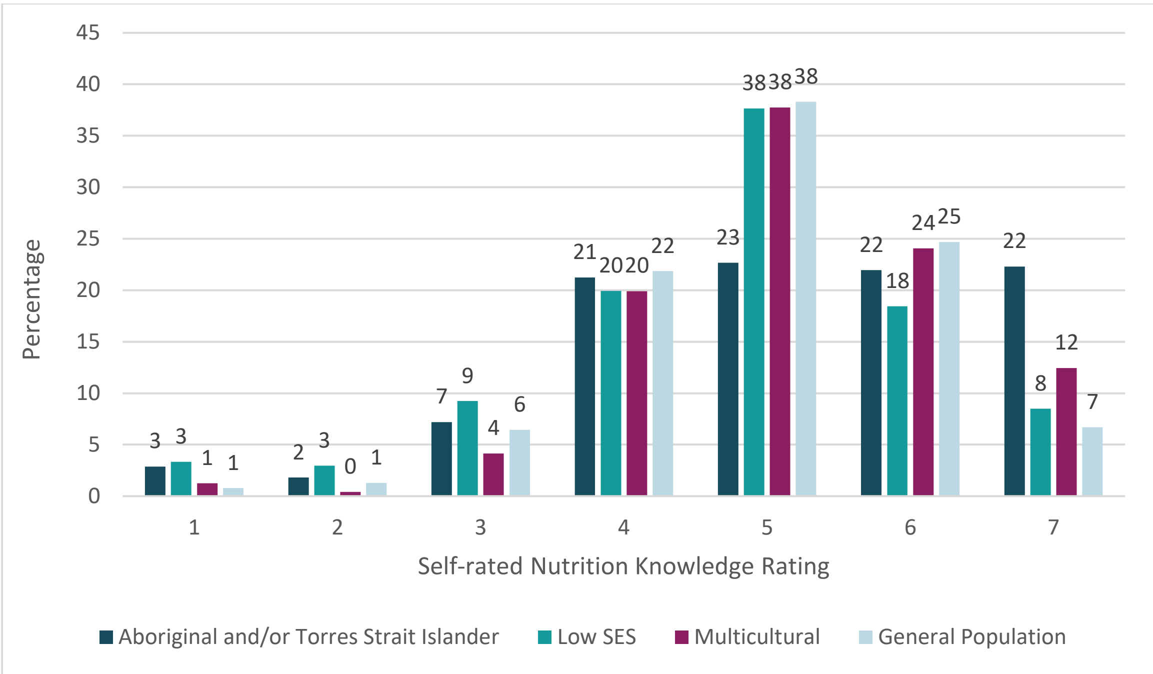
Independent t-tests were run to identify if there were any differences between the means for Focus Populations compared to the General Population. The Low SES group's mean rating for nutrition knowledge was significantly lower than the General Population (M = 4.75 ± SD = 1.35 vs 4.96 ± 1.11, $p$ = .031). Aboriginal and/or Torres Strait Islander's mean rating for confidence using nutrition labels was significantly higher than the General Population (M = 5.47 ± 1.36 vs 5.19 ± 1.11, $p$ = .006). There were no significant differences between the General Population and other groups for health consciousness.

Figure 4. Australian participants self-rated health consciousness.




*Q: How much effort do you generally put into maintaining a healthy diet for you and/or your household? Scale: 1 = "No effort", 7 = "A lot of effort".*

Figure 5: Australian participants self-rated nutrition knowledge.




*Q: How much do you know about nutrition? Scale: 1 = "I know very little about nutrition", 7 = "I know a lot about nutrition".*

Table 5. Participant self-rated level of health consciousness and nutrition knowledge in Australia.

| | Aboriginal and/or Torres Strait Islander | Low SES | Multicultural | General Population |
|---|---|---|---|---|
| **Self-rated nutrition knowledge**<br>Mean Rating (±SD) | 5.14 (1.49) | 4.75 (1.35) | 5.15 (1.15) | 4.96 (1.11) |
| **Self-rated health consciousness**<br>Mean Rating (±SD) | 5.30 (1.36) | 5.04 (1.30) | 5.19 (1.19) | 5.15 (1.16) |
| **Self-rated confidence using nutrition labels**<br>Mean Rating (±SD) | 5.47 (1.36) | 5.10 (1.22) | 5.28 (1.03) | 5.19 (1.11) |

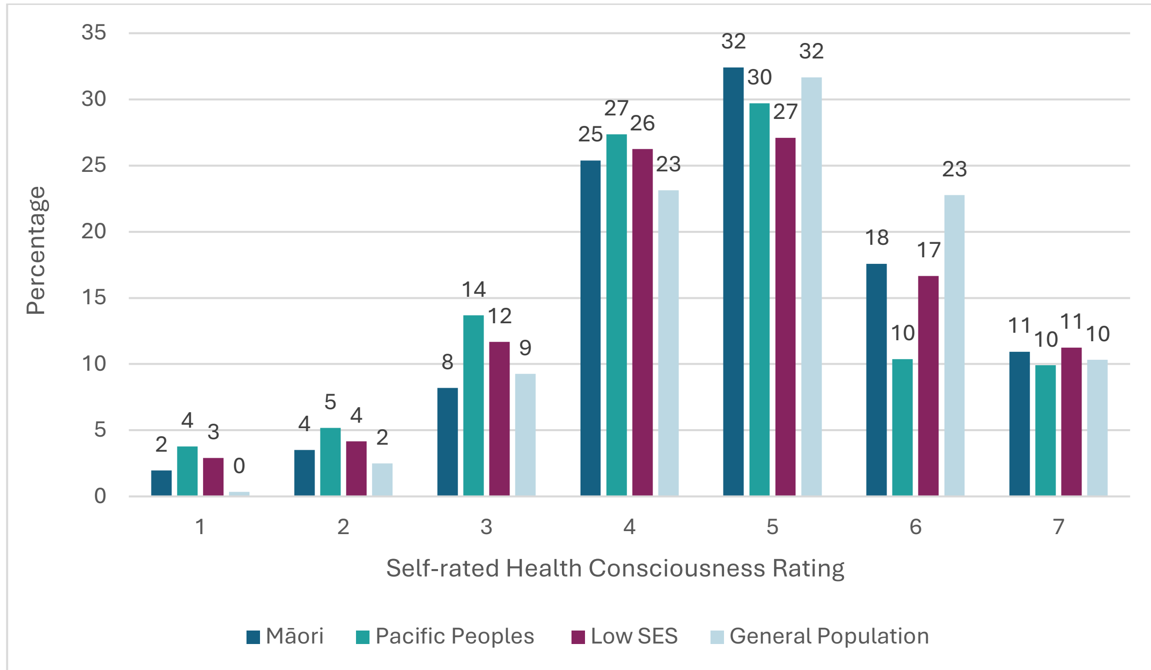
*Q1: How much effort do you generally put into maintaining a healthy diet for you and/or your household? Scale: 1 = "No effort", 7 = "A lot of effort".*
*Q2: How much do you know about nutrition? Scale: 1 = "I know very little about nutrition", 7 = "I know a lot about nutrition".*
*Q3: How confident are you in your ability to make informed choices about foods from the information on food labels? Scale: 1 = "Not at all confident" and 7 = "Completely confident".*

### New Zealand

All groups self-rated their mean level of health consciousness, nutrition knowledge and confidence using nutrition labels above the midpoint of 4 (Figure6, Figure 7).

Independent t-tests were run to identify if there were any differences between the means for Focus Populations compared to the General Population. Each of the Focus Populations mean rating for nutrition knowledge were significantly lower than the General Population (4.88 ± 1.21) (Māori 4.63 ± 1.43*p* = .035; Pacific 4.51 ± 1.46,, *p* = .004; Low SES 4.54, *p* = .004) (Table 6). The Pacific Peoples and Low SES populations mean ratings for health consciousness were significantly lower than the General Population (4.93 ± 1.23) (Pacific Peoples 4.45 ± 1.45, *p* <.001; Low SES 4.65 ± 1.44, *p* = .021). The Pacific Peoples' mean ratings for confidence using nutrition labels was also significantly lower than the General Population (4.75 ± 1.46 vs 5.08 ± 1.18, *p* = .008).

Figure 6. New Zealand participants self-rated health consciousness.




*Q: How much effort do you generally put into maintaining a healthy diet for you and/or your household? Scale: 1 = "No effort", 7 = "A lot of effort".*

Figure 7. New Zealand participants self-rated nutrition knowledge.

*Q: How much do you know about nutrition? Scale: 1 = "I know very little about nutrition", 7 = "I know a lot about nutrition".*

Table 6. Participant self-rated level of health consciousness and nutrition knowledge in New Zealand.

| | Māori | Pacific Peoples | Low SES | General Population |
|---|---|---|---|---|
| **Self-rated nutrition knowledge** Mean Rating (±SD) | 4.63 (1.43) | 4.51 (1.46) | 4.54 (1.42) | 4.88 (1.21) |
| **Self-rated health consciousness** Mean Rating (±SD) | 4.79 (1.33) | 4.45 (1.45) | 4.65 (1.44) | 4.93 (1.23) |
| **Self-rated confidence using nutrition labels** Mean Rating (±SD) | 5.07 (1.41) | 4.75 (1.46) | 4.93 (1.40) | 5.08 (1.18) |

*Q1: How much effort do you generally put into maintaining a healthy diet for you and/or your household? Scale: 1 = "No effort", 7 = "A lot of effort".*
*Q2: How much do you know about nutrition? Scale: 1 = "I know very little about nutrition", 7 = "I know a lot about nutrition".*
*Q3: How confident are you in your ability to make informed choices about foods from the information on food labels? Scale: 1 = "Not at all confident" and 7 = "Completely confident".*

## Dietary Influences

### Australia

Participants were asked to select any dietary influences affecting their food choices. In Australia, cost of living pressures was the most frequently selected influence for all groups (48 – 56%), followed by watching my weight/maintaining a healthy weight (36 – 42%) (Table 7). For each of the populations, between 19 – 22% of participants did not select any factor as influencing their dietary choices.

Table 7. Proportion of participants who selected each factor as influencing their food choices, by Focus Population in Australia.*

| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** | **Low SES** ***n*** **(%)** | **Multicultural** ***n*** **(%)** | **General Population** ***n*** **(%)** |
|---|---|---|---|---|
| Cost of living pressures | 132 (47.5) | 150 (55.4) | 132 (54.8) | 217 (55.8) |
| Watching my weight/maintain a healthy weight | 101 (36.3) | 99 (36.5) | 99 (41.1) | 163 (41.9) |
| Digestive concerns such as irritable bowel syndrome etc. | 69 (24.8) | 49 (18.1) | 41 (17.0) | 74 (19.0) |
| Food allergy | 50 (18.0) | 27 (10.0) | 39 (16.2) | 47 (21.1) |
| Diet-related health concerns, such as diabetes, heart disease, high blood pressure | 38 (13.7) | 40 (14.8) | 43 (17.8) | 56 (14.4) |
| Training for sports that affects food choices | 37 (13.3) | 8 (3.0) | 22 (9.1) | 35 (9.0) |
| Vegetarian or vegan | 17 (6.1) | 12 (4.4) | 21 (8.7) | 24 (6.2) |
| Pregnancy or breast-feeding | 21 (7.6) | 9 (3.3) | 7 (2.9) | 16 (4.1) |
| Religious/ethical beliefs that affect food choices | 19 (6.8) | 4 (1.5) | 31 (12.9) | 10 (2.6) |
| Coeliac disease | 15 (5.4) | 7 (2.6) | 10 (4.1) | 10 (2.6) |
| *None of the above* | 57 (20.5) | 60 (22.1) | 45 (18.7) | 84 (21.6) |

*Q: Do any of the following currently affect the food choices you make for you or your household? Please select all that apply.*
** As participants were able to select multiple responses, percentages may not add up to 100.*

**New Zealand**

In New Zealand, cost of living was also the most selected dietary influence across all groups (60 – 72%), followed by watching/maintaining my weight (34 – 51%) (Table 8). For each of the Focus Populations, between 19 – 22% of participants did not select any factor as influencing their dietary choices (10 – 19%).

Table 8. Proportion of participants who selected each factor as influencing their food choices, by Focus Population in New Zealand.*

| | Māori<br>*n*<br>(%) | Pacific Peoples<br>*n*<br>(%) | Low SES<br>*n*<br>(%) | General Population<br>*n*<br>(%) |
|---|---|---|---|---|
| Cost of living pressures | 172 (67.2) | 152 (71.7) | 146 (60.8) | 167 (59.4) |
| Watching my weight/maintain a healthy weight | 102 (39.8) | 107 (50.5) | 82 (34.2) | 104 (37.0) |
| Digestive concerns such as irritable bowel syndrome etc. | 52 (20.3) | 26 (12.3) | 35 (14.6) | 61 (21.7) |
| Food allergy | 40 (15.6) | 25 (11.8) | 28 (11.7) | 23 (8.2) |
| Diet-related health concerns, such as diabetes, heart disease, high blood pressure | 44 (17.2) | 49 (23.1) | 37 (15.4) | 41 (14.6) |
| Training for sports that affects food choices | 28 (10.9) | 31 (14.6) | 17 (7.1) | 18 (6.4) |
| Vegetarian or vegan | 29 (11.3) | 13 (6.1) | 15 (6.3) | 18 (6.4) |
| Pregnancy or breast-feeding | 10 (3.9) | 15 (7.1) | 4 (1.7) | 5 (1.8) |
| Religious/ethical beliefs that affect food choices | 10 (3.9) | 12 (5.7) | 13 (5.4) | 9 (3.2) |
| Coeliac disease | 7 (2.7) | 3 (1.4) | 4 (1.7) | 4 (1.4) |
| *None of the above* | 39 (15.2) | 21 (9.9) | 45 (18.8) | 53 (18.9) |

Q: Do any of the following currently affect the food choices you make for you or your household? Please select all that apply.
* As participants were able to select multiple responses, percentages may not add up to 100.

## Awareness of the HSR

*Unprompted Awareness*

**Australia**

Low SES, Multicultural and the General Population all had similar levels of unprompted awareness of the HSR. Approximately 40 – 43% of these participants mentioned the HSR as something that can help them to make healthier food choices, when asked an open-ended question “Other than brand names, can you think of anything shown on food packages that can

help people choose a healthier food?" (Table 9). Only 23% of the Aboriginal and/or Torres Strait Islander group mentioned the HSR when asked this question. This was not statistically significant compared to the general population.

Table 9. Percentage of Australian participants who were aware of the HSR without prompting.

| | Aboriginal and/or Torres Strait Islander *n* (%) | Low SES *n* (%) | Multicultural *n* (%) | General Population *n* (%) |
|---|---|---|---|---|
| Aware* | 64 (23.0) | 109 (40.2) | 99 (41.1) | 166 (42.7) |
| Unaware | 214 (77.0) | 162 (59.8) | 142 (58.9) | 223 (57.3) |

*Q: Other than brand names, can you think of anything shown on food packages that can help people choose a healthier food?*
**Any responses with "star" coded as aware.*

### New Zealand

Pacific Peoples had a relatively low level of unprompted awareness of the HSR (18%). Māori and Low SES had similar levels of unprompted awareness (26 – 29%), while the General Population had a slightly higher unprompted awareness (33%) (Table 10).

Table 10. Percentage of New Zealand participants who were aware of the HSR without prompting.

| | Māori *n* (%) | Pacific Peoples *n* (%) | Low SES *n* (%) | General Population *n* (%) |
|---|---|---|---|---|
| Aware* | 67 (26.2) | 39 (18.4) | 70 (29.2) | 93 (33.1) |
| Unaware | 189 (73.8) | 173 (81.6) | 170 (70.8) | 188 (66.9) |

*Q: Other than brand names, can you think of anything shown on food packages that can help you choose a healthier food?*
**Any responses with "star" coded as aware.*

*Prompted Awareness*

### Australia

When prompted, the majority of participants (85 – 95% across all groups) were aware of the HSR (Table 11). A greater proportion of the General Population (95%) were aware of the HSR when prompted compared to the Aboriginal and/or Torres Strait Islander group (85%) and the Low SES group (86%)[6] ($p < .001$). In addition, a greater proportion of the Aboriginal and/or Torres Strait Islander group were unaware of the HSR (7%) or unsure if they were aware of it (9%) compared to the General Population (2% and 3%, respectively).

[6] A chi-square test of independence was used to determine if there was a difference between the Focus Population groups relative to the General Population group in their prompted awareness of the HSR.

Table 11: Prompted awareness of the Health Star Rating (HSR), Nutrition Information Panel (NIP) and Ingredients List on food packaging for Australians.

| | Aboriginal and/or Torres Strait Islander | | | Low SES | | | Multicultural | | | General Population | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) |
| **HSR** | 235 (84.5) | 19 (6.8) | 24 (8.6) | 234 (86.3) | 16 (5.9) | 21 (7.7) | 221 (91.7) | 8 (3.3) | 12 (5.0) | 368 (94.6) | 8 (2.1) | 13 (3.3) |
| **NIP** | 250 (89.9) | 14 (5.0) | 14 (5.0) | 257 (94.8) | 7 (2.6) | 7 (2.6) | 227 (94.2) | 8 (3.3) | 6 (2.5) | 374 (96.1) | 7 (1.8) | 8 (2.1) |
| **Ingredients List** | 251 (90.3) | 10 (3.6) | 17 (6.1) | 253 (93.4) | 10 (3.7) | 8 (3.0) | 227 (94.2) | 9 (3.7) | 5 (2.1) | 363 (93.3) | 12 (3.1) | 14 (3.6) |

*Q: Are you aware of any of the following labels on food packages?*

Table 12: Prompted awareness of the Health Star Rating (HSR), Nutrition Information Panel (NIP) and Ingredients List on food packaging for New Zealanders.

| | Māori | | | Pacific Peoples | | | Low SES | | | General Population | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) | Yes *n* (%) | No *n* (%) | Unsure *n* (%) |
| **HSR** | 224 (87.5) | 13 (5.1) | 19 (7.4) | 180 (84.9) | 14 (6.6) | 18 (8.5) | 207 (86.3) | 14 (5.8) | 19 (7.9) | 239 (85.1) | 17 (6.0) | 25 (8.9) |
| **NIP** | 241 (94.1) | 6 (2.3) | 9 (3.5) | 207 (97.6) | 4 (1.9) | 1 (0.5) | 226 (94.2) | 7 (2.9) | 7 (2.9) | 270 (96.1) | 8 (2.8) | 3 (1.1) |
| **Ingredients List** | 244 (95.3) | 4 (1.6) | 8 (3.1) | 199 (93.9) | 5 (2.4) | 8 (3.8) | 222 (92.5) | 10 (4.2) | 8 (3.3) | 258 (91.8) | 16 (5.7) | 7 (2.5) |

Q: Are you aware of any of the following labels on food packages?

#### New Zealand

When prompted, the majority of participants in New Zealand (85 – 88% across all groups) were aware of the HSR (Table 12). A chi-square test of independence determined that there was no difference between Focus Populations and the General Population in prompted awareness of the HSR (p = .985).

## Trust of the HSR

### General trust

Participants were presented with three HSR format images at the same time, all displaying 3.5 stars (see images in Appendix C). They were then asked to respond to a series of statements related to their level of trust in the HSR system overall[7]. A factor analyses confirmed that all four statements measured one underlying construct (see Appendix D for full results). The implied index[8] from the factor analysis was used in regression analysis as an overall measure of participants trust in the HSR.

#### Australia

On average, perceptions of the HSR system were positive for all groups, being above the midpoint of 4 for positive traits (trust, accuracy/honesty, increasing trust in food product/ company) and below the midpoint for negative traits (poor reputation) (Table 13).

Independent t-tests were run to identify if there were any differences between each group and the General Population on these measures. The Aboriginal and/or Torres Strait Islander group had significantly higher mean agreement than the General Population that they trust the HSR (5.1 vs 4.6, $p < .001$), that the HSR is accurate and honest (5.0 vs 4.5, $p < .001$), and the presence of the HSR increases trust in a food product/company (5.2 vs 4.7, $p < .001$). The Multicultural group also had significantly higher mean agreement than the General Population that they trust the HSR (5.0 vs 4.6, $p = .001$), the HSR is accurate and honest (5.2 vs 5.7, $p < .001$), and the presence of the HSR increases trust in a food product/company (5.2 vs 4.7, $p < .001$). There were no significant differences between the General Population and other groups for belief that the HSR has a good reputation.

[7] Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements? I trust the Health Star Rating system; The Health Star Rating system has a poor reputation; The Health Star Rating system is accurate and honest; Having a Health Sar Rating on a product's label increases my trust in the food product/company.1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".

