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ORIGINAL RESEARCH

# Public perceptions of dietetics services in Australia and New Zealand

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## Abstract

**Aim:** The aim of this study was to examine expectations, perceptions and attitudes about dietetics services among the Australian and New Zealand public, to provide insights for building a future dietetics workforce that will meet consumer needs.

**Methods:** A cross-sectional, anonymous, online survey was employed to gain perspectives of a representative sample of Australian and New Zealand adults. Questions were purposely designed to collect views regarding sources of dietary information, expectations of dietetics service providers and factors influencing choice of dietetics service provider. Data were analysed descriptively and using Pearson's chi-square test to assess relationships between categorical variables. Free-text responses were analysed using content analysis.

**Results:** Of 2601 respondents, approximately one third (32%) had seen a dietitian. Doctors were the most trusted sources of dietary information (87%), particularly with participants over 60 years ($\chi(1) = 44.168$, $V = 0.130$, $p < 0.001$). Cost was the most frequently reported factor influencing choice of dietetics services (56%), with 88% of respondents interested in accessing a dietitian, preferably in-person (64%), if they could do so for no cost. Participants anticipated that dietitians would offer services like meal plans (59%) and nutritional analysis (48%) as well as weight and other body measurements (56%). Some expectations such as blood tests (54%) were outside the usual scope of dietetic practice.

**Conclusion:** The results of this study have implications for practising dietitians, dietetics educators, and funders of dietetics services. Cost as a barrier suggests that advocacy to government for funding type, duration and number of visits to dietitians is still required.

KEYWORDS

attitudes, cross-sectional survey, dietary services, patient satisfaction, perceptions

## 1 | INTRODUCTION

With one in two Australian adults experiencing at least one diet-related chronic disease[1] and with the established health and economic benefits of dietetics care,[2] it is imperative to understand public access to and use of dietitians and alternative services. However, there is limited research on this topic in Australia and New Zealand. The percentage of the Australian population accessing dietetics services through Medicare is low ranging from 1.8% to 4.0%, with most users being women older than 55 years.[3–5] In the primary care setting between 2004 and 2019, Australian dietetics service providers were the third most utilised Medicare chronic disease management allied health service,[3–6] with approximately 1% of the population accessing dietitians through government-subsidised Medicare visits.[6] In 2020, dietetics services were the eighth most utilised allied health service provider funded by private health insurance in Australia.[7]

Dietitians New Zealand recently commissioned an economic evaluation into the need for and value of dietitians to the health and disability system, specifically in relation to diabetes, cancer and mental illness.[2] This identified that up to a quarter of general practitioner (GP) visits were nutrition-related and could be covered by a dietitian, and that nutrition intervention outcomes were greatest and lower in cost when delivered by dietitians compared to all other health professionals.[2] Compared to usual care, dietetics interventions provided clinically significant impacts on health outcomes in obesity, cardiovascular disease, diabetes and malnutrition in older adults and were proposed to save the New Zealand health care system NZ$5.50–$99.00 for every NZ$1.0 spent on these interventions.[8]

The reasons people choose to consult a dietitian or other individuals offering nutrition advice are unknown. In Australia and New Zealand, consumers may choose to consult a variety of health professionals, including others that promote themselves as experts in nutrition, such as medical doctors, nurses, allied health professionals, nutritionists, naturopaths, herbalists, fitness professionals and wellness coaches. These service providers may offer nutrition advice along with other health recommendations, medications, supplements or therapies. Along with variety in service provision, there is also a wide range in nutrition training and qualifications of service providers, from no formal training for unregulated professionals to at least 4 years of tertiary study for dietitians. It is unclear how dietitians are viewed by the public in the context of increasing choice of providers. Research in the United States identified that 60% of American adults have a positive opinion of dietitians, and that about half trust dietitians to '...perform their jobs with competence, to show concern for public interests and to provide fair and accurate nutrition information'.[9] No research of this kind has been undertaken in Australia and New Zealand. The use, perceptions and attitudes of people who use and do not use dietetics and other nutrition services is vital to nutrition and dietetics university educators, employers of dietitians, health service providers, health professionals, industry, and government. Most critically, this data can inform how to best meet the dietetics service needs of the Australian and New Zealand public.