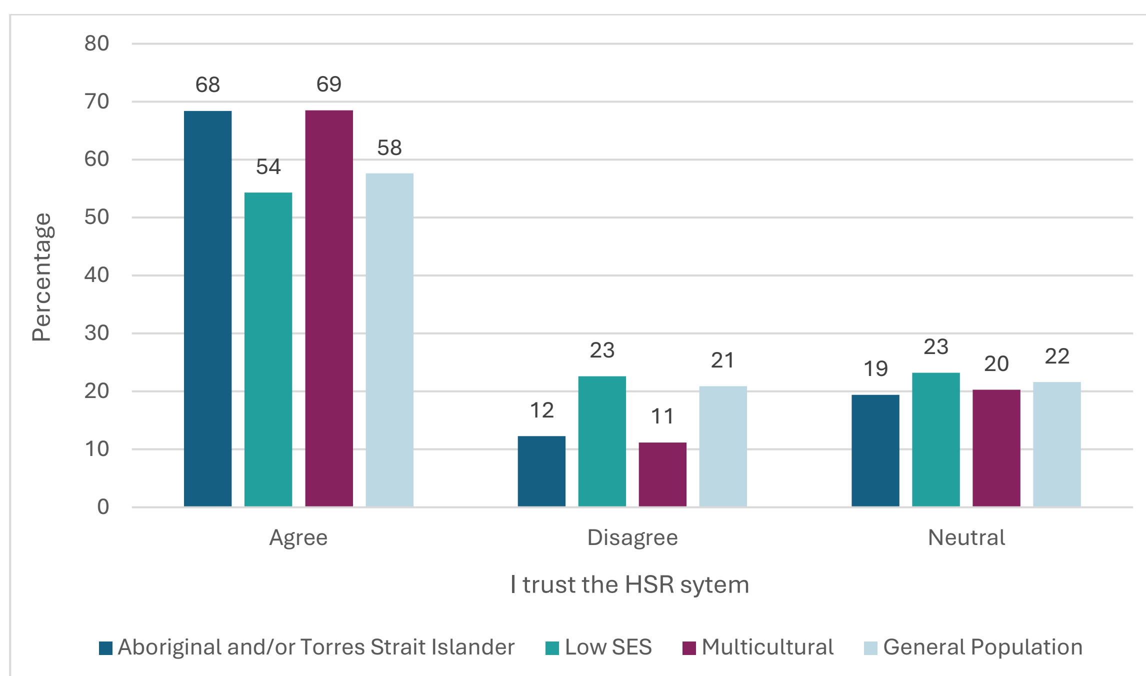
[8] The implied index is a weighted sum of based on the factor scores for each item.

Table 13. Level of trust in the HSR by Australian participants.

| | Aboriginal and/or Torres Strait Islander Mean (±SD) | Low SES Mean (±SD) | Multicultural Mean (±SD) | General Population Mean (±SD) |
|---|---|---|---|---|
| I trust the Health Star Rating system | 5.13 (1.60) | 4.55 (1.49) | 4.98 (1.34) | 4.60 (1.54) |
| The Health Star Rating system has a good reputation^ | 4.56 (2.20) | 4.44 (2.00) | 4.24 (1.94) | 4.49 (1.94) |
| The Health Star Rating system is accurate and honest | 5.03 (1.52) | 4.47 (1.46) | 4.76 (1.28) | 4.51 (1.45) |
| Having a Health Star Rating on a product's label increases my trust in the food product/ company | 5.22 (1.60) | 4.66 (1.53) | 5.15 (1.31) | 4.70 (1.51) |
| Trust factor | 4.96 (1.35) | 4.52 (1.33) | 4.79 (1.12) | 4.56 (1.36) |

*Q: Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements? 1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".*
*^This item was reverse coded. Original question wording: "The HSR has a poor reputation".*

Figure 8. Proportion of Australian participants who trusted, distrusted or were neutral towards the HSR.




*Q: Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements? I trust the HSR system: 1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".*

## New Zealand

On average, perceptions of the HSR system were positive for all groups, being above the midpoint of 4 for positive traits (trust, accuracy/honesty, increasing trust in food product/ company) and below the midpoint for negative traits (poor reputation) (Table 13).

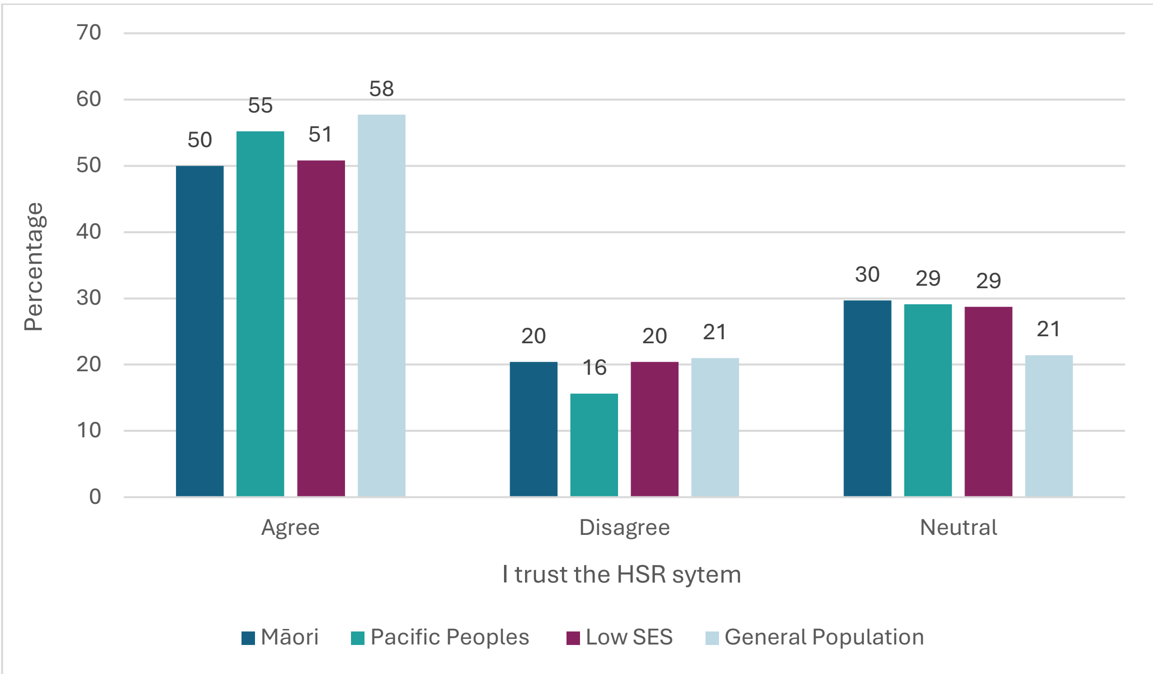
Independent t-tests were run to identify if there were any differences between each group and the General Population on these measures. The Low SES group had a significantly higher mean agreement that the HSR has a good reputation relative to the General Population (4.9 vs 4.5, $p$ = 0.049). There were no significant differences between the General Population and other groups in their trust in the HSR system, their agreement that the HSR is accurate and honest, or agreement that having a Health Sar Rating on a product's label increases trust in the food product/company.

Table 14. Level of trust in the HSR by New Zealand participants.

| | Māori<br>Mean (±SD) | Pacific Peoples<br>Mean (±SD) | Low SES<br>Mean (±SD) | General Population<br>Mean (±SD) |
|---|---|---|---|---|
| I trust the Health Star Rating system | 4.48 (1.48) | 4.69 (1.43) | 4.58 (1.51) | 4.62 (1.46) |
| The Health Star Rating system has a good reputation^ | 4.40 (2.03) | 4.84 (1.82) | 4.92 (1.79) | 4.54 (1.80) |
| The Health Star Rating system is accurate and honest | 4.39 (1.46) | 4.57 (1.41) | 4.55 (1.43) | 4.40 (1.39) |
| Having a Health Sar Rating on a product's label increases my trust in the food product/ company | 4.50 (1.65) | 4.86 (1.55) | 4.73 (1.57) | 4.62 (1.47) |
| Trust factor | 4.40 (1.29) | 4.69 (1.22) | 4.63 (1.29) | 4.52 (1.28) |

Q: Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements? 1-7 scale, where 1 = “Strongly disagree”, and 7 = “Strongly agree”. ^This item was reverse coded. Original question wording: “The HSR has a poor reputation”.

Figure 9. Proportion of New Zealand participants who trusted, distrusted or were neutral towards the HSR.




*Q: Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements? I trust the HSR system: 1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".*

## Reasons for trust

### Australia

Of Australian participants that agreed they trusted the HSR (n = 726), the most common two reasons why across all population groups were "It helps me to choose healthier foods and drinks" (49 – 57%) and "It is easy, simple and quick to use" (49 – 62%) (Table 15). The Aboriginal and/or Torres Strait Islander group also commonly trusted the HSR as they believed it has a good reputation (49%), while 47 – 48% of the Low SES and General Population groups trust the HSR as it is familiar.

Table 15. Reasons Australian participants trust the Health Star Rating system.*

| | Aboriginal and/or Torres Strait Islander *n (%)* *n = 190* | Low SES *n (%)* *n = 147* | Multicultural *n (%)* *n = 165* | General Population *n (%)* *n = 224* |
|---|---|---|---|---|
| It helps me to choose healthier foods and drinks | 93 (48.9) | 83 (56.5) | 91 (55.2) | 114 (50.9) |
| It is easy, simple and quick to use | 93 (48.9) | 82 (55.8) | 86 (52.1) | 139 (62.1) |
| It has a good reputation | 91 (47.9) | 37 (25.2) | 57 (34.5) | 79 (35.3) |
| I trust food companies to give us accurate information | 71 (37.4) | 51 (34.7) | 51 (30.9) | 89 (39.7) |
| It is supported by or developed using research-based evidence | 66 (34.7) | 45 (30.6) | 55 (33.3) | 71 (31.7) |
| It is familiar | 64 (33.7) | 70 (47.6) | 63 (38.2) | 104 (46.4) |
| It is on products/brands I trust | 69 (36.3) | 43 (29.3) | 51 (30.9) | 76 (33.9) |
| I have no reason not to trust it | 36 (18.9) | 51 (34.7) | 53 (32.1) | 90 (40.2) |
| It is run by Government | 52 (27.4) | 19 (12.9) | 45 (27.3) | 46 (20.5) |
| Other | 0 (0.0) | 0 (0.0) | 1 (0.6) | 1 (0.4) |

*Q: What are the reasons you trust the Health Star Rating system?*
** Proportions may not add up to 100% as participants could select multiple responses.*

### New Zealand

Of New Zealand participants that agreed they trusted the HSR (n = 486), the most common two reasons selected across all population groups were “It helps me to choose healthier foods and drinks” (47 – 55%) and “It is easy, simple and quick to use” (49 – 66%) (Table 16).

Table 16. Reasons New Zealand participants trust the Health Star Rating system.

| | Māori *n (%)* *n = 128* | Pacific Peoples *n (%)* *n = 117* | Low SES *n (%)* *n = 122* | General Population *n (%)* *n = 119* |
|---|---|---|---|---|
| It is easy, simple and quick to use | 73 (57.0) | 57 (48.7) | 80 (65.6) | 91 (56.2) |
| It helps me to choose healthier foods and drinks | 65 (50.8) | 64 (54.7) | 65 (53.3) | 76 (46.9) |
| It is on products/brands I trust | 42 (32.8) | 43 (36.8) | 50 (41.0) | 61 (37.7) |
| It is familiar | 56 (43.8) | 42 (19.8) | 54 (44.3) | 64 (39.5) |
| I have no reason not to trust it | 55 (43.0) | 41 (35.0) | 51 (41.8) | 67 (41.4) |
| I trust food companies to give us accurate information | 47 (36.7) | 47 (40.2) | 53 (43.4) | 63 (38.9) |
| It has a good reputation | 46 (35.9) | 37 (31.6) | 46 (37.7) | 53 (32.7) |
| It is supported by or developed using research-based evidence | 44 (34.4) | 37 (31.6) | 35 (28.7) | 48 (29.6) |
| It is run by Government | 15 (11.7) | 11 (9.4) | 12 (9.8) | 27 (16.7) |
| Other | 0 (0.0) | 0 (0.0) | 1 (0.8) | 0 (0.0) |

## Reasons for Distrust

### Australia

Of participants who distrusted the HSR in Australia (n = 203), the most common reasons why across all groups included “I am concerned that food company’s influence it” (46 – 67%), “I don’t agree with the overall health star ratings given to some foods and drinks” (47 – 56%) and “It doesn’t consider everything that influences a food or drink’s healthiness” (44 – 52%) (Table 17). In addition, a common reason for distrust for the Aboriginal and/or Torres Strait Islander and the General Population groups was “It doesn’t provide me with all the information I want when choosing a food or drink” (47 – 50%), while 44% of the Multicultural group also selected “I don’t understand how it is calculated” (Table 17). The absolute number of participants responding to this question was low and caution should be used in interpreting these numbers.

Table 17. Reasons Australian participants don't trust the Health Star Rating system.*

| | Aboriginal and/or Torres Strait Islander *n (%)* *n = 34* | Low SES *n (%)* *n = 61* | Multicultural *n (%)* *n = 27* | General Population *n (%)* *n = 81* |
|---|---|---|---|---|
| I am concerned that food company's influence it | 18 (52.9) | 28 (45.9) | 12 (44.4) | 54 (66.7) |
| I don't agree with the overall health star ratings given to some foods and drinks | 16 (47.1) | 29 (47.5) | 14 (51.9) | 45 (55.6) |
| It doesn't consider everything that influences a food or drink's healthiness | 15 (44.1) | 30 (49.2) | 14 (51.9) | 39 (48.1) |
| It doesn't provide me with all the information I want when choosing a food or drink | 17 (50.0) | 17 (27.9) | 6 (22.2) | 38 (46.9) |
| I don't understand how it is calculated | 12 (35.3) | 24 (39.3) | 12 (44.4) | 22 (27.2) |
| I don't believe it is controlled by the Government | 7 (20.6) | 10 (16.4) | 2 (7.4) | 21 (25.9) |
| I don't know how to use it | 7 (20.6) | 6 (9.8) | 1 (3.7) | 4 (4.9) |
| I don't trust it because people I know don't trust it | 6 (2.2) | 5 (8.2) | 0 (0.0) | 8 (9.9) |
| Other | 2 (5.9) | 1 (1.6) | 0 (0.0) | 1 (1.2) |

*Q: What are the reasons you don't trust the Health Star Rating system?*
** Proportions may not add up to 100% as participants could select multiple responses.*

**New Zealand**

Of those in New Zealand that distrusted the HSR (n = 193), the most common reasons selected varied across groups. The most selected reason in the General Population for distrust was "I don't agree with the overall health star ratings given to some foods and drinks" (61%). The most common reason selected within the Māori and Low SES groups was "It doesn't consider everything that influences a food or drink's healthiness (56% and 41%, respectively). The most common reasons selected by the Pacific Peoples group were "I am concerned that food company's influence it" and "I don't understand how it is calculated" (52%) (Table 18).

Table 18. Reasons New Zealand participants don't trust the Health Star Rating system.

| | Māori *n (%)* *n = 52* | Pacific Peoples *n (%)* *n = 33* | Low SES *n (%)* *n = 49* | General Population *n (%)* *n = 59* |
|---|---|---|---|---|
| I don't agree with the overall health star ratings given to some foods and drinks | 21 (40.4) | 12 (36.4) | 19 (38.8) | 36 (61.0) |
| It doesn't consider everything that influences a food or drink's healthiness | 29 (55.8) | 11 (33.3) | 20 (40.8) | 32 (54.2) |
| I am concerned that food company's influence it | 26 (50.0) | 17 (51.5) | 18 (36.7) | 30 (50.8) |
| It doesn't provide me with all the information I want when choosing a food or drink | 26 (50.0) | 10 (30.3) | 15 (30.6) | 21 (35.6) |
| I don't understand how it is calculated | 18 (34.6) | 17 (51.5) | 15 (30.6) | 21 (35.6) |
| I don't know how to use it | 6 (11.5) | 12 (36.4) | 6 (12.2) | 5 (8.5) |
| I don't believe it is controlled by the Government | 7 (13.5) | 2 (6.1) | 6 (12.2) | 9 (15.3) |
| I don't trust it because people I know don't trust it | 2 (3.8) | 5 (15.2) | 4 (8.2) | 4 (6.8) |
| Other | 1 (1.9) | 1 (3.0) | 3 (6.1) | 3 (5.1) |

*Q: What are the reasons you don't trust the Health Star Rating system?*
** Proportions may not add up to 100% as participants could select multiple responses.*

# Understanding of the HSR

## Perceived Knowledge

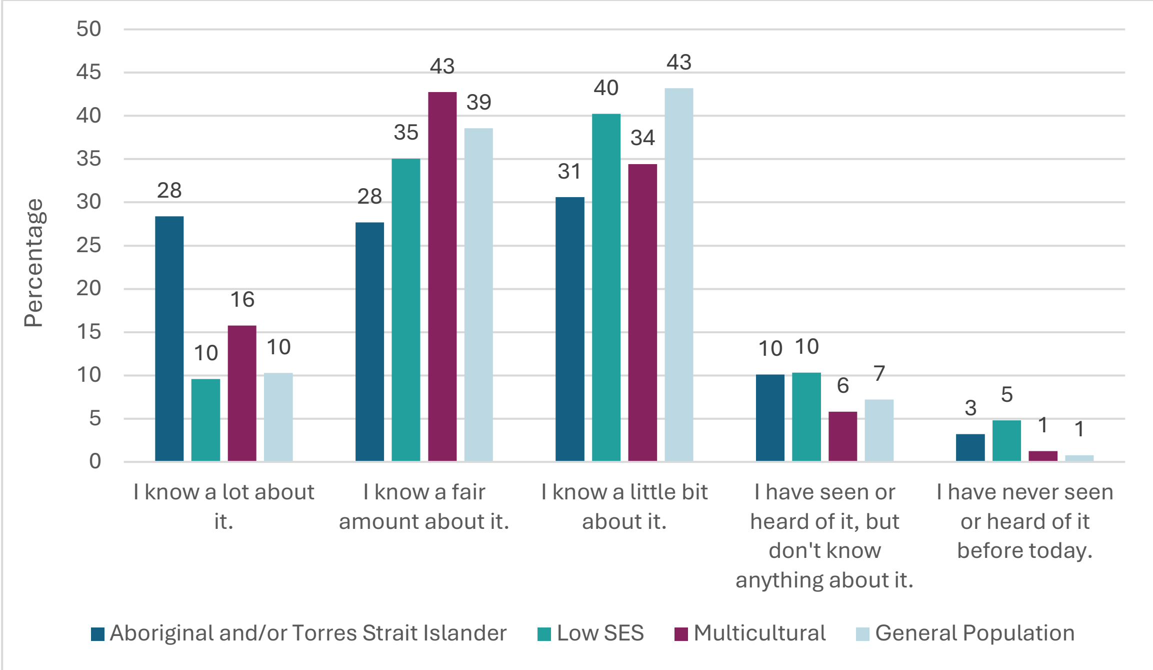
**Australia**

Participants were asked to self-rate their knowledge of the HSR. Around half of each Focus Population said that they knew at least a little bit about it (85 – 93%) (Figure 10). Only 1 – 5 % of each group reported never having seen or heard of it before the survey (Figure 10). A Chi-Square Test of Independence was performed to assess the relationship between self-rated HSR knowledge and group. There was a significant relationship between the two variables (p = < .001)[9]. A greater proportion of the Aboriginal and/or Torres Strait Islander group (28%) reported "I know a lot about it" compared to the General Population (10%), while a smaller proportion of the

[9] $X^2$ (12, N = 1179) = 77.746, $p < .001$, Cramer's V = .148

Aboriginal and/or Torres Strait Islander group reported knowing a fair amount about it (28%) or a little bit about it (31%) compared to the General Population (37% and 43%, respectively) (p = < .001). There were a greater proportion of the Low SES group that reported never seeing or hearing about the HSR prior to the survey (5%) relative to the General Population (1%) (p = < .001).

Figure 10. Perceived Health Star Rating knowledge of Australian participants.

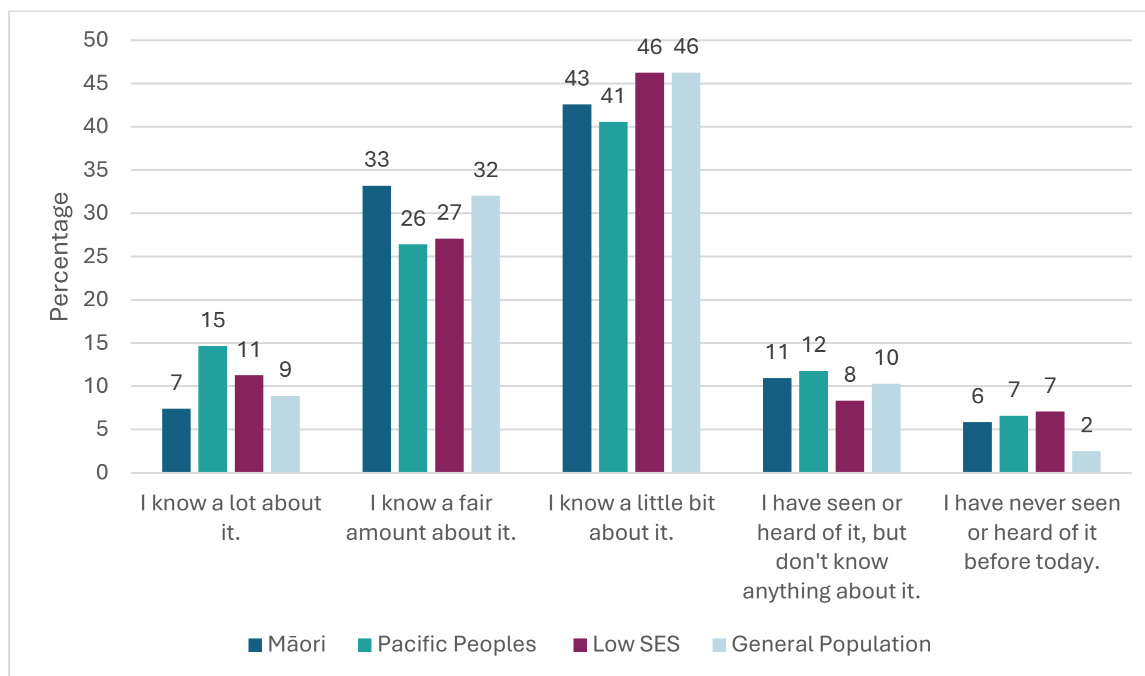



*Q: How much, if anything, do you believe you know about the Health Star Rating?*

### New Zealand

The majority of each population group (82 – 87%) self-rated that they knew at least a little bit about the HSR (Figure 11). Only 2 – 7% of each group reported never having seen or heard of it before the survey. A Chi-Square Test of Independence was performed to assess the relationship between self-rated HSR knowledge and group. There was no significant relationship between the two variables ($p$ = .098).