The aim of this study was to examine the expectations, perceptions, and attitudes about dietetics services among the Australian and New Zealand public to provide insights for building a future dietetics workforce that will meet consumer needs. This project is complementary to recent work by the research team which considered the views of expert stakeholders on the future of dietetics in Australia and New Zealand.[10]

## 2 | METHODS

Using a pragmatic approach, a cross-sectional, anonymous, online survey was developed to ascertain Australian and New Zealand adults' perceptions of dietetics services. The survey was specifically designed by the research team to meet the aims of the study and included input from experienced dietitians employed in multiple fields, but especially academia, clinical practice and advocacy. Market research company Qualtrics (www.qualtrics.com) was engaged to recruit a representative sample of the Australian and New Zealand adult population in September–October 2022 and administer the survey through their online platform. Qualtrics is a panel aggregator that uses partners to help access participant samples. The Qualtrics survey sample size calculator (https://www.qualtrics.com/blog/calculating-sample-size/) recommended a recruitment target of approximately 2400 participants to achieve a representative sample of the Australian and New Zealand population with a 95% confidence level and 2% margin of error. Through Qualtrics and their partners, potential adult participants were provided the participant information sheet and invited to complete the survey through 'opt-in' consent. Participants were incentivised by the Qualtrics partners for their participation in the survey, including airline miles, gift cards, redeemable points, charitable donations, and vouchers. Additionally, to ensure the sample was representative, country, age, gender, and household income targets for recruitment were set. Individuals

under 18 years of age and those identifying as nutritionists or dietitians, or studying in those fields, were excluded from participation.

The survey, comprising 31 multi-select and free-text questions, took approximately 20 min for participants to complete. Survey questions included demographic characteristics, dietary patterns and supplement intake, sources of dietary information, interest in seeing a dietitian, factors influencing the choice of dietetics service provider, expectations of dietetics service providers, and (where relevant) whether previous experience with dietetics service providers met participant expectations. Separate surveys were administered to Australian and New Zealand residents to accommodate nomenclature and cultural differences (Supplementary Material 1). Data collected from these surveys were aggregated and country of residence was included as a demographic variable in analyses.

Multi-select question responses were analysed descriptively. Pearson's chi-square test was utilised to detect potential relationships between categorical demographic variables and other variables of interest including whether participants had seen or were interested in seeing a dietitian, were following a special dietary pattern or taking dietary supplements, their preferred source of nutrition and diet information, preferred location to see a dietitian, and reasons for visiting a dietitian. Phi and Cramer's $V$ were used to test the strength of association and statistical significance was set at $p < 0.05$. Where there were multiple categories with small response frequencies for demographic variables, quantiles were used for analyses (quartiles for age; tertiles for household income). Statistically significant omnibus results were followed up with 2×2 tests based on observation of cross-tabulations. For questions where participants were permitted to select multiple options, cross-tabulation was used to explore potential relationships before applying 2×2 Pearson's chi-square tests. Quantitative data analysis was performed using SPSS version 28.

Responses to free-text questions were analysed separately using quantitative or qualitative content analysis, depending on the nature of the question. Approaches used were guided by the methods outlined by Liamputtong.[11] Questions with succinct and readily interpretable responses, such as listing supplements consumed or reasons for participants' visits with a dietitian, were analysed using quantitative content analysis. One researcher read the responses in their entirety, identified initial categories which were confirmed through discussion with other members of the research team, then allocated responses to categories, and presented the results descriptively (%). Qualitative content analysis,[12] was used to analyse questions where meaning could be interpreted from the responses provided and responses were contextual, such as how participants would describe the experience of seeing a dietitian, or why they would recommend this service to family and friends. For these questions, one researcher reviewed the responses and identified descriptions that were meaningful within the context. For example, when asked how their expectations of the dietitian were met, descriptions of the experience or the dietitian were retained while responses that lacked meaning in the context, such as 'good', were discarded. Following familiarisation, the researcher identified and collapsed similar descriptions into common and meaningful words or phrases that were confirmed through discussion with the research team and reported narratively. Findings were reported in words used by participants to retain the participant voice. Data analysis was conducted manually with NVivo version 12 also used to confirm quantitative content analysis of supplement data.

The Queensland University of Technology Human Research Ethics Committee (LR 2022–4770-7586) approved this study, with reciprocal approval received from all other author institutions. The *STROBE statement* was used to guide the reporting of this study.[13]

## 3 | RESULTS

The final sample included 2601 participants who met the inclusion criteria and provided complete results, from 4342 responses (847 incomplete, in addition to exclusion of dietitian and nutritionists, duplicates and fraud, spam and speeder responses as detected by Qualtrics). The sample was largely representative of the general Australian and New Zealand adult population (Table 1). Approximately one third (32%, $n = 819$) had seen a dietitian and 19% ($n = 485$) had sought nutrition or dietary advice in the past 12 months.

Twenty six percent ($n = 665$) of participants reported following one or more special dietary patterns as listed in Table 2. Where participants were following a special dietary pattern, they were predominantly self-prescribed (58%, $n = 388$). Other sources of recommendations for special dietary patterns included doctors (36%, $n = 243$), dietitians (19%, $n = 129$), and nutritionists (14%, $n = 93$), with those following dietary patterns recommended by doctors increasing to 48% ($n = 80$) for those over 60 years of age.

Dietary supplements were used by 52% ($n = 1360$) of participants. The most frequently reported dietary supplements were single or multi vitamins (32%, $n = 439$).

**TABLE 1** Demographic characteristics of survey respondents.

| | *N* | % | | *N* | % |
|---|---|---|---|---|---|
| **Country** | | | | | |
| Australia | 1992 | 76.6 | | | |
| New Zealand | 609 | 23.4 | | | |
| **Gender** | | | | | |
| Woman | 1315 | 50.6 | | | |
| Man | 1275 | 49.0 | | | |
| Non-binary/gender diverse | 10 | 0.4 | | | |
| Prefer not to say | 1 | 0.0 | | | |
| **Age (years)** | | | **Quartiles** | | |
| 18–29 | 55 | 2.1 | 18–34 | 691 | 26.6 |
| 20–24 | 158 | 6.1 | 35–44 | 587 | 22.6 |
| 25–29 | 191 | 7.3 | 45–59 | 627 | 24.1 |
| 30–34 | 287 | 11.0 | 60+ | 696 | 26.8 |
| 35–39 | 325 | 12.5 | | | |
| 40–44 | 262 | 10.1 | | | |
| 45–49 | 208 | 8.0 | | | |
| 50–54 | 224 | 8.6 | | | |
| 55–59 | 195 | 7.5 | | | |
| 60–64 | 199 | 7.7 | | | |
| 65–69 | 187 | 7.2 | | | |
| 70–74 | 158 | 6.1 | | | |
| 75–79 | 110 | 4.2 | | | |
| 80–84 | 29 | 1.1 | | | |
| 85+ | 13 | 0.5 | | | |
| **Annual household income** | | | **Tertiles** | | |
| Zero income | 44 | 1.7 | $0–$50 000 | 795 | 30.6 |
| $1–5000 | 52 | 2.0 | $50 001–$100 000 | 810 | 31.1 |
| $5001–10 000 | 34 | 1.3 | $100 001+ | 996 | 38.3 |
| $10001-15 000 | 42 | 1.6 | | | |
| $15001-20 000 | 79 | 3.0 | | | |
| $20001-25 000 | 85 | 3.3 | | | |
| $25001-30 000 | 124 | 4.8 | | | |
| $30001-35 000 | 78 | 3.0 | | | |
| $35001-40 000 | 92 | 3.5 | | | |
| $40001-50 000 | 165 | 6.3 | | | |
| $50001-70 000 | 356 | 13.7 | | | |
| $70001-100 000 | 454 | 17.5 | | | |
| $1 000 010 or more | 996 | 38.3 | | | |
| **Following a special dietary pattern** | | | **Have ever seen a dietitian** | | |
| Yes | 665 | 25.6 | Yes | 819 | 31.5 |
| No | 1936 | 74.4 | No | 1782 | 68.5 |
| **Sought nutrition/dietary advice past 12 months** | | | **Primary language** | | |
| Yes | 485 | 18.6 | English | 2438 | 93.7 |
| No | 2116 | 81.4 | Other | 163 | 6.3 |

| Marital/partnership status | | | Highest level of education | | |
|---|---|---|---|---|---|
| Married/defacto | 1594 | 61.3 | Year 11 or less | 280 | 10.8 |
| Single/never married | 633 | 24.3 | Year 12 or Year 13 or equivalent | 433 | 16.6 |
| Separated/divorced | 270 | 10.4 | Diploma or certificate | 628 | 24.1 |
| Widowed | 76 | 2.9 | University bachelor degree/higher | 1071 | 41.2 |
| Other | 28 | 1.1 | Trade/apprenticeship | 167 | 6.4 |
| | | | Unsure/don't know | 22 | 0.8 |
| **Employment status** | | | **Caring responsibilities** | | |
| Employed/working | 1704 | 65.5 | Yes, full-time | 772 | 29.7 |
| Not employed, looking for work | 197 | 7.6 | Yes, part-time | 311 | 12.0 |
| Not employed, not looking for work | 700 | 26.9 | No | 1518 | 58.4 |
| **Healthcare access and health insurance** | | | | | |
| Public only | 1197 | 46.0 | | | |
| Public and private | 1055 | 40.6 | | | |
| Private only | 155 | 6.0 | | | |
| None | 160 | 6.2 | | | |
| Don't know | 34 | 1.3 | | | |