Figure 11. Perceived Health Star Rating knowledge of New Zealand participants.




*Q: How much, if anything, do you believe you know about the Health Star Rating?*

## Understanding – Comparing Products

**Australia**

When asked to identify if the HSR could be used to decide which is the healthier product between two foods/pairs of images, the majority of participants across all groups (69 – 79%) correctly identified that the HSR can be used to compare food products that are similar. Between 12 – 17% incorrectly selected it couldn't be used to compare similar food products and between 9 – 14% didn't know. However, only 10 – 16% of participants across all groups correctly identified that the HSR cannot be used to compare dissimilar food products (e.g. baked beans vs bread, and yoghurt vs juice). Between 52 – 72% incorrectly selected that the HSR can be used to compare food products that were dissimilar and 18 – 33% didn't know.

Chi-Square Tests of Independence were performed to assess differences between each Focus Population and the General Population. There were no significant differences between the groups in understanding that similar foods can be compared using the HSR (p = .200). A greater proportion of the Aboriginal and/or Torres Strait Islander group incorrectly selected that the HSR can be used to compare dissimilar products (72%), relative to the General Population (55%) (p <.001)[10]. A smaller proportion of the General Population were unsure whether the HSR could be used to compare dissimilar products (31%), relative to the Aboriginal and/or Torres Strait Islander group (18%) (Table 19).

[10] $X^2$ (6, N = 1179) = 30.260, *p* <.001, Cramer's V = .113

Table 19. Percentages of Australian participants who believe the HSR can be used to compare similar and dissimilar foods.

| | **Aboriginal and/or Torres Strait Islander** ***n (%)*** | **Low SES** ***n (%)*** | **Multicultural** ***n (%)*** | **General Population** ***n (%)*** |
|---|---|---|---|---|
| ***Similar food products*** | | | | |
| Yes, the Health Star Rating can be used to decide which of these food products is the healthier option (correct answer) | 219 (78.8) | 188 (69.4) | 181 (75.1) | 282 (72.5) |
| No, the Health Star Rating cannot be used to decide which of these food products is the healthier option (incorrect answer) | 33 (11.9) | 46 (17.0) | 39 (16.2) | 65 (16.7) |
| Don't know | 26 (9.4) | 37 (13.7) | 21 (8.7) | 42 (10.8) |
| ***Dissimilar food products*** | | | | |
| Yes, the Health Star Rating can be used to decide which of these food products is the healthier option (incorrect answer) | 201 (72.3) | 141 (52.0) | 151 (62.7) | 213 (54.8) |
| No, the Health Star Rating cannot be used to decide which of these food products is the healthier option (correct answer) | 28 (10.1) | 42 (15.5) | 31 (12.9) | 57 (14.7) |
| Don't know | 49 (17.6) | 88 (32.5) | 59 (24.5) | 119 (30.6) |

*Q: Can the Health Star Rating be used to decide which of these foods is healthier? If you are not sure please select 'Don't know'.*

### New Zealand

The majority of participants across all groups (63 – 70%) correctly identified that the HSR can be used to compare food products that are similar, while between 12 – 18% incorrectly selected it couldn't be used to compare similar food products and between 14 – 22% didn't know. However, only 8 – 16% of participants across all groups correctly identified that the HSR cannot be used to compare dissimilar food products (e.g. baked beans vs bread, and yoghurt vs juice). Between 50 – 62% incorrectly selected that the HSR can be used to compare food products that were dissimilar and 26 – 37% didn't know (Table 20).

Chi-Square Tests of Independence were performed to assess differences between each Focus Population and the General Population. There were no significant differences between the groups in understanding that similar foods can be compared using the HSR ($p = .137$). A smaller

proportion of the Low SES group chose incorrectly (8%) relative to the general population (16%) ($p$ = .023)[11].

Table 20. Percentages of New Zealand participants who believe the HSR can be used to compare similar and dissimilar foods.

| | Māori | Pacific Peoples | Low SES | General Population |
|---|---|---|---|---|
| **Similar food products** | | | | |
| Yes, the Health Star Rating can be used to decide which of these food products is the healthier option (correct answer) | 176 (68.8) | 133 (62.7) | 168 (70.0) | 192 (68.3) |
| No, the Health Star Rating cannot be used to decide which of these food products is the healthier option (incorrect answer) | 39 (15.2) | 33 (15.6) | 28 (11.7) | 51 (18.1) |
| Don't know | 41 (16.0) | 46 (21.7) | 44 (18.3) | 38 (13.5) |
| **Dissimilar food products** | | | | |
| Yes, the Health Star Rating can be used to decide which of these food products is the healthier option (incorrect answer) | 130 (50.8) | 131 (61.8) | 138 (57.5) | 141 (50.2) |
| No, the Health Star Rating cannot be used to decide which of these food products is the healthier option (correct answer) | 32 (12.5) | 25 (11.8) | 19 (7.9) | 44 (15.7) |
| Don't know | 94 (36.7) | 56 (26.4) | 83 (34.6) | 96 (34.2) |

*Q: Can the Health Star Rating be used to decide which of these foods is healthier? If you are not sure please select 'Don't know'.*

## General understanding questions

### Australia

Participants were asked to choose if general statements about the HSR system were true or false. Over half of participants in each group correctly understood that the HSR system is supported by government (54 – 74%) and the HSR system was developed by nutrition experts (49 – 69%). However, only a third of participants understood that the food industry cannot choose the star rating for their products (30 – 34%).

Chi-Square Tests of Independence were performed to assess differences between each Focus Population and the General Population for each statement. A greater proportion of the

[11] $X^2$ (6, N = 989) = 14.613, $p$ = .023, Cramer's V = .086

Aboriginal and/or Torres Strait Islander group (74%) understood the HSR system is supported by the government relative to the General Population (61%), while a greater proportion of the General Population group (32%) were unsure if the HSR system was supported by the government or not relative to the Aboriginal and/or Torres Strait Islander group (22%) (p <.001)[12]. A greater proportion of the Aboriginal and/or Torres Strait Islander group (69%) correctly understood the HSR system was developed by nutrition experts relative to the General Population (54%), while a greater proportion of the General Population were incorrect (14%) in their understanding of this relative to the Aboriginal and/or Torres Strait Islander group (5%) (p <.001)[13]. In addition, a greater proportion of the Low SES group were unsure if the HSR system was developed by nutrition experts (43%) relative to the General Population group (32%) (p <.001) (Table 21). There were no significant differences between groups for their understanding of "The food industry can choose the star rating their products show" (p = .216).

[12] $X^2$ (6, N = 1179) = 29.494, *p* <.001, Cramer's V = .112

[13] $X^2$ (6, N = 1179) = 41.961, *p* <.001, Cramer's V = .133

Table 21. Responses to true/false statements about the HSR system by Australian participants.

| | Aboriginal and/or Torres Strait Islander n (%) | | | Low SES n (%) | | | Multicultural n (%) | | | General Population n (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** |
| The Health Star Rating system is supported by the government (True) | 206 (74.1) | 11 (4.0) | 61 (21.9) | 145 (53.5) | 14 (5.2) | 112 (41.3) | 144 (59.8) | 12 (5.0) | 85 (35.3) | 238 (61.2) | 27 (6.9) | 124 (31.9) |
| The Health Star Rating system was developed by nutrition experts (True) | 193 (69.4) | 15 (5.4) | 70 (25.2) | 134 (49.4) | 20 (7.4) | 117 (43.2) | 135 (56.0) | 19 (7.9) | 87 (36.1) | 209 (53.7) | 56 (14.4) | 124 (31.9) |
| The food industry can choose the star rating their products show (False) | 87 (31.3) | 109 (39.2) | 82 (29.5) | 90 (33.2) | 80 (29.5) | 101 (37.3) | 71 (29.5) | 93 (38.6) | 77 (32.0) | 131 (33.7) | 133 (34.2) | 125 (31.1) |

*Q: Please tell us whether you think each statement is true or false. If you're not sure, please choose don't know.*

### New Zealand

Just under half of participants in each group correctly understood that the HSR system is supported by government (43 – 50%) and the HSR system was developed by nutrition experts (43 – 50%). Around a quarter of participants understood that the food industry cannot choose the star rating for their products (22 – 30%) (Table 22). Chi-Square Tests of Independence were performed to assess differences between each Focus Population and the General Population for each statement. There were no significant differences between groups in their understanding of any of the statements[14].

Table 22. Responses to true/false statements about the HSR system by New Zealand participants.

| | Māori | | | Pacific Peoples | | | Low SES | | | General Population | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** | ***Correct*** | ***Incorrect*** | ***Don't know*** |
| The Health Star Rating system is supported by the government. (True) | 117 (45.7) | 14 (5.5) | 125 (48.8) | 90 (42.5) | 13 (6.1) | 109 (51.4) | 110 (45.8) | 16 (6.7) | 114 (47.5) | 141 (50.2) | 19 (6.8) | 121 (43.1) |
| The Health Star Rating system was developed by nutrition experts. (True) | 111 (43.4) | 16 (6.3) | 129 (50.4) | 105 (49.5) | 12 (5.7) | 95 (44.8) | 112 (46.7) | 15 (6.3) | 113 (47.1) | 141 (50.2) | 18 (6.4) | 122 (43.4) |
| The food industry can choose the star rating their products show (False) | 75 (29.3) | 73 (28.5) | 108 (42.2) | 46 (21.7) | 75 (35.4) | 91 (42.9) | 59 (24.6) | 86 (35.8) | 95 (39.6) | 84 (29.9) | 85 (30.2) | 112 (39.9) |

*Q: Please tell us whether you think each statement is true or false. If you're not sure, please choose don't know.*

[14] "The Health Star Rating system is supported by the government" ($p$ = .676); "The Health Star Rating system was developed by nutrition experts" ($p$ = .778); "The food industry can choose the star rating their products show" ($p$ = .265).

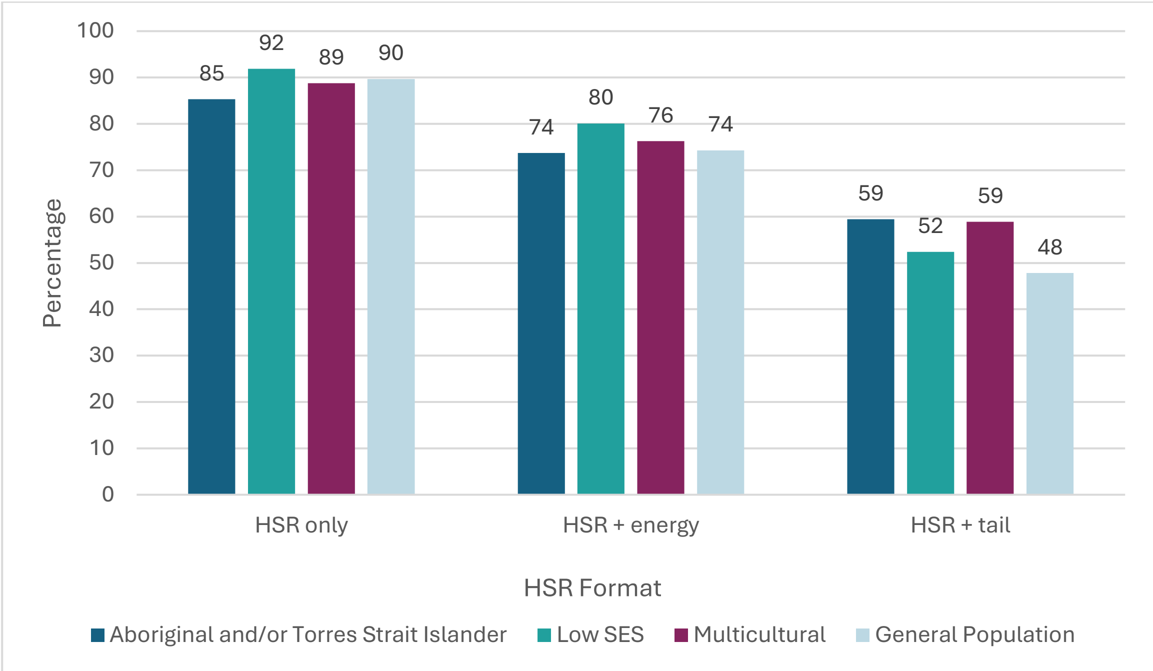
## Understanding – HSR Formats

Participants were presented with three pairs of HSR labels, with pairs of images in the same format (e.g. HSR only 3.5 stars vs HSR only 4 stars), and were asked to select which label would indicate an overall healthier product.

### Australia

For the HSR only label format, the majority of participants across Australian groups (85 – 92%) selected the correct label (higher star rating). Between 74 – 80% selected the correct label for the HSR + energy format and between 48 – 59% selected the correct label for the HSR + tail format (Figure 12).

Figure 12. Percentage of participants correctly selecting healthier HSR label by format




A Cochrane's Q[15] test was run for each Focus Population. Each test demonstrated that there was a statistically significant difference in the proportion of participants who selected the correct answer by HSR format[16]. For all Focus Populations, participants were more likely to correctly identify the healthier label in the HSR only condition compared to other formats (all $p$ values < .001 for all Focus Populations). Participants across all Focus Populations were also more likely to identify the healthier label in the HSR + energy format, compared to the HSR + tail format[17].

[15] Sample size was adequate to use the $\chi^2$-distribution approximation (Tate & Brown, 1970).

[16] With unsure coded as incorrect.

[17] $p$ = .001 for Aboriginal and/or Torres Strait Islander and Multicultural groups and $p$ = .002 for Low SES group.

Table 23. Percentage of Australian participants selecting healthier HSR label by HSR format and population group.

| | Aboriginal and/or Torres Strait Islander | | Low SES | | Multicultural | | General Population | |
|---|---|---|---|---|---|---|---|---|
| | **Correct** *n* (%) | **Incorrect** *n* (%) | **Correct** *n* (%) | **Incorrect** *n* (%) | **Correct** *n* (%) | **Incorrect** *n* (%) | **Correct** *n* (%) | **Incorrect** *n* (%) |
| **HSR only** | 237 (85.3) | 41 (14.7) | 249 (91.9) | 22 (8.1) | 214 (88.8) | 27 (11.2) | 349 (89.7) | 40 (10.3) |
| **HSR + energy icon** | 205 (73.7) | 73 (26.3) | 217 (80.1) | 54 (19.9) | 184 (76.3) | 57 (23.7) | 289 (74.3) | 100 (25.7) |
| **HSR + tail** | 165 (59.4) | 113 (40.6) | 142 (52.4) | 129 (47.6) | 142 (58.9) | 99 (41.1) | 186 (47.8) | 203 (52.2) |

*Q: Please select which label would indicate an overall healthier food product. Correct classified as selecting the label with a greater number of stars*

### New Zealand

For the HSR only label format, the majority of New Zealand participants across groups (86 – 90%) selected the correct label (higher star rating). Between 73 – 78% selected the correct label for the HSR + energy format and between 48 – 56% selected the correct label for the HSR + tail format (Figure 13).

A Cochrane's Q[18] test was run for each Focus Population. Each test demonstrated that there was a statistically significant difference in the proportion of participants in each Focus Populations who selected the correct answer by HSR formats[19]. For all Focus Populations, participants were more likely to correctly identify the healthier label in the HSR only condition compared to other formats (all $p$ values < .001 for all Focus Populations). Participants across all Focus Populations were also more likely to identify the healthier label in the HSR + energy format, compared to the HSR + tail format[20].

[18] Sample size was adequate to use the $\chi^2$-distribution approximation (Tate & Brown, 1970).

[19] With unsure coded as incorrect.

[20] $p$ = .004 for Māori, $p$ = .020 for Pacific Peoples and $p$ = .012 for Low SES group.

Figure 13. Percentage of New Zealand participants correctly selecting healthier HSR label by format.

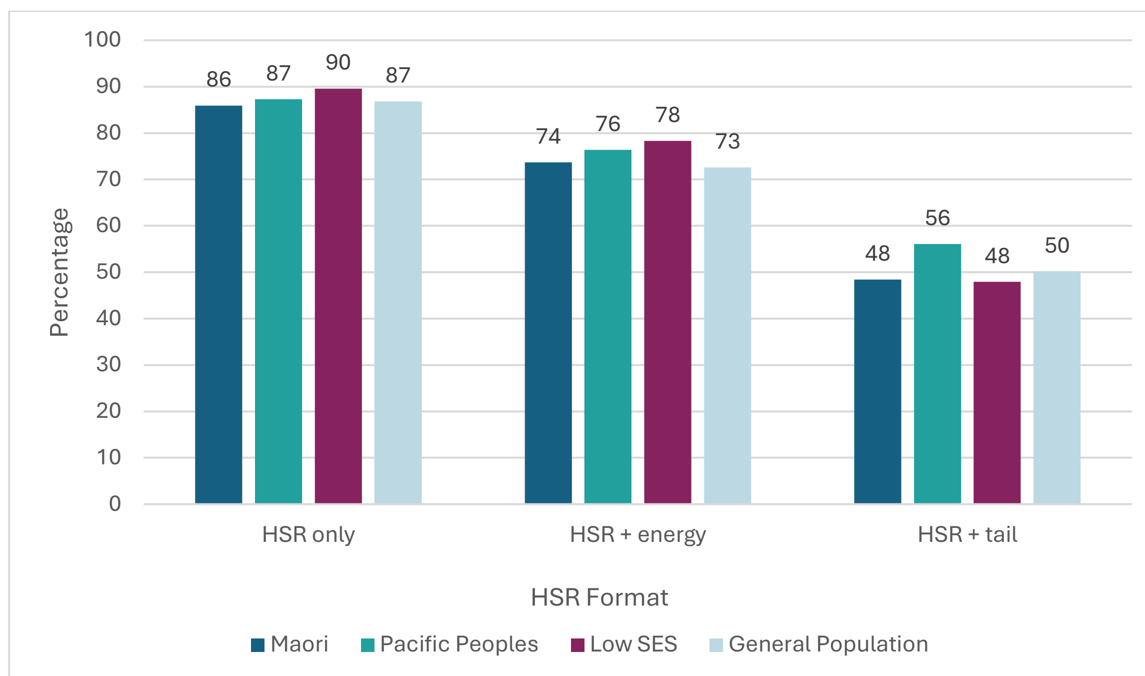



Table 24. Percentage of New Zealand participants selecting healthier HSR label by HSR format and population group.

| | Māori | | Pacific Peoples | | Low SES | | General Population | |
|---|---|---|---|---|---|---|---|---|
| | Correct *n* (%) | Incorrect *n* (%) | Correct *n* (%) | Incorrect *n* (%) | Correct *n* (%) | Incorrect *n* (%) | Correct *n* (%) | Incorrect *n* (%) |
| **HSR only** | 220 (85.9) | 36 (14.1) | 185 (87.3) | 27 (12.7) | 215 (89.6) | 25 (10.4) | 244 (86.8) | 37 (13.2) |
| **HSR + energy icon** | 190 (74.2) | 66 (25.8) | 162 (76.4) | 50 (23.6) | 188 (78.3) | 52 (21.7) | 204 (72.6) | 77 (27.4) |
| **HSR + tail** | 124 (48.4) | 132 (51.6) | 119 (56.1) | 93 (43.9) | 115 (47.9) | 125 (52.1) | 141 (50.2) | 140 (49.8) |

*Q: Please select which label would indicate an overall healthier food product. Correct classified as selecting the label with a greater number of stars*

## Factors predicting choosing the healthier label

A multi-level logistic regression was undertaken to investigate what factors predicted selecting the healthier HSR label across the three formats. See Appendix E for full results.

Choosing the healthier HSR label across all HSR formats was associated with the following characteristics (higher odds ratios, all $p$ values < .05):

- choosing the healthier label for the HSR only format (compared to HSR + energy and HSR + tail);

- spending less time choosing the healthier label;
- having a higher level of trust in the HSR; and
- having higher self-rated knowledge of the HSR.