**TABLE 2** Special dietary patterns followed by participants.

| Special dietary pattern | *N* | % |
|---|---|---|
| Weight loss | 157 | 6.0 |
| High-protein | 131 | 5.0 |
| Low carbohydrate | 127 | 4.9 |
| Low fat | 126 | 4.8 |
| Cholesterol lowering | 124 | 4.8 |
| Diet for diabetes | 120 | 4.6 |
| Allergy (avoiding specific foods) | 110 | 4.2 |
| Lactose-free | 102 | 3.9 |
| Gluten-free | 92 | 3.5 |
| Intolerance (avoiding specific foods) | 86 | 3.3 |
| Vegetarian | 75 | 2.9 |
| Weight maintenance | 74 | 2.8 |
| Plant-based | 61 | 2.3 |
| Flexitarian | 52 | 2.0 |
| Keto | 51 | 2.0 |
| Other[a] | 41 | 1.6 |
| Vegan | 38 | 1.5 |
| Low FODMAP | 37 | 1.4 |
| Mediterranean style diet | 36 | 1.4 |
| Weight gain | 22 | 0.8 |
| Paleo | 16 | 0.6 |
| Total | 676 | 26.0 |

Abbreviation: FODMAP, fermentable oligosaccharides, disaccharides, monosaccharides and polyols.

[a]Other special dietary patterns reported include dairy-free ($n = 3$), fasting ($n = 8$), Halal ($n = 2$), high fibre ($n = 1$), Kosher ($n = 1$), low GI ($n = 1$), low salt ($n = 3$), low sugar ($n = 11$), specified Medical Nutrition Therapies ($n = 9$), unprocessed ($n = 2$).

The most frequently selected sources of nutrition and diet information were from the GP (63%, $n = 1621$), internet (51%, $n = 1320$), food packaging or product information (35%, $n = 915$), dietitian (30%, $n = 773$), and nutritionist (30%, $n = 783$). Participants who had sought nutrition or dietary advice in the past 12 months consulted doctors (49%, $n = 211$), dietitians (22%, $n = 94$), written and online sources (9%, $n = 38$), friends or family (7%, $n = 31$), and nutritionists (5%, $n = 26$). Half (49%, $n = 1267$) of participants reported that they would like to see a dietitian if they (or a family member) could access one at no cost; a further 39% ($n = 1010$) responded 'maybe'.

When asked about their perception of the qualifications of nutrition professionals, participants rated dietitians as most likely to have university qualifications in nutrition (85%, $n = 2215$ yes or sometimes), followed by nutritionists, naturopaths and herbalists (Table 3).

Doctors (GPs and other specialists) were the most trusted sources of food, nutrition and dietary advice, followed by dietitians and nutritionists (Table 4). Demographic groups most interested in seeing a dietitian also reported the highest trust in dietitians (Supplementary Material 2).

Participants reported that their choice of service provider was influenced most strongly by cost of services (56%, $n = 1443$), followed by convenience of location (close to home or co-located with another health service provider; 41%, $n = 1725$) and recommendations made by friends or family (41%, $n = 1054$). Less

consideration was given to services offering supplements (13%, $n = 335$), homoeopathic remedies (13%, $n = 335$), alternative therapies (13%, $n = 335$), or nutritional products (18%, $n = 455$).

The services most expected from those providing nutrition advice were meal plans (59%, $n = 1546$), weight and other body measurements (56%, $n = 1461$), blood tests (54%, $n = 1392$), written information about food (52%, $n = 1348$), dietary analysis results (48%, $n = 1258$), and eating behaviour analysis results (47%, $n = 1211$).

**TABLE 3** Public perceptions of whether nutrition providers hold university qualifications in nutrition.

| | Yes | | Sometimes | | No/Unsure | |
|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % |
| Dietitian | 1941 | 74.6 | 274 | 10.5 | 386 | 14.8 |
| Nutritionist | 1621 | 62.3 | 425 | 16.3 | 555 | 21.3 |
| Naturopath | 742 | 28.5 | 519 | 20.0 | 1340 | 51.5 |
| Herbalist | 413 | 15.9 | 473 | 18.2 | 1715 | 65.9 |

When asked to select their top three preferred locations to access a dietitian, the most popular responses were in person (64%, $n = 1653$), at a GP (42%, $n = 1104$) or health clinic (34%, $n = 876$), and online or via telehealth (30%, $n = 799$). All other options for location were selected by 10% or less of participants.

Nearly one third (32%, $n = 819$) of participants had seen a dietitian. Twenty eight % ($n = 726$) had seen a dietitian for themselves, most commonly in a clinic setting (14%, $n = 372$), although Australian residents saw dietitians in this setting at twice the rate of New Zealand residents (16% vs. 8%). Participants had otherwise seen a dietitian as hospital inpatients (6% AU, 7% NZ) or hospital and community outpatients (8% % AU, 7% NZ).

A significant number of participants (15%, $n = 383$) had seen a dietitian as a carer of a child or other family member and as hospital inpatients (4%, $n = 98$), hospital and community outpatients (5%, $n = 140$), or in clinic settings (6%, $n = 145$). Participants that had seen a dietitian did so due to health concerns (52%, $n = 374$), weight concerns (28%, $n = 200$), or on their doctor's recommendation (20%, $n = 148$).

The majority (62%, $n = 509$) of those who had seen a dietitian reported that their visit with the dietitian met

**TABLE 4** Public responses to how much they trust sources of food, nutrition, and dietary advice.

| | A lot | | A little | | Not at all/Unsure | |
|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % |
| Doctor—Specialist | 1634 | 62.8 | 653 | 25.1 | 314 | 12.1 |
| Doctor—GP | 1543 | 59.3 | 856 | 32.9 | 202 | 7.8 |
| Nutritionist | 1368 | 52.6 | 844 | 32.5 | 389 | 15.0 |
| Dietitian | 1362 | 52.4 | 766 | 29.5 | 473 | 18.2 |
| Diabetes Educator | 889 | 34.2 | 841 | 32.3 | 871 | 33.5 |
| Nurse | 723 | 27.8 | 1318 | 50.7 | 560 | 21.5 |
| Pharmacist/Chemist | 604 | 23.2 | 1305 | 50.2 | 692 | 26.6 |
| Food packaging or product information | 507 | 19.5 | 1424 | 54.8 | 670 | 25.8 |
| Naturopath/Herbalist/Health Food store assistant | 387 | 14.9 | 1142 | 43.9 | 1072 | 41.2 |
| Friends or family | 353 | 13.6 | 1535 | 59.0 | 713 | 27.4 |
| Fitness Instructor/Personal Trainer | 353 | 13.6 | 1239 | 47.6 | 1009 | 38.8 |
| Aboriginal Health Worker or Community Health Worker | 346 | 13.3 | 750 | 28.8 | 1505 | 57.9 |
| Written: Books, magazines, newspaper articles, brochures, pamphlets | 317 | 12.2 | 1435 | 55.2 | 849 | 32.6 |
| Osteopath or Chiropractor | 316 | 12.2 | 1027 | 39.5 | 1258 | 48.4 |
| Other health professional | 310 | 11.9 | 1205 | 46.3 | 1086 | 41.8 |
| Psychologist | 304 | 11.7 | 917 | 35.3 | 1380 | 53.1 |
| Internet | 304 | 11.7 | 1528 | 58.8 | 769 | 29.6 |
| Wellness Coach | 290 | 11.2 | 1089 | 41.9 | 1222 | 47.0 |
| Television, radio or podcast programmes | 152 | 5.8 | 1198 | 46.1 | 1251 | 48.1 |
| Social media | 134 | 5.2 | 827 | 31.8 | 1640 | 63.1 |

**TABLE 5a** Relationships between demographic characteristics and participant practices and preferences. Results of preliminary Pearson's chi-square tests.