## Ease of selecting the healthier label – HSR formats

Participants were then asked how easy/hard it was to choose the healthier HSR label for each format[21]. Across all HSR formats, on average consumers tended to agree that it was easy to select the healthier product, with mean scores above the midpoint of 4 (Table 25, Table 26*Table 26*).

### Australia

Table 25. Perceived ease of identifying the healthier option of a product pair by HSR label format and population group in Australia.

| | HSR format | Aboriginal and/or Torres Strait Islander Mean (±SD) | Low SES Mean (±SD) | Multicultural Mean (±SD) | General Population Mean (±SD) |
|---|---|---|---|---|---|
| Ease of identifying healthier option | HSR only | 6.08 (1.26) | 5.95 (1.25) | 5.86 (1.35) | 5.97 (1.28) |
| | HSR + energy | 5.88 (1.38) | 5.41 (1.51) | 5.46 (1.51) | 5.43 (1.51) |
| | HSR + tail | 5.62 (1.52) | 4.82 (1.73) | 5.02 (1.61) | 5.03 (1.66) |

*Q: How easy or hard was it to answer this question? 1-7 scale, where 1 = "Very hard", 4 = "Neutral", and 7 = "Very easy".*

### New Zealand

*Table 26. Perceived ease of identifying the healthier option of a product pair by HSR label format and population group in New Zealand.*

| | HSR format | Māori Mean (±SD) | Pacific Peoples Mean (±SD) | Low SES Mean (±SD) | General Population Mean (±SD) |
|---|---|---|---|---|---|
| Ease of identifying healthier option | HSR only | 5.7 (1.5) | 5.7 (1.5) | 5.9 (1.5) | 5.8 (1.4) |
| | HSR + energy | 5.1 (1.6) | 5.2 (1.6) | 5.4 (1.6) | 5.2 (1.6) |
| | HSR + tail | 4.9 (17) | 4.8 (1.6) | 5.1 (1.7) | 4.8 (1.7) |

*Q: How easy or hard was it to answer this question? 1-7 scale, where 1 = "Very hard", 4 = "Neutral", and 7 = "Very easy".*

## Factors predicting the ease of choosing the healthier label

A multi-level (hierarchical) regression was undertaken to investigate what factors predicted the perceived ease of selecting the healthier HSR label across the three formats. See Appendix F for full results.

The perceived ease of choosing the healthier HSR label was associated with the following characteristics (all $p$ values < .05):

[21] *Q: How easy or hard was it to answer this question? 1-7 scale, where 1 = "Very hard", 4 = "Neutral", and 7 = "Very easy".*

- spending less time choosing the healthier label;
- having a higher level of trust in the HSR;
- having Aboriginal and/or Torres Strait Islander cultural background;
- being tertiary educated (compared to not being tertiary educated);
- having higher confidence in using food labelling;
- having higher self-rated knowledge of the HSR;
- being older;
- being male (compared to female); and
- seeing the HSR only format compared to HSR energy or HSR tail;

## *Reasons for healthiness*

Participants were asked to select the reason they picked label A or label B as the healthier label for the HSR + energy and HSR + tail comparisons. Across all formats, participants who selected unsure were asked to select the reasons they were unsure.

#### *HSR Only*

**Australia**

Of those who were unsure which of the HSR only labels were healthier (n = 54), the most common reason for the Low SES, Multicultural and General Population groups was “I needed more nutrition information, like the ingredient list” (64 – 78%) (Table 27). For the Aboriginal and/or Torres Strait Islander group the top reasons for being unsure were “I can't say which is healthier because what is healthiest is different for everyone” (39%) and “There wasn’t much difference between the labels” (39%).

Table 27. Reasons Australian participants were unsure which of the HSR only labels were healthier.*

| | Aboriginal and/or Torres Strait Islander *n* (%) n = 13 | Low SES *n* (%) n = 9 | Multicultural *n* (%) n = 14 | General Population *n* (%) n = 18 |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 2 (15.4) | 7 (77.8) | 9 (64.3) | 13 (72.2) |
| I needed to know what product the label was on. | 1 (7.7) | 5 (55.6) | 2 (14.3) | 7 (38.9) |
| I can't say which is healthier because what is healthiest is different for everyone. | 5 (38.5) | 3 (33.3) | 6 (42.9) | 5 (27.8) |
| There wasn't much difference between the labels. | 5 (38.5) | 1 (11.1) | 3 (21.4) | 3 (16.7) |
| I don't understand the Health Star Rating. | 4 (30.8) | 3 (33.3) | 1 (7.1) | 1 (5.6) |
| Other | 1 (7.7) | 0 (0.0) | 0 (0.0) | 3 (16.7) |

*Q: Why were you uncertain which label was healthier?*
**Proportions may not add up to 100% as participants could select multiple responses.*

### New Zealand

Of those who were unsure which of the HSR only labels were healthier (n = 62), the most common reason for the Māori, Low SES and the General Population groups was "I needed more nutrition information, like the ingredient list" (50 – 63%) (Table 28). For the Pacific Peoples group, the top reason for being unsure was "I don't understand the Health Star Rating" (46%).

Table 28. Reasons New Zealand participants were unsure which of the HSR only labels were healthier.

| | Māori *n* (%) n = 20 | Pacific Peoples *n* (%) n = 13 | Low SES *n* (%) n = 13 | General Population *n* (%) n = 16 |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 10 (50.0) | 4 (30.8) | 8 (61.5) | 10 (62.5) |
| I needed to know what product the label was on. | 9 (45.0) | 3 (23.1) | 4 (30.8) | 7 (43.8) |
| I can't say which is healthier because it changes for each person. | 9 (45.0) | 2 (15.4) | 3 (23.1) | 2 (12.5) |
| There wasn't much difference between the labels. | 3 (15.0) | 5 (38.5) | 5 (38.5) | 2 (12.5) |
| I don't understand the Health Star Rating. | 3 (15.0) | 6 (46.2) | 3 (23.1) | 5 (31.3) |
| Other | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |

*Q: Why were you uncertain which label was healthier?*

*HSR + Energy*

**Australia**

When asked why they chose their label as healthier from a set of predetermined response options, the majority of participants in each group, regardless of choosing correctly or incorrectly, reported that they looked at the amount of energy and stars (Table 29). Similar proportions of participants choose correctly and incorrectly when using the stars and energy.

Table 29. Elements of the HSR label Australian participants used to choose the healthier HSR + energy label.

| | Aboriginal and/or Torres Strait Islander *n* (%) | | Low SES *n* (%) | | Multicultural *n* (%) | | General Population *n* (%) | |
|---|---|---|---|---|---|---|---|---|
| | Correct *n = 182* | Incorrect *n = 47* | Correct *n = 197* | Incorrect *n = 25* | Correct *n = 164* | Incorrect *n = 29* | Correct *n = 204* | Incorrect *n = 40* |
| I only looked at the amount of energy | 12 (6.6) | 14 (29.8) | 9 (4.6) | 8 (32.0) | 6 (3.7) | 8 (27.6) | 8 (3.9) | 13 (32.5) |
| I only looked at the number of stars | 41 (22.5) | 2 (4.3) | 55 (27.9) | 3 (12.0) | 43 (26.2) | 4 (13.8) | 60 (29.4) | 4 (10.0) |
| I looked at the amount of energy and the number of stars | 128 (70.3) | 31 (66.0) | 133 (67.5) | 14 (56.0) | 115 (70.1) | 17 (58.6) | 134 (65.7) | 23 (57.5) |
| Other | 1 (0.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (1.0) | 0 (0.0) |

*Q: Why did you choose this as the healthier label?*

Of the Australian participants who were unsure which of the HSR + energy labels were healthier (n = 96), the most common reason for being unsure across all groups was “I needed more nutrition information, like the ingredient list” (41 – 59%) (Table 30).

Table 30. Reasons Australian participants were unsure which of the HSR + energy labels were healthier.*

| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** ***n = 22*** | **Low SES** ***n*** **(%)** ***n = 23*** | **Multicultural** ***n*** **(%)** ***n = 24*** | **General Population** ***n (%)*** ***n = 27*** |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 9 (40.9) | 13 (56.5) | 14 (58.3) | 16 (59.3) |
| I needed to know what product the label was on. | 4 (18.2) | 7 (30.4) | 7 (29.2) | 11 (40.7) |
| The amount of energy didn't match the star rating on each label. | 4 (18.2) | 6 (26.1) | 6 (25.0) | 11 (40.7) |
| I can't say which is healthier because what is healthiest is different for everyone. | 2 (9.1) | 6 (26.1) | 5 (20.8) | 12 (44.4) |
| There wasn't much difference between the labels. | 7 (31.8) | 3 (13.0) | 6 (25.0) | 3 (11.1) |
| I don't understand the Health Star Rating. | 7 (31.8) | 5 (21.7) | 1 (4.2) | 4 (14.8) |
| Other | 0 | 0 | 1 (4.2) | 3 (11.1) |

*Q: Why were you uncertain which label was healthier?*

** Proportions may not add up to 100% as participants could select multiple responses.*

### New Zealand

When probed for what component(s) of the HSR + energy label they used to decide which was healthier, the majority of participants in each group, regardless of choosing correctly or incorrectly, reported that they looked at the amount of energy and stars (Table 31).

Table 31. Elements of the HSR label New Zealand participants used to choose the healthier HSR + energy label.

| | Māori n (%) | | Pacific Peoples n (%) | | Low SES n (%) | | General Population n (%) | |
|---|---|---|---|---|---|---|---|---|
| | Correct *n = 171* | Incorrect *n = 26* | Correct *n = 147* | Incorrect *n = 24* | Correct *n = 151* | Incorrect *n = 22* | Correct *n = 124* | Incorrect *n = 22* |
| I only looked at the amount of energy | 10 (5.8) | 12 (46.2) | 6 (4.1) | 5 (20.8) | 9 (6.0) | 6 (27.3) | 5 (4.0) | 7 (31.8) |
| I only looked at the number of stars | 40 (23.4) | 2 (7.7) | 48 (32.7) | 2 (8.3) | 40 (26.5) | 2 (9.1) | 32 (25.8) | 3 (13.6) |
| I looked at the amount of energy and the number of stars | 121 (70.8) | 11 (42.3) | 93 (63.3) | 16 (66.7) | 99 (65.6) | 14 (63.6) | 86 (69.4) | 12 (54.5) |
| Other | 0 (0.0) | 1 (3.8) | 0 (0.0) | 1 (0.0) | 3 (2.0) | 0 (0.0) | 1 (0.8) | 0 (0.0) |

*Q: Why did you choose this as the healthier label?*

Of the New Zealand participants who were unsure which of the HSR + energy labels were healthier (n = 110), the most common reason for being unsure across the Māori, Low SES and the General Population groups was “I needed more nutrition information, like the ingredient list” (56 – 69%) (Table 32). The most common reason for the Pacific Peoples group was “I don’t understand the Health Star Rating” (29%).

Table 32. Reasons New Zealand participants were unsure which of the HSR + energy labels were healthier.*

| | Māori *n* (%) *n = 33* | Pacific Peoples *n* (%) *n = 24* | Low SES *n* (%) *n = 26* | General Population *n (%)* *n = 27* |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 21 (63.6) | 6 (25.0) | 18 (69.2) | 15 (55.5) |
| I needed to know what product the label was on. | 15 (45.5) | 2 (8.3) | 7 (26.9) | 6 (22.2) |
| The amount of energy didn't match the star rating on each label. | 4 (12.1) | 6 (25.0) | 7 (26.9) | 9 (33.3) |
| I can't say which is healthier because what is healthiest is different for everyone. | 17 (51.5) | 5 (20.8) | 8 (30.8) | 3 (11.1) |
| There wasn't much difference between the labels. | 5 (15.2) | 1 (4.2) | 7 (26.9) | 4 (14.8) |
| I don't understand the Health Star Rating. | 9 (27.3) | 7 (29.2) | 5 (19.2) | 7 (25.9) |
| Other | 1 (3.0) | 2 (8.3) | 0 (0.0) | 0 (0.0) |

*Q: Why were you uncertain which label was healthier?*
** Proportions may not add up to 100% as participants could select multiple responses.*

*HSR + Tail*

**Australia**

When probed for what component(s) of the HSR + tail label they used to decide which was healthier, over half of participants in each group reported that they looked at the tail and star rating (58 – 61%). Similar proportions of participants choose correctly and incorrectly when using the stars and tail across groups (Table 33).

Table 33. Element of the HSR label Australian participants used to choose the healthier HSR + tail label.

| | Aboriginal and/or Torres Strait Islander *n* (%) | | Low SES *n* (%) | | Multicultural *n* (%) | | General Population *n* (%) | |
|---|---|---|---|---|---|---|---|---|
| | Correct *n = 143* | Incorrect *n = 80* | Correct *n = 130* | Incorrect *n = 84* | Correct *n = 128* | Incorrect *n = 60* | Correct *n = 129* | Incorrect *n = 103* |
| I only looked at the nutrient information (e.g. sugar, fat, sodium) | 10 (7.0) | 28 (35.0) | 11 (8.5) | 32 (38.1) | 7 (5.5) | 26 (43.3) | 7 (5.4) | 29 (28.2) |
| I only looked at the number of stars | 39 (27.3) | 10 (12.5) | 39 (30.0) | 4 (4.8) | 43 (33.6) | 1 (1.7) | 50 (38.8) | 8 (7.8) |
| I looked at the nutrient information (e.g. sugar, fat, sodium) and the number of stars | 93 (65.0) | 42 (52.5) | 80 (61.5) | 46 (54.8) | 77 (60.2) | 32 (53.3) | 70 (54.3) | 66 (64.1) |
| Other | 1 (0.7) | 0 (0.0) | 0 (0.0) | 2 (2.4) | 1 (0.8) | 1 (1.7) | 2 (1.6) | 0 (0.0) |

*Q: Why did you choose this as the healthier label?*

Of the participants who were unsure which of the HSR + tail labels were healthier (n = 127), the most common reason reported by the Low SES, Multicultural and General Population groups was “The amount of nutrients (e.g. sugar, fat, sodium) didn’t match the star rating” (59 – 62%) (Table 34). The most common response for the Aboriginal and/or Torres Strait Islander group was “I can't say which is healthier because what is healthiest is different for everyone” (39%).

Table 34. Reasons Australian participants were unsure which of the HSR + tail labels were healthier.*

| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** ***n = 28*** | **Low SES** ***n (%)*** ***n = 31*** | **Multicultural** ***n*** **(%)** ***n = 29*** | **General Population** ***n (%)*** ***n = 39*** |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 7 (25.0) | 6 (19.4) | 9 (31.0) | 15 (38.5) |
| I needed to know what product the label was on. | 9 (32.1) | 5 (16.1) | 5 (17.2) | 8 (20.5) |
| The amount of energy didn't match the star rating on each label. | 4 (14.3) | 5 (16.1) | 4 (13.8) | 6 (15.4) |
| The amount of nutrients (e.g. sugar, fat, sodium) didn't match the star rating. | 5 (17.9) | 19 (61.3) | 18 (62.1) | 23 (59.0) |
| I can't say which is healthier because what is healthiest is different for everyone. | 11 (39.3) | 12 (38.7) | 8 (27.6) | 17 (43.6) |
| There wasn't much difference between the labels. | 4 (14.3) | 4 (12.9) | 2 (6.9) | 4 (10.3) |
| I don't understand the Health Star Rating. | 7 (25.0) | 4 (12.9) | 1 (3.4) | 4 (10.3) |
| Other | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (5.1) |

*Q: Why were you uncertain which label was healthier?*

** Proportions may not add up to 100% as participants could select multiple responses.*

**New Zealand**

When probed for what component(s) of the HSR + tail label they used to decide which was healthier, over half of participants in each group reported that they used the tail and star rating to make their decision (54 – 60%). Similar proportions of participants choose correctly and incorrectly when using the stars and tail across (Table 35).

Table 35. Element of the HSR label New Zealand participants used to choose the healthier HSR + tail label.

| | Māori *n* (%) | | Pacific Peoples *n* (%) | | Low SES *n* (%) | | General Population *n (%)* | |
|---|---|---|---|---|---|---|---|---|
| | Correct *n = 112* | Incorrect *n = 93* | Correct *n = 109* | Incorrect *n = 61* | Correct *n = 88* | Incorrect *n = 80* | Correct *n = 82* | Incorrect *n = 58* |
| I only looked at the nutrient information (e.g. sugar, fat, sodium) | 8 (7.1) | 31 (33.3) | 11 (10.1) | 21 (34.4) | 9 (10.2) | 29 (36.3) | 8 (9.8) | 20 (34.5) |
| I only looked at the number of stars | 41 (36.6) | 2 (2.2) | 43 (39.4) | 3 (4.9) | 27 (30.7) | 1 (1.3) | 25 (30.5) | 4 (6.9) |
| I looked at the nutrient information (e.g. sugar, fat, sodium) and the number of stars | 62 (55.4) | 59 (63.4) | 54 (49.5) | 37 (60.7) | 51 (58.0) | 50 (62.5) | 48 (58.5) | 33 (56.9) |
| Other | 1 (0.9) | 1 (1.1) | 1 (0.9) | 0 (0.0) | 1 (1.1) | 0 (0.0) | 1 (1.2) | 1 (1.7) |

*Q: Why did you choose this as the healthier label?*

Of the participants who were unsure which of the HSR + tail labels were healthier (n = 114), the most common response for the Māori group was “I can't say which is healthier because what is healthiest is different for everyone” (56%) (Table 36). The most common reason for the Pacific Peoples group was “I don’t understand the Health Star Rating” (44%). The most common reason for the Low SES and General Population groups was “The amount of nutrients (e.g. sugar, fat, sodium) didn’t match the star rating” (55 – 58%).

Table 36. Reasons New Zealand participants were unsure which of the HSR + tail labels were healthier.

| | Māori *n* (%) *n = 25* | Pacific Peoples *n* (%) *n = 25* | Low SES *n* (%) *n = 31* | General Population *n (%)* *n = 33* |
|---|---|---|---|---|
| I needed more nutrition information, like the ingredient list. | 12 (48.0) | 3 (12.0) | 11 (35.5) | 7 (21.2) |
| I needed to know what product the label was on. | 7 (28.0) | 2 (8.0) | 10 (32.3) | 7 (21.2) |
| The amount of energy didn't match the star rating on each label. | 1 (4.0) | 6 (24.0) | 4 (12.9) | 12 (36.4) |
| The amount of nutrients (e.g. sugar, fat, sodium) didn't match the star rating. | 6 (24.0) | 10 (40.0) | 17 (54.8) | 19 (57.6) |
| I can't say which is healthier because what is healthiest is different for everyone. | 14 (56.0) | 6 (24.0) | 9 (29.0) | 8 (24.2) |
| There wasn't much difference between the labels. | 2 (8.0) | 2 (8.0) | 4 (12.9) | 1 (3.0) |
| I don't understand the Health Star Rating. | 5 (20.0) | 11 (44.0) | 3 (9.7) | 6 (18.2) |
| Other | 3 (12.0) | 0 | 0 | 0 |

Q: Why were you uncertain which label was healthier?

## Attitudes – HSR Formats

Participants were asked to rate their level of agreement with several statements regarding their trust in the HSR labels presented and their satisfaction with the amount of information on that label. These questions were asked for each HSR format.

### Australia

Participants on average trusted the three different HSR formats, with scores all above the midpoint of 4 on a seven-point scale (Table 37).

Participants on average felt that all HSR formats provided them with enough information to make a healthy food choice, with average scores all above the midpoint of four on seven point scale in terms of agreement with the statement "This label provides me with the information I need to make a healthy food choice" (Table 37).

Participants on average disagreed that the three HSR formats provided too much information, with average scores all well below the midpoint of 4 on a seven-point scale in agreement with the statement "This label provides too much information" (Table 37).

Table 37. Mean level of agreement in attitudes statements about the HSR system by Australian participants.

| | HSR format | Aboriginal and/or Torres Strait Islander Mean (±SD) | Low SES Mean (±SD) | Multicultural Mean (±SD) | General Population Mean (±SD) |
|---|---|---|---|---|---|
| I trust this label | *HSR only* | 5.19 (1.57) | 4.61 (1.55) | 4.83 (1.41) | 4.55 (1.64) |
| | *HSR + energy* | 5.18 (1.57) | 4.62 (1.51) | 4.95 (1.34) | 4.59 (1.60) |
| | *HSR + tail* | 5.17 (1.52) | 4.72 (1.48) | 5.00 (1.30) | 4.67 (1.50) |
| This label provides me with the information I need to make a healthy food choice | *HSR only* | 5.15 (1.63) | 4.43 (1.66) | 4.65 (1.58) | 4.38 (1.71) |
| | *HSR + energy* | 5.23 (1.68) | 4.54 (1.64) | 4.81 (1.44) | 4.67 (1.66) |
| | *HSR + tail* | 5.41 (1.42) | 4.98 (1.49) | 5.19 (1.26) | 4.93 (1.44) |
| This label provides too much information | *HSR only* | 3.65 (2.04) | 2.65 (1.61) | 3.25 (1.84) | 2.57 (1.63) |
| | *HSR + energy* | 3.80 (2.00) | 2.76 (1.53) | 3.58 (1.75) | 2.68 (1.53) |
| | *HSR + tail* | 3.88 (1.97) | 3.08 (1.67) | 3.75 (1.67) | 3.00 (1.68) |

*Q: Please indicate how much you agree or disagree with the following statements: 1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".*

**New Zealand**

Participants on average trusted the three different HSR formats, with scores all above the midpoint of 4 on a seven-point scale (Table 38).

Participants on average felt that all HSR formats provided them with enough information to make a healthy food choice, with average scores all above the midpoint of four on seven point scale in terms of agreement with the statement "This label provides me with the information I need to make a healthy food choice" (Table 38).

Participants on average disagreed that the three HSR formats provided too much information, with average scores all well below the midpoint of 4 on a seven-point scale in agreement with the statement "This label provides too much information" (Table 38).

Table 38. Mean level of agreement in attitudes statements about the HSR system by New Zealand participants.

| | HSR format | Māori Mean (±SD) | Pacific Peoples Mean (±SD) | Low SES Mean (±SD) | General Population Mean (±SD) |
|---|---|---|---|---|---|
| I trust this label | *HSR only* | 4.2 (1.6) | 4.5 (1.6) | 4.5 (1.6) | 4.4 (1.5) |
| | *HSR + energy* | 4.3 (1.6) | 4.5 (1.6) | 4.5 (1.5) | 4.5 (1.5) |
| | *HSR + tail* | 4.5 (1.5) | 4.7 (1.5) | 4.8 (1.5) | 4.7 (1.4) |
| This label provides me with the information I need to make a healthy food choice | *HSR only* | 4.0 (1.7) | 4.5 (1.8) | 4.5 (1.7) | 4.2 (1.7) |
| | *HSR + energy* | 4.1 (1.7) | 4.5 (1.7) | 4.5 (1.6) | 4.3 (1.7) |
| | *HSR + tail* | 4.7 (1.5) | 5.0 (1.5) | 5.0 (1.5) | 4.7 (1.4) |
| This label provides too much information | *HSR only* | 2.6 (1.6) | 2.9 (1.6) | 2.6 (1.5) | 2.6 (1.6) |
| | *HSR + energy* | 3.0 (1.6) | 3.1 (1.6) | 3.0 (1.5) | 2.8 (1.6) |
| | *HSR + tail* | 3.0 (1.6) | 3.2 (1.7) | 3.1 (1.7) | 3.1 (1.7) |

Q: Please indicate how much you agree or disagree with the following statements: 1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree".

## Preference of HSR format

Participants were asked to select the style they preferred the most out of the HSR only, HSR + energy and HSR + tail formats.

### Australia

Most participants in each group preferred the HSR + tail (76 – 84%) (Table 39). There was much lower preference for the HSR only (10 – 15%) and the HSR + energy (6 – 10%).

Table 39. Australian consumer preference of the HSR formats.

| | Aboriginal and/or Torres Strait Islander *n (%)* | Low SES *n (%)* | Multicultural *n (%)* | General Population *n (%)* |
|---|---|---|---|---|
| HSR only | 41 (14.7) | 27 (10.0) | 29 (12.0) | 43 (11.1) |
| HSR + energy | 25 (9.0) | 17 (6.3) | 16 (6.6) | 37 (9.5) |
| HSR + tail | 212 (76.3) | 227 (83.8) | 196 (81.3) | 309 (79.4) |

*Q: The Health Star Rating can be displayed in different ways. Please choose the style you prefer the most.*

The most common reason for preferring the HSR only or the HSR + energy format was "It is the easiest to understand" (59% and 51%, respectively). The most common reason for preferring the HSR + tail label was "It has the information I need to make a decision" (70%) (
Table 40).

Table 40. Reasons Australian participants selected their preferred label.*

| | HSR only *n (%)* *n = 140* | HSR + energy *n (%)* *n = 95* | HSR + tail *n (%)* *n = 944* |
|---|---|---|---|
| It is the easiest to recognise | 68 (48.6) | 31 (33.7) | 181 (19.2) |
| I trust this one the most | 24 (17.1) | 15 (15.8) | 248 (26.3) |
| It is the easiest to use while shopping | 64 (45.7) | 35 (36.8) | 213 (22.6) |
| It makes identifying the healthier product easier | 40 (28.6) | 30 (31.6) | 465 (49.3) |
| It is the easiest to understand | 82 (58.6) | 48 (50.5) | 338 (35.8) |
| It has the information I need to make a decision | 21 (15.0) | 38 (40.0) | 656 (69.5) |
| Other | 6 (4.3) | 1 (1.1) | 22 (2.3) |

* Proportions may not add up to 100% as participants could select multiple responses.

### New Zealand

Most participants in each group preferred the HSR + tail (76 – 83%) (Table 41). There was much lower preference for the HSR only (10 – 17%) and the HSR + energy (6 – 7%).

Table 41. New Zealand consumer preference of the HSR formats.

| | **Māori** *n (%)* | **Pacific Peoples** *n (%)* | **Low SES** *n (%)* | **General Population** *n (%)* |
|---|---|---|---|---|
| HSR only | 37 (14.5) | 22 (10.4) | 41 (17.1) | 41 (14.6) |
| HSR + energy | 15 (5.9) | 15 (7.1) | 16 (6.7) | 20 (7.1) |
| HSR + tail | 204 (79.7) | 175 (82.5) | 183 (76.3) | 220 (78.3) |

Q: The Health Star Rating can be displayed in different ways. Please choose the style you prefer the most.

The most common reason for preferring the HSR only or the HSR + energy format was "It is the easiest to understand" (59% and 53%, respectively). The most common reason for preferring the HSR + tail label was "It has the information I need to make a decision" (73%) (Table 42).

Table 42. Reasons New Zealand participants selected their preferred label.*

| | **HSR only** *n (%)* *n = 141* | **HSR + energy** *n (%)* *n = 66* | **HSR + tail** *n (%)* *n = 782* |
|---|---|---|---|
| It is the easiest to recognise | 64 (45.4) | 26 (39.4) | 139 (17.8) |
| I trust this one the most | 25 (17.7) | 19 (28.8) | 201 (25.7) |
| It is the easiest to use while shopping | 61 (43.3) | 23 (34.8) | 164 (21.0) |
| It makes identifying the healthier product easier | 44 (31.2) | 22 (33.3) | 400 (51.2) |
| It is the easiest to understand | 83 (58.9) | 35 (53.0) | 259 (33.1) |
| It has the information I need to make a decision | 33 (23.4) | 29 (43.9) | 572 (73.1) |
| Other | 5 (3.5) | 0 (0.0) | 24 (3.1) |

* Proportions may not add up to 100% as participants could select multiple responses.

## Use of the HSR

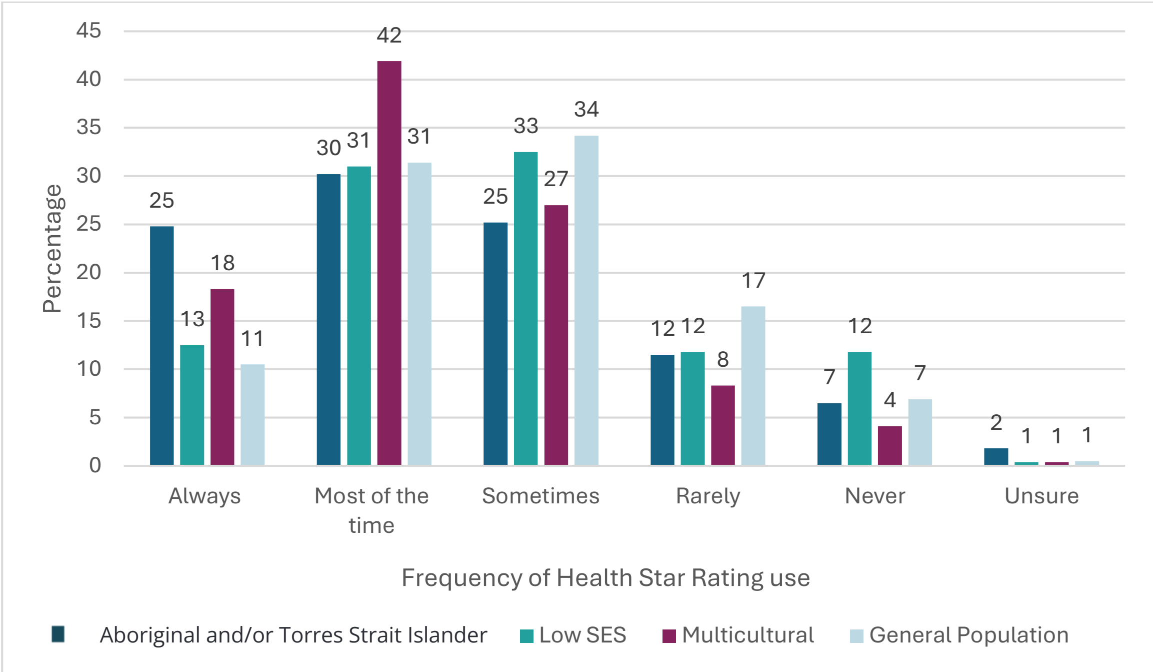
### *Frequency of Use*

All participants were asked how often they look for the HSR when shopping for food in the supermarket.

### Australia

Most participants (76 – 87%) reported using the HSR at least 'sometimes'. The most frequent response for the Aboriginal and/or Torres Strait Islander and the Multicultural groups was 'most of the time', while the most frequent response for the Low SES and the General Population groups was 'sometimes' (Figure 14).

Figure 14. Frequency of using the HSR when shopping by population group in Australia.




*Q: How often do you look for the Health Star Rating when shopping for food in the supermarket?*

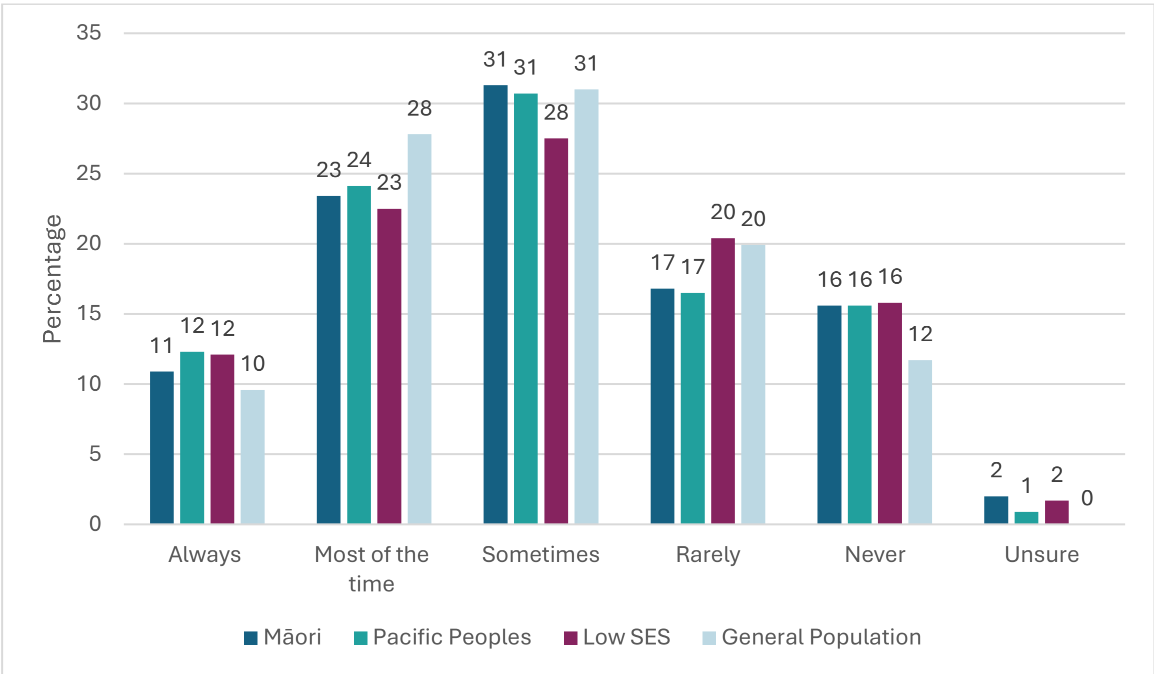
A chi-square test of independence was used to determine if there was a difference in the frequency of HSR use between the Focus Populations relative to the General Population. Due to small numbers on some of the categories, frequency of use was collapsed into the following three categories: 'always/most of the time', 'sometimes', and 'rarely/never'. Those who were unsure (n = 9) were excluded. A significant association was found between population group and use of HSR ($p$ < .001)[22]. A greater proportion of the Aboriginal and/or Torres Strait Islander group (55%) and the Multicultural group (60%) used the HSR always/most of the time compared to the General Population (42%). In addition, a greater proportion of the General Population (23%) used the HSR rarely/never relative to the Multicultural group (12%).

### New Zealand

Most participants (63 – 69%) reported using the HSR at least 'sometimes'. The most frequent response across all groups was 'sometimes' (Figure 15). A chi-square test of independence was used to determine if there was a difference in the frequency of HSR use between the Focus Populations relative to the General Population. Those who were unsure (n = 11) were excluded. No significant association was found between population group and use of HSR ($p$ = .907).

[22] $X^2$ (6, N = 1170) = 30.89, $p$ < .001, Cramer's V = .115

Figure 15. Frequency of using the HSR when shopping by population group in New Zealand




*Q: How often do you look for the Health Star Rating when shopping for food in the supermarket?*

## How the HSR is Used

**Australia**

Australian participants who reported that they at least rarely use the HSR when shopping (n = 1,083) were asked to identify which of several scenarios best described how they use the HSR. Participants could also select 'other' and provide their own description if desired. The most common response across all groups was 'I frequently look out for the Health Star Rating on food products I buy' (39 – 47%) (Table 43) Other responses fell into two main themes of 'I don't use it' or 'I look at other information first'.

Table 43. How Australian consumers self-report using the HSR.

| | Aboriginal and/or Torres Strait Islander (n = 255) n (%) | Low SES (n = 238) n (%) | Multicultural (n = 230) n (%) | General Population (n = 360) n (%) |
|---|---|---|---|---|
| I frequently look out for the Health Star Rating on food products I buy | 112 (43.9) | 95 (39.9) | 109 (47.4) | 141 (39.2) |
| I only look out for the Health Star Rating when I am buying a new food product or brand for the first time | 72 (28.2) | 61 (25.6) | 56 (24.3) | 83 (23.1) |
| I only look out for the Health Star Rating on certain types of food products | 68 (26.7) | 75 (31.5) | 59 (25.7) | 123 (34.2) |
| Other – please specify | 3 (1.2) | 7 (2.9) | 6 (2.6) | 13 (3.6) |

*Question: Which of the following scenarios best describes how you use the Health Star Rating?*

### New Zealand

Of the New Zealand participants who reported that they at least rarely use the HSR when shopping (n = 834), the most common response across all groups was 'I only look out for the Health Star Rating on certain types of food products ' (37 – 38%) (Table 44).

Other responses fell into two main themes of 'I don't use it' or 'I look at other information first'.

Table 44. How New Zealand consumers self-report using the HSR.

| | Māori (n = 211) n (%) | Pacific Peoples (n = 177) n (%) | Low SES (n = 198) n (%) | General Population (n = 248) n (%) |
|---|---|---|---|---|
| I frequently look out for the Health Star Rating on food products I buy | 73 (34.6) | 54 (30.5) | 62 (31.3) | 80 (32.3) |
| I only look out for the Health Star Rating when I am buying a new food product or brand for the first time | 47 (22.3) | 49 (27.7) | 51 (25.8) | 65 (26.2) |
| I only look out for the Health Star Rating on certain types of food products | 78 (37.0) | 65 (36.7) | 76 (38.4) | 91 (36.7) |
| Other – please specify | 13 (6.2) | 9 (5.1) | 9 (4.5) | 12 (4.8) |

Question: Which of the following scenarios best describes how you use the Health Star Rating?

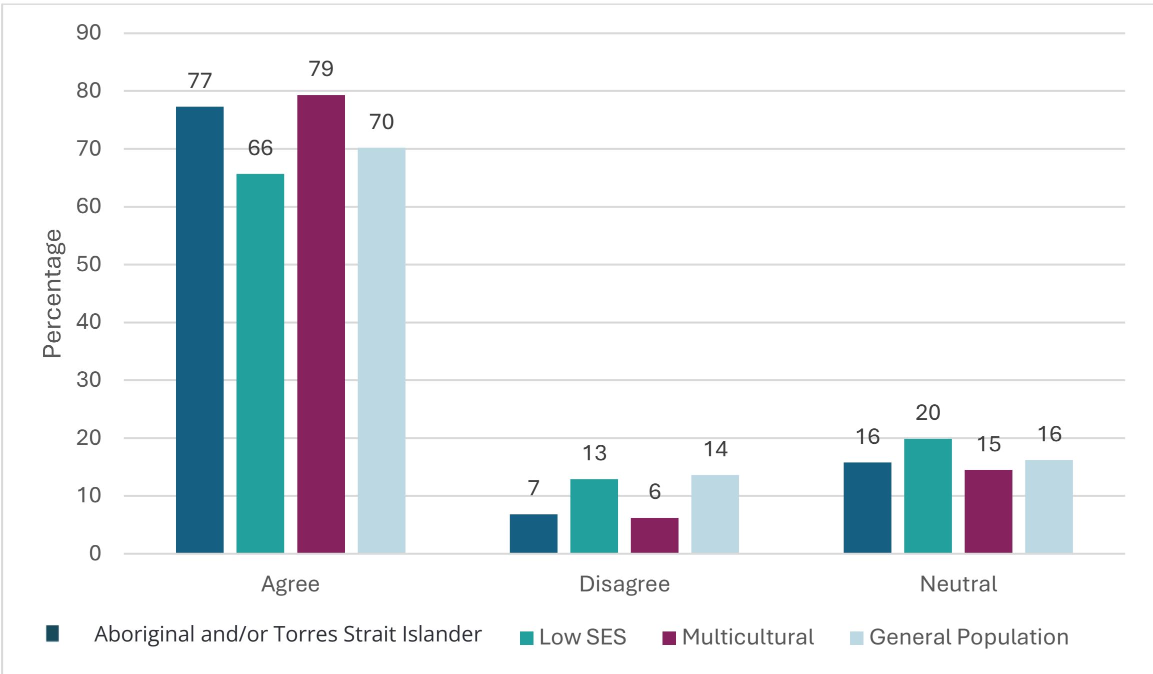
## Mandating the HSR

Participants were asked whether they would use the HSR more if it was on most food and drink products.

**Australia**

Most participants in each group agreed with this statement (66 – 79%), while 15 – 20% were neutral. Six to 7% of the Aboriginal and/or Torres Strait Islander and the Multicultural groups disagreed, while 13 – 14% of the Low SES and General Population groups disagreed (Figure 16).

Figure 16. Australian participant agreement with using the HSR more if it was on most food and drink products.

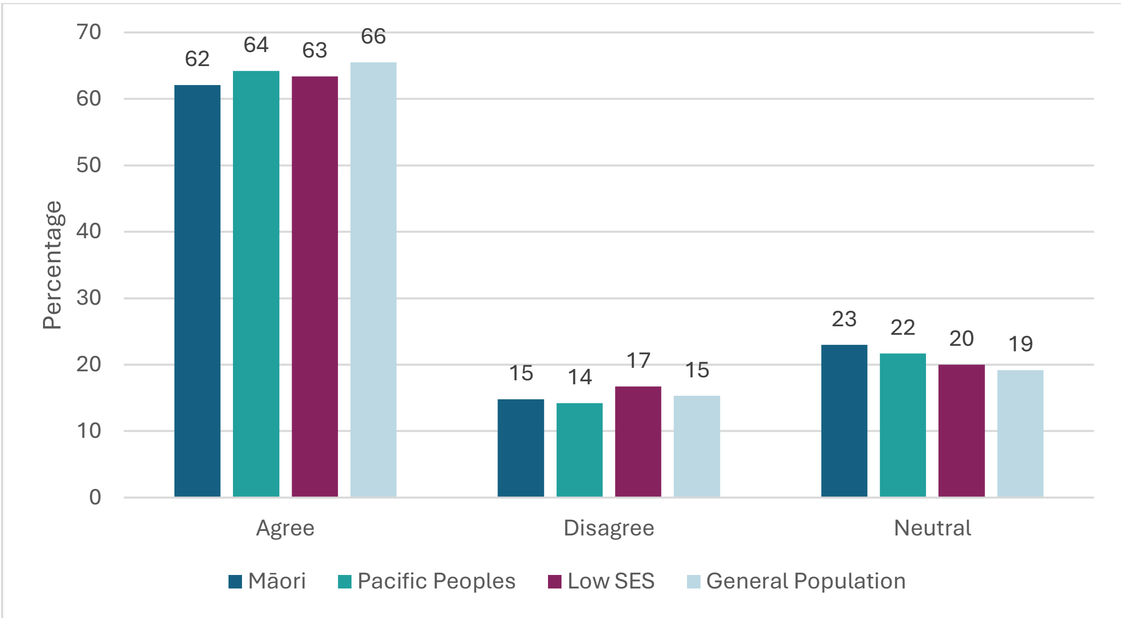



*Q: I would use the Health Star Rating more if it was on most food and drink products.*

**New Zealand**

Most participants in each group agreed with this statement (62 – 66%), while 19 – 23% were neutral, and 14 – 17% disagreed (Figure 17).