| | Following a special dietary pattern | | | | Taking dietary supplements | | | | Would like to see a dietitian (yes or maybe) | | | | Has seen a dietitian themselves | | | | Has seen a dietitian as a carer | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* |
| | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | |
| Country | 2.436 | 1 | 0.031 | 0.119 | 9.039 | 1 | 0.059 | 0.003[a] | 5.059 | 1 | 0.044 | 0.08 | 25.593 | 3 | 0.099 | <.001[b] | 9.459 | 3 | 0.06 | 0.024[c] |
| Australia ($n = 1992$) | 524 | 26.3 | | | 1074 | 53.9 | | | 1744 | 87.6 | | | 586 | 29.4 | | | 307 | 15.4 | | |
| New Zealand ($n = 609$) | 141 | 23.2 | | | 286 | 47.0 | | | 533 | 87.5 | | | 140 | 22.9 | | | 56 | 9.2 | | |
| Gender | 6.157 | 3 | 0.049 | 0.104 | 63.813 | 3 | 0.157 | <.001[b] | 12.259 | 3 | 0.069 | 0.056 | 8.862 | 3 | 0.058 | 0.45 | 19.075 | 3 | 0.086 | 0.025[c] |
| Woman ($n = 1315$) | 363 | 27.6 | | | 788 | 59.9 | | | 1166 | 88.7 | | | 372 | 28.2 | | | 176 | 13.4 | | |
| Man ($n = 1275$) | 300 | 23.5 | | | 569 | 44.6 | | | 1100 | 86.3 | | | 349 | 27.4 | | | 203 | 15.9 | | |
| Non-binary/gender diverse ($n = 10$) | 2 | 20.0 | | | 3 | 30.0 | | | 10 | 100 | | | 5 | 50.0 | | | 4 | 40.0 | | |
| Prefer not to say ($n = 1$) | 0 | 0 | | | 0 | 0 | | | 1 | 100 | | | 0 | 0 | | | 0 | 0 | | |
| Age | 5.69 | 3 | 0.047 | 0.128 | 5.927 | 3 | 0.048 | 0.115 | 209.122 | 3 | 0.284 | <.001[b] | 27.238 | 3 | 0.012 | 0.001[b] | 88.549 | 3 | 0.185 | <.001[b] |
| 18–34 years ($n = 691$) | 196 | 28.4 | | | 339 | 49.1 | | | 643 | 93.0 | | | 211 | 30.5 | | | 150 | 21.7 | | |
| 35–44 years ($n = 587$) | 156 | 26.6 | | | 328 | 55.9 | | | 537 | 91.5 | | | 169 | 28.8 | | | 116 | 19.8 | | |
| 45–59 years ($n = 627$) | 148 | 23.6 | | | 329 | 52.5 | | | 550 | 87.7 | | | 144 | 23.0 | | | 73 | 11.6 | | |
| 60+ years ($n = 696$) | 165 | 23.7 | | | 364 | 52.3 | | | 547 | 78.6 | | | 202 | 29.0 | | | 44 | 6.3 | | |
| Income | 5.105 | 2 | 0.044 | 0.078 | 18.387 | 2 | 0.084 | <.001[b] | 29.565 | 2 | 0.107 | <.001[c] | 31.157 | 2 | 0.109 | <.001[b] | 22.499 | 2 | 0.093 | <.001[b] |
| 0–$50 000 ($n = 795$) | 210 | 26.4 | | | 379 | 47.7 | | | 670 | 84.3 | | | 251 | 31.6 | | | 105 | 13.2 | | |
| $50 001–$100 000 ($n = 810$) | 224 | 27.7 | | | 409 | 50.5 | | | 715 | 88.3 | | | 237 | 29.3 | | | 146 | 18.0 | | |
| $100 001+ ($n = 996$) | 231 | 23.2 | | | 572 | 87.4 | | | 892 | 89.6 | | | 238 | 23.4 | | | 132 | 13.3 | | |
| Marital status | 5.141 | 4 | 0.044 | 0.273 | 12.118 | 4 | 0.068 | 0.016 [b] | 22.384 | 4 | 0.093 | 0.004[c] | 12.966 | 4 | 0.071 | 0.372 | 12.471 | 4 | 0.069 | 0.409 |
| Married/defacto ($n = 1594$) | 410 | 25.7 | | | 867 | 54.4 | | | 1389 | 87.1 | | | 445 | 27.9 | | | 251 | 15.7 | | |
| Single/never married ($n = 663$) | 166 | 26.2 | | | 298 | 47.1 | | | 567 | 89.6 | | | 161 | 25.4 | | | 87 | 13.7 | | |
| Separated/divorced ($n = 270$) | 59 | 21.9 | | | 146 | 54.1 | | | 236 | 87.4 | | | 86 | 31.9 | | | 28 | 10.4 | | |
| Widowed ($n = 76$) | 25 | 32.9 | | | 38 | 50.0 | | | 59 | 77.6 | | | 24 | 31.6 | | | 12 | 15.8 | | |
| Other ($n = 28$) | 5 | 17.9 | | | 11 | 39.3 | | | 26 | 92.9 | | | 10 | 35.7 | | | 5 | 17.9 | | |
| Highest level of education | 17.105 | 5 | 0.081 | 0.004[c] | 39.63 | 5 | 0.123 | <.001[b] | 26.487 | 5 | 0.101 | 0.003[c] | 12.622 | 5 | 0.07 | 0.631 | 27.521 | 5 | 0.103 | 0.025[c] |
| Year 11 or less ($n = 280$) | 53 | 18.9 | | | 124 | 44.3 | | | 234 | 83.4 | | | 85 | 30.4 | | | 29 | 10.4 | | |