Figure 17. New Zealand participant agreement with using the HSR more if it was on most food and drink products.




*Q: I would use the Health Star Rating more if it was on most food and drink products.*

## Influence of the HSR on Purchasing Decisions

### Australia

Australian participants were asked if they had purchased a product that had a HSR in the past 3 months. Similar trends were seen across the different populations. Sixty six percent of the General Population reported purchasing a product with the HSR, 76% of the Multicultural group, 72% of the Aboriginal and/or Torres Strait Islander group, and 59% of the Low SES group also reported purchasing a product with the HSR (Table 45).

Table 45. Percentage of Australian participants self-reporting purchasing a product that had a HSR in the last 3 months.

| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** | **Low SES** ***n*** **(%)** | **Multicultural** ***n*** **(%)** | **General Population** ***n*** **(%)** |
|---|---|---|---|---|
| Yes | 200 (71.9) | 161 (59.4) | 184 (76.3) | 255 (65.6) |
| No | 27 (9.7) | 32 (11.8) | 14 (5.8) | 34 (8.7) |
| Unsure | 51 (18.3) | 78 (28.8) | 43 (17.8) | 100 (25.7) |

*Q: In the past three months, have you purchased a product that had a Health Star Rating on the label?*

Of the Australian participants that purchased a product displaying the HSR in the past 3 months (68%, n = 800), 67 – 81% said their purchasing decision was influenced by the HSR. The Aboriginal and/or Torres Strait Islander and the Multicultural groups had 80 – 81% agreeing the HSR impacted their choice, while 67 – 68% of the Low SES and General Population groups reported being influenced (Table 46).

Table 46. Percentage of Australian participants who's purchasing decision was influenced by the HSR.

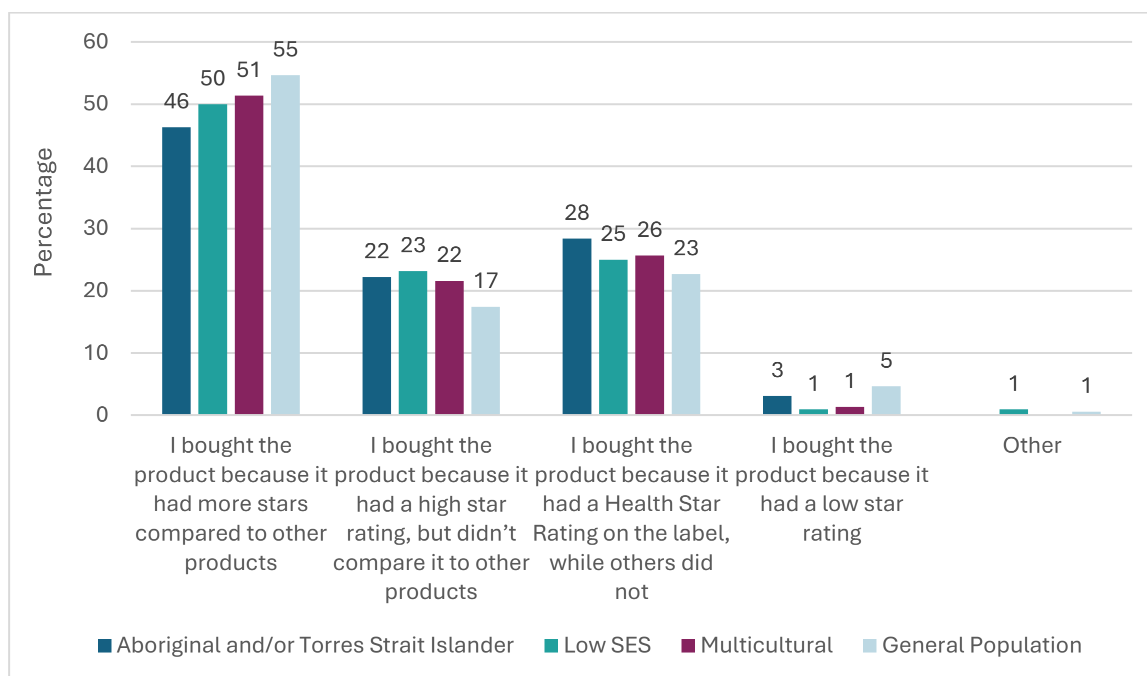
| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** **n = 200** | **Low SES** ***n*** **(%)** **n = 161** | **Multicultural** ***n*** **(%)** **n = 184** | **General Population** ***n*** **(%)** **n = 255** |
|---|---|---|---|---|
| Yes | 162 (81.0) | 108 (67.1) | 148 (80.4) | 172 (67.5) |
| No | 38 (19.0) | 53 (32.9) | 36 (19.6) | 83 (32.5) |

*Q: Did the Health Star Rating system on the label influence your choice?*

Australian participants that said the HSR influenced their product choice were then asked how it influenced their choice from a set of 5 options (Figure 18).

The most common response across all the groups was "I bought the product because it had more stars compared to other products" (46 – 55%).

Figure 18. How the HSR influenced participant purchasing decisions.




*Q: How did it influence your choice? (Single response option)*

**New Zealand**

New Zealand participants were asked if they had purchased a product that had a HSR in the past 3 months. Similar trends were seen across the different populations, with over half of participants in each group having purchased a product that has the HSR (52 – 59%) Table 47).

Table 47. Percentage of participants self-reporting purchasing a product that had a HSR in the last 3 months.

| | Māori *n* (%) | Pacific Peoples *n* (%) | Low SES *n* (%) | General Population *n* (%) |
|---|---|---|---|---|
| Yes | 147 (57.4) | 112 (52.8) | 125 (52.1) | 166 (59.1) |
| No | 25 (9.8) | 27 (12.7) | 27 (11.3) | 24 (8.5) |
| Unsure | 84 (32.8) | 73 (34.4) | 88 (36.7) | 91 (32.4) |

Q: In the past three months, have you purchased a product that had a Health Star Rating on the label?

Of New Zealand participants that purchased a product displaying the HSR in the past 3 months, 56% (n = 550), 62 – 66% said their purchasing decision was influenced by the HSR across all groups (Table 48).

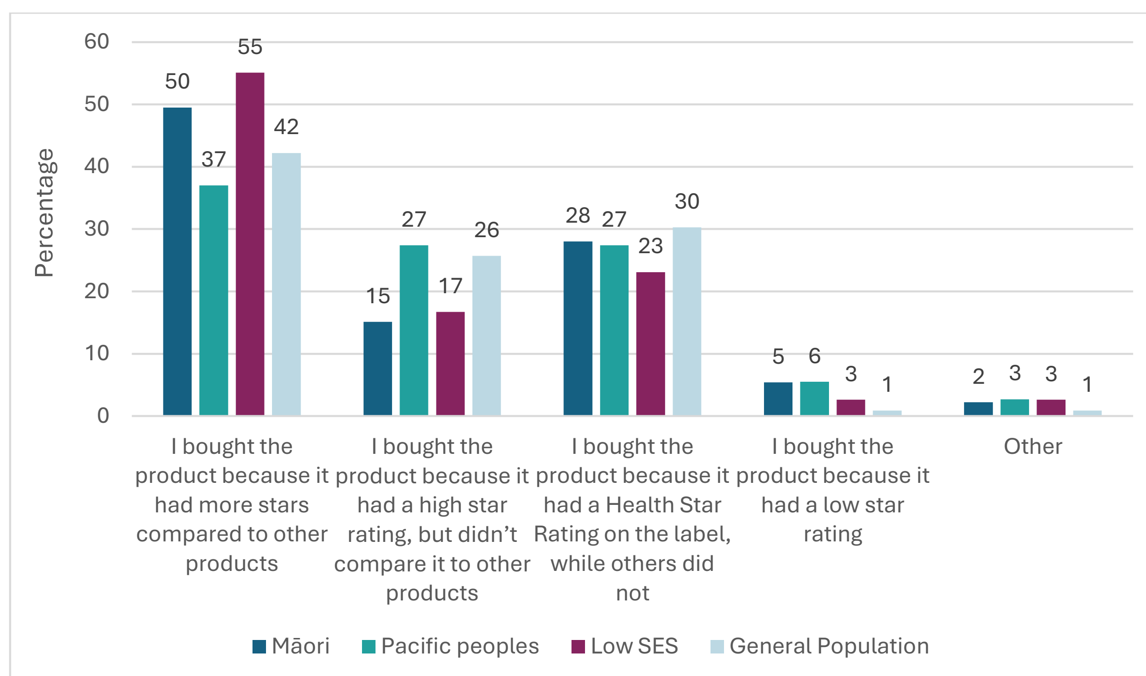
Table 48. Percentage of New Zealand participants who's purchasing decision was influenced by the HSR.

| | Māori *n* (%) n = 147 | Pacific Peoples *n* (%) n = 112 | Low SES *n* (%) n = 125 | General Population *n* (%) n = 166 |
|---|---|---|---|---|
| Yes | 93 (63.3) | 73 (65.2) | 78 (62.4) | 109 (65.7) |
| No | 54 (36.7) | 39 (34.8) | 47 (37.6) | 57 (34.3) |

Q: Did the Health Star Rating system on the label influence your choice?

New Zealand participants that said the HSR influenced their product choice were then asked how it influenced their choice from a set of 5 options Figure 19. The most common response across all the groups was "I bought the product because it had more stars compared to other products" (37 – 55%).

Figure 19. How the HSR influenced New Zealand participant purchasing decisions.




*Q: How did it influence your choice? (Single response option)*

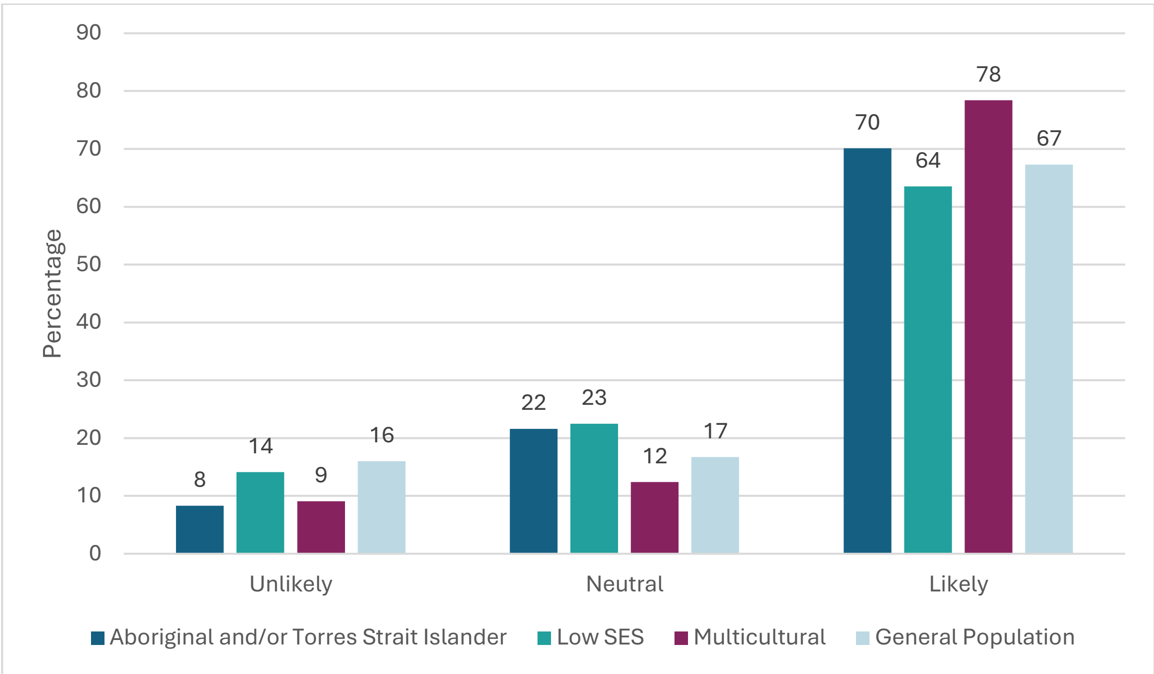
## Future influence of the HSR

All participants were asked how likely or unlikely the HSR is to influence future decisions when buying food.

### Australia

Most Australian participants across all groups (64 – 78%) reported the HSR would be likely to influence their future choices when buying food (Figure 20) .

Figure 20. Australian future influence of the HSR when buying food




*Q: How likely or unlikely is the Health Star Rating to influence choices you make in the future when buying food?*

The 12% (n =145) of Australian participants that answered they would be unlikely to use the HSR in the future were asked for reasons why. The most common reason varied across groups (Table 49). The most selected reason for the Aboriginal and/or Torres Strait Islander group was "I usually buy products based on price" (48%). The most selected reason for the Low SES group was "I don't think it's accurate" (50%). This was also the most selected reason for the Multicultural group (50%) along with "I think the HSR is a marketing tool" (50%). The most selected reason by the General Population was "Other nutrition information is more important than the Health Star Rating" (57%). Caution is needed when interpreting these proportions due to the low number of participants in each group.

Table 49. Reasons Australian participants would be unlikely to be influenced by the HSR when buying food in the future (n = 145).

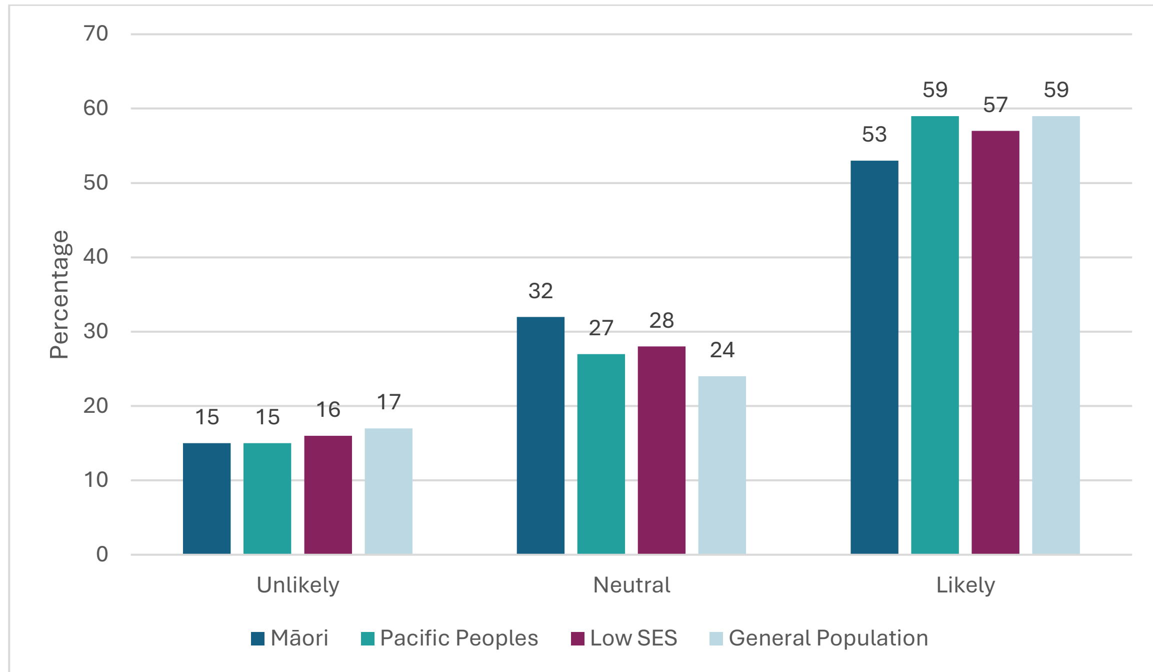
| | **Aboriginal and/or Torres Strait Islander** ***n*** **(%)** ***n = 23*** | **Low SES** ***n*** **(%)** ***n = 38*** | **Multicultural** ***n*** **(%)** ***n = 22*** | **General Population** ***n*** **(%)** ***n = 62*** |
|---|---|---|---|---|
| I buy what tastes the best | 7 (30.4) | 10 (26.3) | 6 (27.3) | 14 (22.6) |
| I don't think the Health Star Rating is accurate | 4 (17.4) | 19 (50.0) | 11 (50.0) | 29 (46.8) |
| I usually buy products based on price | 11 (47.8) | 12 (31.6) | 5 (22.7) | 14 (22.6) |
| I buy what I know my family will eat | 4 (17.4) | 8 (21.1) | 6 (27.3) | 11 (17.7) |
| There are not enough products with Health Stars on them, so I cannot compare ratings | 1 (4.3) | 5 (13.2) | 1 (4.5) | 5 (8.1) |
| I'm not sure how to use the Health Star Rating | 2 (8.7) | 7 (18.4) | 1 (4.5) | 1 (1.6) |
| I have specific dietary requirements, and I buy based on those | 4 (17.4) | 3 (7.9) | 3 (13.6) | 8 (12.9) |
| Other nutrition information is more important than the Health Star Rating | 5 (21.7) | 18 (47.4) | 9 (40.9) | 35 (56.5) |
| I'm the best judge of what's healthy for me and my family | 2 (8.7) | 6 (15.8) | 7 (31.8) | 15 (24.2) |
| I buy the same food products each time regardless of what's on the label | 7 (39.1) | 8 (21.1) | 1 (4.5) | 14 (22.6) |
| I think the Health Star Rating is a marketing tool | 9 (39.1) | 18 (47.4) | 11 (50.0) | 29 (46.8) |
| Another reason (please tell us) | 2 (8.7) | 0 (0.0) | 3 (13.6) | 5 (8.1) |

*Q: For what reasons would you be unlikely to use the Health Star Rating? Tick all options that apply.*
** As participants were able to select multiple responses, percentages may not add up to 100.*

### New Zealand

Over half of New Zealand participants across all groups (53 – 59%) reported the HSR would be likely to influence their future choices when buying food (Figure 21).

Figure 21. New Zealand future influence of the HSR when buying food.




Q: How likely or unlikely is the Health Star Rating to influence choices you make in the future when buying food?

The 17% (n = 157) of New Zealand participants that answered they would be unlikely to use the HSR in the future were asked for reasons why. The most selected reason varied across groups (Table 50). The most selected reason for the Māori and General Population groups was “Other nutrition information is more important than the Health Star Rating” (69% and 49%, respectively). This was also one of the most commonly selected reasons for the Pacific Peoples group, along with “I don’t think the Health Star Rating is accurate” and “I usually buy products based on price” (all 45%). The most selected reason for the Low SES group was “I usually buy products based on price” (45%). Caution is needed when interpreting these due to the low number of participants in each group.

Table 50. Reasons New Zealand participants would be unlikely to be influenced by the HSR when buying food in the future (n = 157).

| | **Māori** ***n*** **(%)** **n = 39** | **Pacific Peoples** ***n*** **(%)** **n = 31** | **Low SES** ***n*** **(%)** **n = 38** | **General Population** ***n*** **(%)** **n = 49** |
|---|---|---|---|---|
| I buy what tastes the best | 5 (12.8) | 8 (3.8) | 12 (31.6) | 10 (20.4) |
| I don't think the Health Star Rating is accurate | 19 (48.7) | 14 (45.2) | 10 (26.3) | 17 (34.7) |
| I usually buy products based on price | 8 (20.5) | 14 (45.2) | 17 (44.7) | 13 (26.5) |
| I buy what I know my family will eat | 7 (17.9) | 11 (35.5) | 6 (15.8) | 10 (20.4) |
| There are not enough products with Health Stars on them, so I cannot compare ratings | 5 (12.8) | 5 (16.1) | 1 (2.6) | 8 (16.3) |
| I'm not sure how to use the Health Star Rating | 3 (7.7) | 6 (19.4) | 6 (15.8) | 4 (8.2) |
| I have specific dietary requirements, and I buy based on those | 11 (28.2) | 4 (12.9) | 3 (7.9) | 2 (4.1) |
| Other nutrition information is more important than the Health Star Rating | 27 (69.2) | 14 (45.2) | 15 (39.5) | 24 (49.0) |
| I'm the best judge of what's healthy for me and my family | 9 (23.1) | 3 (9.7) | 5 (13.2) | 10 (20.4) |
| I buy the same food products each time regardless of what's on the label | 6 (15.4) | 5 (16.1) | 5 (13.2) | 13 (26.5) |
| I think the Health Star Rating is a marketing tool | 18 (46.2) | 11 (35.5) | 6 (15.8) | 20 (40.8) |
| Another reason (please tell us) | 1 (2.6) | 2 (6.5) | 1 (2.6) | 3 (6.1) |

Q: For what reasons would you be unlikely to use the Health Star Rating? Tick all options that apply.
* As participants were able to select multiple responses, percentages may not add up to 100.