**TABLE 5a** (Continued)

| | Following a special dietary pattern | | | | Taking dietary supplements | | | | Would like to see a dietitian (yes or maybe) | | | | Has seen a dietitian themselves | | | | Has seen a dietitian as a carer | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* |
| | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | |
| Year 12 or 13 or equivalent ($n = 433$) | 90 | 20.8 | | | 196 | 45.3 | | | 383 | 88.5 | | | 107 | 24.7 | | | 56 | 12.9 | | |
| Diploma or certificate ($n = 628$) | 174 | 27.7 | | | 343 | 54.6 | | | 548 | 87.3 | | | 191 | 30.4 | | | 80 | 12.7 | | |
| University bachelor degree or higher ($n = 1071$) | 299 | 27.9 | | | 616 | 57.5 | | | 952 | 88.9 | | | 287 | 26.8 | | | 193 | 18.0 | | |
| Trade/apprenticeship ($n = 167$) | 45 | 26.9 | | | 76 | 45.5 | | | 143 | 85.6 | | | 48 | 28.7 | | | 21 | 12.6 | | |
| Unsure/don't know ($n = 22$) | 4 | 18.2 | | | 5 | 22.7 | | | 17 | 77.3 | | | 8 | 36.4 | | | 4 | 18.2 | | |
| Employment status | 4.872 | 2 | 0.043 | 0.088 | 4.725 | 2 | 0.043 | 0.094 | 115.802 | 2 | 0.211 | <.001[b] | 8.657 | 2 | 0.058 | 0.194 | 32.735 | 2 | 0.112 | <.001[b] |
| Employed/working ($n = 1704$) | 459 | 26.9 | | | 908 | 53.3 | | | 1554 | 91.2 | | | 458 | 26.9 | | | 291 | 17.1 | | |
| Not employed, looking for work ($n = 197$) | 45 | 22.8 | | | 89 | 45.2 | | | 170 | 86.3 | | | 60 | 30.5 | | | 33 | 16.8 | | |
| Not employed, not looking for work ($n = 700$) | 161 | 23.0 | | | 363 | 52.9 | | | 553 | 79.0 | | | 208 | 29.7 | | | 59 | 8.4 | | |
| Carer status | 17.688 | 2 | 0.082 | <.001[b] | 5.507 | 2 | 0.046 | 0.064 | 54.558 | 2 | 0.145 | <.001[b] | 61.262 | 2 | 0.153 | <.001[b] | 207.434 | 2 | 0.282 | <0.001 [b] |
| Yes, full-time ($n = 772$) | 231 | 29.9 | | | 398 | 51.6 | | | 713 | 92.4 | | | 259 | 33.5 | | | 219 | 28.4 | | |
| Yes, part-time ($n = 311$) | 92 | 29.6 | | | 182 | 58.5 | | | 277 | 89.1 | | | 113 | 36.3 | | | 61 | 19.6 | | |
| No ($n = 1518$) | 342 | 22.5 | | | 780 | 51.4 | | | 1287 | 84.8 | | | 354 | 23.3 | | | 103 | 6.8 | | |
| Healthcare | 3.835 | 4 | 0.038 | 0.429 | 37.729 | 4 | 0.12 | <.001[b] | 25.215 | 4 | 0.098 | 0.001[c] | 50.273 | 4 | 0.139 | <.001[b] | 26.116 | 4 | 0.1 | 0.010[c] |
| Public only ($n = 1197$) | 304 | 25.4 | | | 566 | 47.3 | | | 1047 | 87.5 | | | 347 | 29.0 | | | 176 | 14.7 | | |
| Public and private ($n = 1055$) | 269 | 25.5 | | | 622 | 59.0 | | | 934 | 88.5 | | | 297 | 28.2 | | | 150 | 14.2 | | |
| Private only ($n = 155$) | 45 | 29.0 | | | 86 | 55.5 | | | 136 | 87.7 | | | 53 | 34.2 | | | 37 | 23.9 | | |
| None ($n = 160$) | 35 | 21.9 | | | 74 | 46.3 | | | 129 | 80.6 | | | 24 | 15.0 | | | 16 | 16.0 | | |
| Don't know ($n = 34$) | 12 | 35.3 | | | 12 | 35.3 | | | 24 | 70.6 | | | 5 | 14.7 | | | 4 | 11.8 | | |