# Strengths and Limitations

The HSR Monitoring Framework specifies the Focus Populations investigated in this survey as priority populations (DoHDA 2023). These groups experience disproportionately higher levels of diet-related chronic diseases compared to the general population, and as such, it is important to understand how the HSR works for these population groups to support equitable health outcomes. Prior to this survey, there has been no research on the HSR specifically conducted with Aboriginal and/or Torres Strait Islander Peoples or Multicultural Peoples, and limited research conducted with Māori and Pacific Peoples. The sample size of the groups was determined through power analysis to allow for robust statistical comparisons between Focus Population and their respective general population, providing valuable insights into Focus Populations' use, understanding and trust in the HSR system.

Notably, it is not appropriate to statistically assess and compare Focus Populations to one another, given the unique context of each group. For example, in the Australian context, Aboriginal and Torres Strait Islander Peoples are the First Peoples of Australia and represent more than 250 distinct Nations and language groups. This diversity can be seen in each Nation groups culture, language, history and relationship with Country. The experience of Aboriginal and/or Torres Strait Islander Peoples in Australia as a result of ongoing colonisation, structural inequities and determinants of health has disrupted food environments which plays a significant role in how health, and specifically food, is impacted in this context. In turn Māori and Pacific Peoples are also not homogenous groups, each consisting of a diverse range of populations with their own cultures, languages and lived experience. Instead, data from each Focus Population are compared in this report to a sample of the general population from Australia and New Zealand. This has been done to assess the needs and challenges among minority groups in relation to the HSR who suffer inequitable nutritional health outcomes. Conceptual comparisons between Focus Populations may be naturally made by the reader based on the nature of this research. These conceptual comparisons should be considered in the light of socio-economic and historical social factors that influence health and nutritional status, in order to avoid extrapolations of deficit food behaviours.

Building on the findings from the 2024 Monitoring Survey, this survey quantified reasons for trust and distrust and investigated consumer preference for the different HSR formats. Together with the 2024 survey, which enabled comparison between Australia and New Zealand, this builds the picture of whether the HSR system is understood and used correctly across formats, and its potential to improve population health outcomes. These insights provide a strong basis for future policy decisions.

However, the survey has a range of limitations which should be considered when interpreting the results. A key limitation is that the samples may not be entirely representative of each Focus Population. Participants were recruited via a panel, which draws on people who have self-selected to participate in research. This self-selection bias may explain the high proportion of the Aboriginal and/or Torres Strait Islander sample with higher education (53% had a bachelor's degree or higher, relative to the 10% with a bachelor's degree or higher reported by the National Indigenous Australians Agency in 2021) (Australian Institute of Health and Welfare 2021).

Similarly, limited numbers of Focus Population participants on panels restricts the ability to put sub-quotas in place to ensure greater representativeness of these groups. As such, they may not be representative of the full diversity within these populations. For example, within the groups of Māori, Pacific Peoples, Aboriginal and/or Torres Strait Islander and Multicultural exists many

distinct groups with their own culture, language, lived experience and understanding of the world.

For the Low SES groups, an area-level measure of socio-economic status was used, which may capture individuals who would not individually be assessed as low SES but live within a suburb that is considered low SES.

In addition, although the General Population groups for Australia and New Zealand were broadly representative of the population, quotas were not interlocked, and the samples were each skewed towards an older demographic and those with a higher education relative to recent census figures (Australian Bureau of Statistics 2021b, Stats NZ 2023). The non-response rate of potential survey respondents is also unknown.

This survey identified how Focus Populations understood and used different formats of the HSR. The components of the different HSR formats that consumers used to decide which label was healthier was also quantified, providing important insight into how the different HSR formats impact consumers use of the label. The 'correct' response to questions exploring consumers objective understanding of HSR formats was coded as the higher star rating, as that is the intention of the HSR system. However, it is acknowledged that the higher star rating may not necessarily align with the health goals of all consumers.

In relation to HSR formats, the generalisability of the study is limited by the number of HSR formats tested. The study focused on the three most commonly applied variations of the HSR format, and thus information is not available on other format elements including HIGH/LOW text, the presence of a positive nutrient or %DI. To increase the generalisability of the survey both a 0.5 and 1 star difference was used in the study design. However, the study could not capture all possible star differences/variations, nor could it account for all possible variations within a label format. Questions investigating different HSR formats were also not presented on food packages. Not showing additional label elements allowed the effect of these to be controlled for, but it is recognised that this does not reflect a realistic context in which the HSR is utilised by consumers. This design was chosen to understand consumer's objective ability to use the HSR itself, including the impact of format, rather than their ability to use the HSR in the context of other on-pack information.

# References

Australian Bureau of Statistics. (2021a). TableBuilder. ABS website, accessed 10 December 2024.

Australian Bureau of Statistics. (2021b). *Socio-Economic Indexes for Areas (SEIFA), Australia*. ABS Website, accessed 20 August 2025.

Australian Institute of Health and Welfare. (2021). *2.06 Educational participation and attainment of adults*. Aboriginal and/or Torres Strait Islander Health Performance Framework website, accessed 11 November 2025.

Dash, C. S. K., Behera, A. K., Dehuri, S., & Ghosh, A. (2023). An outliers detection and elimination framework in classification task of data mining. *Decision Analytics Journal*, *6*, 100164.

Department of Health and Aged Care. (2025). *Uptake of the Health Star Rating system as at November 2024*. Health Star Rating website. Accessed 17 February 2025.

Department of Health, Disability and Ageing. (2023). *Health Star Rating system Post Five-Year Review Monitoring Framework*. Health Star Rating website. Accessed 11 November 2025.

Field, A. (2018). *Discovering statistics using SPSS – 5th edition*. London: Sage Publications.

Food Standards Australia New Zealand (2025). *Health Star Rating – 2024 Monitoring Consumer Research Report*. Health Star Rating website. Accessed 11 November 2025.

Ministry for Primary Industries. (2018). Health Star Rating monitoring implementation for the five year review. Wellington: Ministry for Primary Industries.

Stats NZ. (2023). Aotearoa Data Explorer. Stats NZ website, accessed 10 December 2024.

Tate, M. W., & Brown, S. M. (1970). Note on the Cochran Q test. *Journal of the American Statistical Association*, *65*, 155-160.

University of Otago. (2023). Socioeconomic Deprivation Indexes: NZDep and NZiDep, Department of Public Health. University of Otago website, accessed 20 August 2025.

# Appendices

*Appendix A. HSR Monitoring 2025 Survey Instrument*

**Introduction**

Thank you for agreeing to participate in this survey. It will take about 15 minutes to complete.

We are conducting research on behalf of a well-known organisation to understand how Australians and New Zealanders go about their grocery shopping.

Your answers will be anonymous and held in confidence, and the responses of everyone who participates in this survey will be combined for analysis. All information you give will only be used for research purposes.

Thank you again for your time.

**Section 1- Demographics**

Firstly, we have a few questions to ensure we're surveying a wide range of people.

[These questions are to be asked to all participants]

| # | Variable [Variable Name] | Question | Response Options [Code] |
|---|---|---|---|
| 1 | Age<br>[Age] | What is your age? | [Up to three-digit numeric input]<br>[Terminate if < 18 years] |
| 2 | Gender<br>[Gender] | How do you describe your gender? | [Single response option]<br>A man or male [1]<br>A woman or female [2]<br>Non-binary [3]<br>A different term (please specify) [4] [Free text field]<br>Prefer not to say [98] |
| 3a | Postcode<br>[Postcode and Postcode_NZ] | What is the postcode of your main place of residence? | [Four-digit numeric input]<br>[Autocode to States and Metro/Rural region for AUS and region for NZ] |
| 3b | Suburb<br>(New Zealand ONLY) | What is the suburb of your main place of residence? | [open text box response] |
| 4a | Cultural background | How would you describe your **cultural** | [Multiple response options]<br>Aboriginal and/or Torres Strait Islander [1] |

| | | | |
|---|---|---|---|
| | (Australia ONLY)<br><br>[Background_AU] | **background**? (Please select all that apply) | English [2]<br>Irish [3]<br>Scottish [4]<br>Chinese [5]<br>Italian [6]<br>German [7]<br>Indian [8]<br>Greek [9]<br>Dutch [10]<br>Australian [11]<br>Other (please specify): [FREE TEXT] [12]<br>Prefer not to say [EXCLUSIVE] [98]<br><br>Examples of 'Other (please specify)' are: Spanish, Vietnamese, Hmong, Welsh, Kurdish, Lebanese. |
| 4b | Ethnicity Identification (New Zealand ONLY)<br><br>[Background_NZ] | Which ethnic group do you belong to? (Select all that apply to you) | [Multiple response options]<br><br>New Zealand European [1]<br><br>Māori [2]<br><br>Samoan [3]<br><br>Cook Island Māori [4]<br><br>Tongan [4]<br><br>Niuean [5]<br><br>Chinese [6]<br><br>Indian [7]<br><br>Other e.g. Dutch, Japanese, Tokelauan (please specify): [FREE TEXT] [6]<br><br>Prefer not to say [EXCLUSIVE] [98]<br><br>Examples of 'Other (please specify)' are: Filipino, Korean, Dutch, Australian, and Middle Eastern. |
| 5 | Shopper<br><br>[Shopper] | How much of the **food shopping** do you do for your household? | [Single response option]<br><br>Someone else does all or the majority of food shopping for my household. [1]<br>I share the food shopping with someone else. [2] |

| | | | |
|---|---|---|---|
| | | | I do all or the majority of the food shopping for my household. [3]<br>[Terminate if answers [1]] |
| 6 | Number and Ages of People in Household<br>[HHPeople] | How many people live in your household, including you? If you have a shared care arrangement, please include the maximum number of people who live in your household, including yourself. | Adults (18+) [Enter number] [HHPeople_1]<br>Children aged 0 to 4 years [Enter number] [HHPeople_2]<br>Children aged 5 to 14 years [Enter number] [HHPeople_3]<br>Adolescents aged 15 to 17 years [HHPeople_4] |
| 7 | Education<br>[Education] | What is the highest level of education you have **completed**? | [Single response option]<br>High school or below [1]<br>Vocational/trade qualification [2]<br>Undergraduate degree [3]<br>Postgraduate degree [4] |
| 8 | Language<br>[Language] | Do you speak a language **other than English** at home? | [Single response option]<br>No – English only [0]<br>Yes – Other [1] |
| 9 | Non-English-speaking country | Were you born in a non-English speaking country? | [Single response option]<br>No [0]<br>Yes [1] |
| 10 | Household income<br>[HHincome] | Which one of the following categories best describes your **household's total annual income (before tax)**?<br>Please include the income of everyone in your household. If you don't know the exact amount, then please take your best guess. | [Single response option]<br>· Under $25,000 [1]<br>· $25,000 - $35,000 [2]<br>· $35,001 - $45,000 [3]<br>· $45,001 - $55,000 [4]<br>· $55,001 - $65,000 [5]<br>· $65,001 - $75,000 [6]<br>· $75,001 - $85,000 [7]<br>· $85,001 - $105,000 [8]<br>· $105,001 - $115,000 [9]<br>· $115,001 - $125,000 [10]<br>· $125,001 - $145,000 [11]<br>· $145,001 - $165,000 [12]<br>· $165,001 - $185,000 [13]<br>· $185,001 - $205,000 [14]<br>· $205,001 - $225,000 [15]<br>· $225,001 - $245,000 [16]<br>· $245,001 - $265,000 [17] |

| | | | · $265,001 - $285,000 [18]<br>· Above $285,000 [19]<br>· Prefer not to say [98] |
|---|---|---|---|
| 11 | Self-rated nutrition knowledge<br>[Nutrition_Knowledge] | How much do you know about nutrition? | [Scale: 1 = "I know very little about nutrition", 7 = "I know a lot about nutrition"] |
| 12 | Health consciousness [HealthConsc] | How much **effort** do you generally put into maintaining a **healthy diet** for you and/or your household? | [Scale: 1 = "No effort", 7 = "A lot of effort"] |
| 13 | Dietary influences<br>[DietFactors] | Do any of the following **currently affect the food choices** you make **for you or your household**? Please select all that apply. | [Multiple responses possible, randomise response order except for 'Other' and 'None of the above'.]<br>Food allergy [DIETFACTORS_1]<br>Coeliac disease [DIETFACTORS_1A]<br>Digestive concerns such as food intolerance, irritable bowel syndrome, etc. [DIETFACTORS_2]<br>Other diet-related health concerns such as diabetes, heart disease, high blood pressure, etc. [DIETFACTORS_3]<br>Pregnancy or breast feeding [DIETFACTORS_4]<br>Looking to lose weight and/or maintain a healthy weight [DIETFACTORS_5]<br>Vegetarian or vegan [DIETFACTORS_6]<br>Religious beliefs that affect food choices [DIETFACTORS_7]<br>Training or sports that affects food choices [DIETFACTORS_8]<br>Cost of living pressures [DIETFACTORS_9]<br>None of the above. [EXCLUSIVE] [DF0] |
| 14 | Confidence in using nutrition labels<br>[LabelConfidence] | **How confident** are you in your **ability to make informed choices** about foods from the | [1-7 scale where 1 = 'Not at all confident' and 7 = 'Completely confident'] |

| | | **information on food labels**? | |
|---|---|---|---|

**Section 2 - Awareness**

The next set of questions is about labelling on food products.

| | | | |
|---|---|---|---|
| 15 | Unprompted awareness of HSR<br>[UnpromptedAwareness] | Other than brand names, can you think of anything shown on food packages that can help people choose a healthier food? | [Open verbatim] |
| 16 | Prompted consumer awareness<br>[Prompted_Awareness] | Have you seen any of the following labels on food packages?Health Star Rating<br>Nutrition Information Panel<br>Ingredients list<br>[randomise order displayed. Display photo of each label next to the relevant text.] | [Single response option for each label]<br>Yes [1]<br>No [2]<br>Unsure [3] |
| 17 | Self-rated HSR knowledge [Selfrated_Knowledge] | How much, if anything, do you believe you know about the Health Star Rating?<br>Display HSR only format | [Single response option]<br>I know a lot about it. [1]<br>I know a fair amount about it. [2]<br>I know a little bit about it. [3]<br>I have seen or heard of it, but don't know anything about it. [4]<br>I have never seen or heard of it before today. [5] |

**Section 3 – Trust**

[Display to those who are aware of HSR (Yes in Q16)] The next questions are about what you think of the Health Star Rating.

[Display to those who are not aware of HSR (No or Unsure in Q16)] The rest of the survey asks questions about the Health Star Rating. This can be found on the front of some food and drink packages. We understand you may not have seen it before, but we would like to show you some examples to find out what you think of it.

| | | | |
|---|---|---|---|
| 18 | HSR Beliefs | Below are a series of statements about the Health Star Rating system. How strongly do you agree or disagree with the following statements?<br>Display images of three HSR formats: (i) Stars only, (ii) stars and energy declaration, and (iii) stars, energy and nutrient content declarations | [Matrix - Order of statements will be randomised]<br>I trust the Health Star Rating system [HSR_Trust]<br>The Health Star Rating system has a poor reputation [Reputation]<br>The Health Star Rating system is accurate and honest [Transparency]<br>Having a Health Sar Rating on a product's label increases my trust in the food product/company [Product_Trust]<br>[1-7 scale, where 1 = "Strongly disagree", and 7 = "Strongly agree"] |
| 19 | Trust Reasons<br>[Trust_reasons] | If participant answers 5-7 to [HSR_Trust] ask:<br>What are the reasons you trust the Health Star Rating system? | I trust the Health Star Rating because...<br>It helps me to choose healthier foods and drinks [Trust_helpful]<br>It is run by the Government [Trust_government]<br>I trust food companies to give us accurate information [Trust_foodcompany]<br>It is supported by or developed using research-based evidence [Trust_research] |

| | | | |
|---|---|---|---|
| | | | It has a good reputation [Trust_reputation]<br><br>It is easy, simple and quick to use [Trust_easy]<br><br>It is familiar [Trust_familiar]<br><br>It is on products/brands I trust [Trust_brands]<br><br>I have no reason not to trust it [Trust_implicit]<br><br>Other [open text box response]<br><br>Order of statements will be randomised except for 'Other' which will appear at the end.<br><br>[Matrix: 1-7 scale, where 1 = "Strongly disagree", 4 = "Neutral", and 7 = "Strongly agree" or NA] |
| 20 | Distrust Reasons<br><br>[Distrust_reasons] | If participant answers 1-3 to [HSR_Trust] ask: What are the reasons you don't trust the Health Star Rating system? | I don't trust the Health Star Rating system because:<br><br>I don't agree with the overall health star ratings given to some foods and drinks [Distrust_contradict]<br><br>It doesn't consider everything that influences a food or drink's healthiness [Distrust_comprehensive]<br><br>I don't believe it is controlled by the Government [Distrust_regulated]<br><br>I am concerned that food companies influence it [Distrust_industry] |

| | | | |
|---|---|---|---|
| | | | I don't know how to use it [Distrust_use]<br><br>I don't understand how it is calculated [Distrust_calculation]<br><br>It doesn't provide me with all the information I want when choosing a food or drink [Distrust_information]<br><br>People I know don't trust it [Distrust_peers]<br><br>Other [open text box response]<br><br>Order of statements will be randomised except for 'Other' which will appear at the end.<br><br>[Matrix: 1-7 scale, where 1 = "Strongly disagree", 4 = "Neutral", and 7 = "Strongly agree" or NA] |

**Section 4 – Understanding**

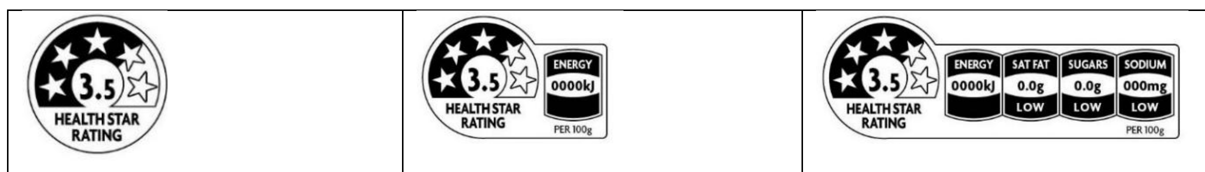
| | | | |
|---|---|---|---|
| 21 | Objective understanding (how to use/compare like products)<br><br>[Comparison_ Understanding] | Can the Health Star Rating be used to decide which of these foods is healthier? If you are not sure please select 'Don't know'.<br><br>Images of pairs of products to be shown. 50% of participants to be shown product combinations 1 and 2 50% of participants to be shown product combinations 3 and 4 randomise order in which combinations are shown. Only the products differ between pairs; HSR format and value remain consistent. | [Single response option per pair]<br><br>Yes, the Health Star Rating can be used to decide which of these food products is the healthier option [1]<br><br>No, the Health Star Rating cannot be used to decide which of these food products is the healthier option [2]<br><br>Don't know [3] |

| 22 | General understanding | Please tell us whether you think each statement is true or false. If you're not sure, please choose 'Don't know'. | a. The Health Star Rating system is supported by the government. [General_govsupport]<br>b. The Health Star Rating system was developed by nutrition experts. [General_development]<br>b. The food industry can choose the star rating their products show. [General_industry]<br>Order of statements will be randomised<br>Single response: True, False, Don't know |
|---|---|---|---|

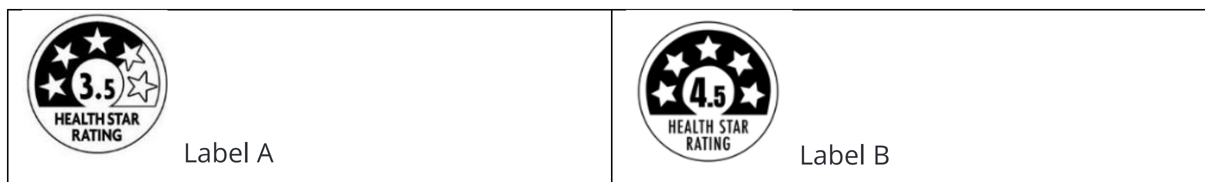
**Understanding the HSR formats**

Participants will be asked Questions 17-20 three times (once for each HSR Format). Order of HSR formats will be randomized. And Label A and Label B will be randomized to appear on the left or right of the screen.

Three formats to be tested (order to be randomised)




Example question 17 (order of labels (left to right)) will be randomised.




Participants will also be randomised to see 0.5 or 1 star difference for each of the HSR formats. They will see the same difference for all 3 formats; participants randomised to 0.5 star difference will see HSR values of 3.5 and 4.0, while participants randomised to see 1 star difference will see HSR values of 3.0 and 4.0.

| 23 | Objective understanding HSR only | Please select which label shows an overall healthier food product. Imagine the | [Single response]<br>Label A [1] |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | [Ob_Understanding_HSRonly] | labels are on the same kind of food.<br><br>A pair of HSR only labels displayed. The side of the screen (left or right) labels are presented will be randomised. Labels will also be randomised so that 50% of participants see labels that differ by half a star and 50% will see labels that differ by 1 star; responses will be analysed together. | Label B [2]<br><br>Unsure [3]<br><br>Record time spent answering this question. |
| 24 | Ease of understanding | How easy or hard was it to answer this question? | [1-7 scale, where 1 = "Very hard", 4 = "Neutral", and 7 = "Very easy"] |
| 25a | Reasons for healthiness | Why did you choose this as the healthier label? | *See Appendix B for variations* |
| 25b | Reasons for healthiness | If answered unsure to Q17: Why were you uncertain which label was healthier? | *See Appendix B for variations* |
| 26 | Attitudes towards label | How much do you agree or disagree with the following statements | [Matrix – Order of statements will be randomised]<br><br>I trust this label; [Attitude_Trust]<br><br>This label provides me with the information I need to make a healthy food choice; [Attitude_Information]<br><br>This label provides too much information; [Attitude_too_much_info]<br><br>[1-7 scale, where 1 = "strongly disagree", 4= "Neutral", and 7 = "strongly agree"] |

| 35a | Format preference<br>[HSR_Preference] | The Health Star Rating can be displayed in different ways. Please choose the style you prefer the most:<br>Display images of three HSR formats: (i) stars only, (ii) stars and energy declaration, and (iii) stars, energy and nutrient content declarations | [Single response]<br>HSR only [1]<br>HSR + energy [2]<br>HSR + tail [3]<br>*Randomise order labels are shown on screen.* |
|---|---|---|---|
| 36 | Format preference reason<br>[Preference_Reason] | Why do you prefer this label (add image of the one selected?)? | [Multiple response options]<br>It is the easiest to recognise<br>I trust this one the most<br>It is the easiest to use while shopping<br>It makes identifying the healthier product easier<br>It is the easiest to understand<br>It has the information I need to make a decision<br>Other [specify response]<br>Order of statements will be randomised except for 'Other' which will appear at the end. |

**Section 5 – Use**

| 37 | Frequency of use<br>[Use_Frequency] | How often do you look for the Health Star Rating when shopping for food or drink in the supermarket? | [Single response option]<br>Always [1]<br>Most of the time [2]<br>Sometimes [3]<br>Rarely [4]<br>Never [5]<br>Unsure [6] |
|---|---|---|---|
| 38 | How consumers use the HSR<br>[Use_purpose] | Those who report using the HSR at least rarely (aka excluding never or | [Single response option]<br>I frequently look out for the Health Star Rating on food |

|  |  | unsure [5] or [6] for [Use_Frequency]<br><br>Which of the following scenarios best describes how you use the Health Star Rating?<br><br>Exclude those who answer [5] to [Use_Frequency] | products I buy [1]<br><br>I only look out for the Health Star Rating when I am buying a new food product or brand for the first time [2]<br><br>I only look out for the Health Star Rating on certain types of food products [3]<br><br>Other – please specify [open text box] [4]<br><br>Order of statements will be randomised except for other which will appear at the end |
|---|---|---|---|
| 39 | Making the HSR Mandatory<br><br>[HSR_Mandatory] | Please rate how much you agree with the following statement: | I would use the Health Star Rating more if it was on most food and drink products<br><br>[Scale: 1 = "strongly disagree", 7 = "strongly agree"] |
| 40 | Self-reported use<br><br>[Selfreported_Use] | In the past three months, have you purchased a food or drink product that had a Health Star Rating on the label? | [Single response option]<br>Yes [1]<br>No [2]<br>Unsure [3] |
| 41 | HSR Influence<br><br>[HSR_Influence] | If participants answer [1] to [Selfreported_Use], ask:<br><br>Did the Health Star Rating on the label influence your choice? | [Single response option]<br>Yes [1]<br>No [2] |
| 42 | HSR Influence on product choice<br>[Influence_choice] | If participants answer [1] to [HSR_Influence], ask: | [Single response option] |

| | | | |
|---|---|---|---|
| | | How did it influence your choice? | I bought the product because it had more stars compared to other products [1]<br><br>I bought the product because it had a high star rating, but didn't compare it to other products [2]<br><br>I bought the product because it had a Health Star Rating on the label, while others did not [3]<br><br>I bought the product because it had a low star rating [4]<br><br>Other [open text box]] [5]<br><br>Order of statements will be randomised except for other which will appear at the end |
| 43 | Future influence of HSR<br><br>[Future_Influence] | How likely or unlikely is the Health Star Rating to influence choices you make in the future when buying food? | [1-7 scale, where 1 = "Very unlikely", 4 = "Neutral", and 7 = "Very Likely"] |
| 44 | Reasons for lack of influence<br><br>[No_Influence] | Ask participants who answer [Future_Influence] with [1], [2] or [3]:<br><br>For what reasons would you be unlikely to use the Health Star Rating?<br><br>Tick all options that apply. | [Multiple choice]<br><br>I buy what tastes the best [1]<br><br>I don't think the Health Star Rating is accurate [2]<br><br>I usually buy products based on price [3]<br><br>I buy what I know my family will eat [4]<br><br>There are not enough products with Health Stars on them, so I cannot compare ratings [5]<br><br>I'm not sure how to use the Health Star Rating [6] |

| | | | |
|---|---|---|---|
| | | | I have specific dietary requirements, and I buy based on those [7]<br>Other nutrition information is more important than the Health Star Rating [8]<br>I'm the best judge of what's healthy for me and my family [9]<br>I buy the same food products each time regardless of what's on the label [10]<br>I think the Health Star Rating is a marketing tool [11]<br>Another reason (please tell us) [open text box] [12]<br>Order of statements will be randomised except for Another Reason which will appear at the end |

**Thank you page**

Thank you for taking the time to complete this survey!

The Health Star Rating is a label you can find on the front of food packages in Australia and New Zealand. It was made by the Government with help from food companies and health experts. It is designed to help people choose healthier packaged foods when shopping. Foods and drinks can get a rating between 0.5 to 5 stars. On similar products, more stars mean a healthier choice. When looking for the stars, remember to only compare similar products. For example, you can use the stars to choose between two breakfast cereals, but not between yoghurt and pasta sauce.

Watch this short video to find out more or visit the Health Star Rating website.

[Health Star Rating animation]

*Appendix B. Images from survey*

50% of participants saw pairs of HSR that differed by 0.5 stars for all three formats (i.e., HSR values of 3.5 and 4.0), while the other 50% saw pairs that differed by 1 star for all three formats (i.e., HSR values of 3.0 and 4.0).

Figure 22. HSR Only formats

Figure 23. HSR + Energy formats

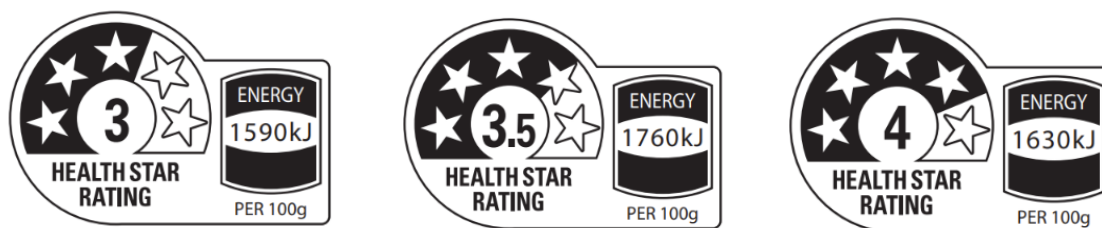
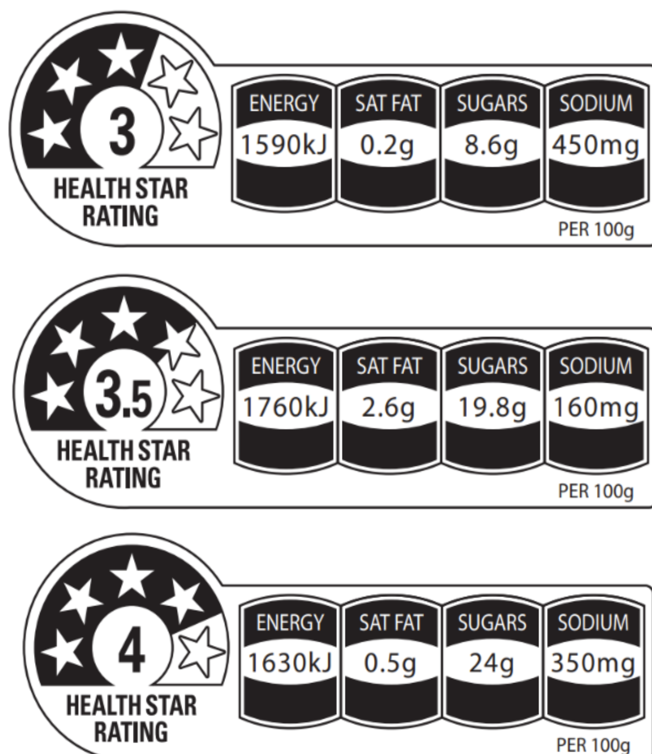



Figure 24. HSR + tail formats



*Appendix C. Variations in question 25*

**HSR ONLY**

| | | | |
|---|---|---|---|
| 25b | Reasons for healthiness | If choose label A or label B, do not ask question.<br>If answered unsure to Q17: Why were you uncertain which label was healthier? | Multiple response:<br><br>I needed more nutrition information, like the ingredient list, nutrition information panel etc.<br><br>I needed to know what food product the label was on.<br><br>I can't say which is healthier because what is healthiest is different for everyone.<br><br>There wasn't much difference between the labels.<br><br>I don't understand the Health Star Rating.<br><br>Other [open text box]<br><br>*Randomise order of response options except for 'Other' at end* |

**HSR + ENERGY**

| | | | |
|---|---|---|---|
| 25a | Reasons for healthiness | If choose label A or label B: Why did you choose this as the healthier label? | Single response option:<br><br>I only looked at the amount of energy<br><br>I only looked at the number of stars<br><br>I looked at the amount of energy **and** the number of stars<br><br>Other [open text box]<br><br>*Randomise order of response options except for 'Other' at end* |
| 25b | | If answered unsure to Q17: Why were you uncertain which label was healthier? | Multiple response:<br><br>I needed more nutrition information, like the ingredient list, nutrition information panel etc.<br><br>I needed to know what food product the label was on.<br><br>The amount of energy didn't match the star rating on each label.<br><br>I can't say which is healthier because what is healthiest is different for everyone.<br><br>There wasn't much difference between the labels. |

| | | | I don't understand the Health Star Rating.<br><br>Other [open text box]<br><br>*Randomise order of response options except for 'Other' at end* |
|---|---|---|---|

**HSR + TAIL**

| | | | |
|---|---|---|---|
| 25a | Reasons for healthiness | If choose label A or label B: Why did you choose this as the healthier label? | Single choice:<br><br>I only looked at the nutrient information (e.g. sugar, fat, sodium)<br><br>I only looked at the number of stars<br><br>I looked at the nutrient information (e.g. sugar, fat, sodium) **and** the number of stars<br><br>Other [open text box]<br><br>*Randomise order of response options except for 'Other' at end* |
| 25b | | If answered unsure to Q17: Why were you uncertain which label was healthier? | Multiple response:<br><br>I needed more nutrition information, like the ingredient list, nutrition information panel etc.<br><br>I needed to know what food product the label would be on.<br><br>The amount of energy didn't match the star rating on each label.<br><br>The amounts of nutrients (e.g. sugar, fat, sodium) didn't match the star rating.<br><br>I can't say which is healthier because what is healthiest is different for everyone.<br><br>There wasn't much difference between the labels.<br><br>I don't understand the Health Star Rating.<br><br>Other [open text box]<br><br>*Randomise order of response options except for 'Other' at end* |

*Appendix D. Factor analyses – Trust*

A rotated principal components analysis found that the four trust items (question 18) loaded onto one factor, suggesting that these four questions measured a single construct. This is demonstrated by the fact that only one factor had eigenvalues over Kaiser's criterion of 1 (Field, 2018; all other eigen values ranged from 0.118 to 0.816). All trust items loaded strongly onto this one factor. The factor loading matrix, eigen value and % of variance explained for this one factor are presented in Table 51. The Kaiser-Meyer-Olkin measure of sampling adequacy was .782 (above the minimum criterion of 0.5; Field, 2018), and Bartlett's test of sphericity was significant (all $p < .001$), suggesting reasonable factorability.

The implied index from the factor analysis was used in regression analysis as one measure of participants trust in the HSR.

Table 51: Summary of Factor Analysis results for HSR trust index

| Trust item | Factor Loadings for one factor |
|---|---|
| Trust 1: 'I trust the HSR system' | 0.95 |
| Trust 2: 'The HSR system has a poor reputation'^ | 0.51 |
| Trust 3: 'The HSR is accurate and honest' | 0.93 |
| Trust 4: 'Having a HSR on a products label increases my trust in the food product/company' | 0.92 |
| **Eigenvalue** | **2.86** |
| **% of variance** | **71.45%** |

^This item was reverse coded for analysis

*Appendix E. Multilevel logistic regression – Objective understanding of the HSR*

A multilevel logistic regression[23] (with binomial distribution) was used to identify factors that are associated with selecting the correct HSR label whilst accounting for the clustering effects of multiple responses per participant. A base intercept model that only included random intercepts was used to test whether it was necessary to include the cluster in the model. Intraclass correlation coefficients (ICC) were investigated to explain the proportion of variance that exists between clusters (i.e. within subject) in each model. A larger ICC indicates that a larger proportion of variance is explained between units within the cluster. Within subject ICC was 0.2187. That is the variability between participants was 21.9%. The Akaike information criterion (AIC) (which can be considered a measure of deviance) was also used to explore if the model was a better fit by adding each variable into the equation (with a lower AIC indicating a better fitting model). The AIC was lower when the within subject and was added as a clustering variable.

Fixed effects included the following factors: trust in the HSR (trust index), health consciousness, medical related dietary factor, lifestyle related dietary factor, use of the HSR[24], self-reported HSR understanding, age, education[25], gender, Focus Populations and duration[26] to select the healthier label. Those who selected gender other than female or male (n = 3) were removed from the analysis due to small samples. Variance of the random effect of user response (SD = 1.30) clustering variable and was highly significant in the final model. All variables in the final model did not violate the assumption of multicollinearity. Adjusted R-squared (marginal) for random effects was 0.221 and Adjusted R-squared (conditional) was 0.221. The full statistical results of the multilevel logistic regression analysis are available in Table 52.

Table 52. Statistical results of the multilevel logistic regression for objective understanding of the HSR.

| | *p* | OR | Lower | Upper |
|---|---|---|---|---|
| Intercept: Log likelihood = -2598.3, EST = 2.357, *P = <.001* | | | | |
| Gender (female vs male) | .360 | 1.097 | 0.900 | 1.337 |
| Trust in HSR | <.001 | 1.784 | 1.599 | 1.991 |
| Lifestyle-related dietary factors affecting food choices (has at least one vs. do not have any) | .075 | 1.193 | 0.983 | 1.450 |
| Medical-related dietary factors affecting food choices (has at least one vs do not have any) | .191 | 0.876 | 0.718 | 1.068 |
| Having a child under 15 years in the household | .254 | 0.883 | 0.712 | 1.094 |
| Education (non-tertiary vs tertiary) | .288 | 0.896 | 0.732 | 1.097 |
| Self-rated HSR knowledge | .002 | 1.213 | 1.074 | 1.376 |
| Confidence in using food labels | .655 | 1.024 | 0.924 | 1.134 |

[23] This analysis used R (version 4.4.0) with the lme4 package (version 1.1 – 37) for model estimation

[24] For analysis HSR use was recategorised into 'Always and most of the time', 'sometimes', and 'rarely, never and unsure'.

[25] For analysis education was recategorised into 'Tertiary educated' and 'Non-Tertiary educated'

[26] For analysis outliers defined as IQR + IQR * 1.5 or IQR – IQR*1.5 were removed.

| | *p* | OR | Lower | Upper |
|---|---|---|---|---|
| Nutrition knowledge | .662 | 0.976 | 0.876 | 1.087 |
| Health consciousness | .358 | 0.954 | 0.864 | 1.054 |
| Age | .916 | 1.000 | 0.993 | 1.007 |
| Use of the HSR (sometimes vs rarely/never/unsure) | .661 | 1.059 | 0.819 | 1.370 |
| Use of the HSR (always/most of the time vs rarely/never/unsure) | .843 | 1.030 | 0.771 | 1.375 |
| Aboriginal and/or Torres Strait Islander | .768 | 0.843 | 0.567 | 1.253 |
| Au Low SES | .237 | 1.114 | 0.758 | 1.637 |
| Au Multicultural | .745 | 0.951 | 0.638 | 1.416 |
| Au General Population | .403 | 1.032 | 0.720 | 1.480 |
| Māori | .865 | 0.864 | 0.587 | 1.273 |
| Pacific Peoples | .617 | 0.992 | 0.650 | 1.515 |
| NZ Low SES | .558 | 1.120 | 0.766 | 1.638 |
| NZ General Population | .558 | 0.893 | 0.610 | 1.305 |
| Time taken to choose the healthier label | <.001 | 0.234 | 0.146 | 0.375 |
| HSR + energy vs HSR only | <.001 | 0.345 | 0.283 | 0.421 |
| HSR + tail vs HSR only | <.001 | 0.095 | 0.078 | 0.115 |

*Appendix F. Multilevel (hierarchical) regression – Ease of selecting the healthier label*

A multilevel (hierarchical) regression[27] (AKA linear mixed-effects model) was used to identify factors that are associated with ease of selecting the correct HSR label whilst accounting for the clustering effects of multiple responses per participant. A base intercept model that only included random intercepts was used to test whether it was necessary to include the cluster in the model. Intraclass correlation coefficients (ICC) were investigated to explain the proportion of variance that exists between clusters (i.e. within subject) in each model. A larger ICC indicates that a larger proportion of variance is explained between units within the cluster. Within subject ICC was 0.2187. That is the variability between participants was 21.9%. The Akaike information criterion (AIC) (which can be considered a measure of deviance) was also used to explore if the model was a better fit by adding each variable into the equation (with a lower AIC indicating a better fitting model). The AIC was lower when the within subject and was added as a clustering variable.

Fixed effects included the following factors: trust in the HSR (trust index), health consciousness, medical related dietary factor, lifestyle related dietary factor, use of the HSR[28], self-reported HSR understanding, age, education[29], gender, Focus Populations and duration[30] to select the healthier label. Those who selected gender other than female or male (n = 3) were removed from the analysis due to small samples. Variance of the random effect of user response (SD = 1.30) clustering variable and was highly significant in the final model. All variables in the final model did not violate the assumption of multicollinearity. Adjusted R-squared (marginal) for random effects was 0.221 and Adjusted R-squared (conditional) was 0.221. The full statistical results of the multilevel logistic regression analysis are available in Table 53.

Table 53. Statistical results of the multilevel logistic regression for ease of selecting the healthier HSR label.

| | *p* | Std. Coef | 95% CI |
|---|---|---|---|
| Gender (female vs male) | .041 | -0.07 | [-0.15, 0.00] |
| Trust in HSR | <.001 | 0.21 | [ 0.17, 0.25] |
| Lifestyle-related dietary factors affecting food choices (has at least one vs. do not have any) | .412 | 0.03 | [-0.04, 0.10] |
| Medical-related dietary factors affecting food choices (has at least one vs do not have any) | .986 | 0.00 | [-0.07, 0.07] |
| Having a child under 15 years in the household | .070 | -0.07 | [-0.15, 0.01] |
| Education (non-tertiary vs tertiary) | <.001 | -0.18 | [-0.25, -0.11] |
| Self-rated HSR knowledge | <.001 | 0.10 | [ 0.06, 0.14] |
| Confidence in using food labels | <.001 | 0.13 | [ 0.08, 0.18] |
| Nutrition knowledge | .494 | -0.02 | [-0.07, 0.03] |
| Health consciousness | .361 | 0.02 | [-0.03, 0.07] |
| Age | <.001 | 0.08 | [ 0.04, 0.12] |

[27] This analysis used R (version 4.4.0) with the lme4 package (version 1.1 – 37) for model estimation

[28] For analysis HSR use was recategorised into 'Always and most of the time', 'sometimes', and 'rarely, never and unsure'.

[29] For analysis education was recategorised into 'Tertiary educated' and 'Non-Tertiary educated'

[30] For analysis outliers defined as IQR + IQR * 1.5 or IQR – IQR*1.5 were removed.

| | *p* | Std. Coef | 95% CI |
|---|---|---|---|
| Use of the HSR (sometimes vs rarely/never/unsure) | .082 | -0.08 | [-0.18, 0.01] |
| Use of the HSR (always/most of the time vs rarely/never/unsure) | .254 | 0.06 | [-0.04, 0.17] |
| Aboriginal and/or Torres Strait Islander | .006 | 0.19 | [ 0.05, 0.33] |
| Au Low SES | .274 | 0.07 | [-0.06, 0.21] |
| Au Multicultural | .951 | 0.00 | [-0.13, 0.14] |
| Au General Population | .137 | 0.09 | [-0.03, 0.22] |
| Māori | .739 | 0.02 | [-0.11, 0.16] |
| Pacific Peoples | .534 | 0.05 | [-0.10, 0.20] |
| NZ Low SES | .057 | 0.13 | [ 0.00, 0.27] |
| NZ General Population | .057 | -0.13 | [-0.27, 0.00] |
| Time taken to choose the healthier label | <.001 | -0.28 | [-0.30, -0.26] |
| HSR + energy vs HSR only | .014 | -0.06 | [-0.10, -0.01] |
| HSR + tail vs HSR only | .005 | -0.06 | [-0.11, -0.02] |