(Continues)

**TABLE 5a** (Continued)

| | Following a special dietary pattern | | | | Taking dietary supplements | | | | Would like to see a dietitian (yes or maybe) | | | | Has seen a dietitian themselves | | | | Has seen a dietitian as a carer | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* | $\chi^2$ | df | *V* | *p* |
| | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | | *n* | % | | |
| Primary language | 2.026 | 1 | 0.028 | 0.155 | 0.373 | 1 | 0.012 | 0.541 | 0.392 | 1 | 0.012 | 0.822 | 0.531 | 3 | 0.014 | 0.912 | 16.303 | 3 | 0.079 | <.001[b] |
| English ($n = 2438$) | 631 | 25.9 | | | 1271 | 52.1 | | | 2134 | 87.5 | | | 678 | 27.8 | | | 342 | 14.0 | | |
| Other ($n = 163$) | 34 | 20.9 | | | 89 | 54.6 | | | 143 | 87.7 | | | 48 | 29.4 | | | 41 | 25.2 | | |

[a]Significant 2×2 result.
[b]Significant omnibus result; follow up 2×2 result reported in Table 5c below.
[c]Significant omnibus result; no significant 2×2 results found.

their expectations, describing the experience as 'informative', 'educational', 'practical', 'reassuring', and 'worthwhile'. They further described the dietitian as 'professional', 'encouraging', 'empathetic', 'friendly', 'understanding', 'helpful', and 'easy to discuss issues with and implement their advice'. A further 22% ($n = 177$) reported their expectations were only partially met, describing the experience as 'average', or 'good but rushed, confronting, or not what they expected', and noted that 'they did not feel listened to' or 'did not learn anything they did not already know or could find online'. Participants who reported that the visit did not meet their expectations (16%, $n = 130$) described it as 'a waste of time/money', 'disappointing', 'expensive' or 'overwhelming', and described the dietitian as 'intimidating' or 'lacking in knowledge', and presenting information that was either 'too difficult', 'too basic' or 'nothing new'.

Most participants who had previously seen a dietitian would recommend the service to family and friends (73%, $n = 596$) because it was 'helpful', 'knowledgeable', 'professional', and they 'achieved the desired results'. The remainder (27%, $n = 221$) would not recommend the service because it was 'unhelpful', 'expensive', 'did not provide any new information', and they were 'dissatisfied with the experience'.

Several associations between findings and demographic characteristics were identified through Pearson's chi-square tests. These are presented in Tables 5a–5c.

## 4 | DISCUSSION

This study provides a comprehensive insight into the public expectations and perceptions of dietetics professionals in Australia and New Zealand. A large representative sample of the Australian and New Zealand population reported that doctors were their most trusted source of nutrition information, although many would also see and trust a dietitian; cost was the primary barrier to access. However, there are important findings that must be addressed to meet expectations of stakeholders, to ensure access to dietitians, and to promote dietitians as experts.

Several findings in this study aligned with those identified in a recent systematic review of multiple stakeholder perceptions of dietetics service delivery experience and views.[14] Of the 44 studies reviewed, 16 explored consumer perspectives of dietetics services in an Australian setting (none explored consumer perspectives in a New Zealand setting). However, most of those studies were conducted with small groups of current consumers of dietetic services targeted to specific areas of care (cancer, chronic kidney disease, diabetes, general/primary care, malnutrition, mental health, weight loss). The present study adds to our understanding of public perceptions of nutrition and dietetics professionals by

**TABLE 5b** Results of select preliminary crosstabulations.

| | Dietitians selected as a source of nutrition and diet information | | GPs selected as a source of nutrition and diet information | | Online/telehealth as preferred location to visit a dietitian | | Doctor recommendation/referral as reason for having visited a dietitian | |
|---|---|---|---|---|---|---|---|---|
| | ***n*** | **%** | ***n*** | **%** | ***n*** | **%** | ***n*** | **%*** |
| Country | | | | | | | | |
| Australia ($n = 1992$) | 605 | 30.4 | 1240 | 62.3 | 646 | 32.4 | 120 | 20.5 |
| New Zealand ($n = 609$) | 169 | 27.8 | 391 | 64.3 | 153 | 25.1 | 28 | 20.0 |
| Gender | | | | | | | | |
| Woman ($n = 1315$) | 403 | 30.7 | 817 | 62.2 | 449 | 34.1 | 71 | 19.1 |
| Man ($n = 1275$) | 366 | 28.8 | 808 | 63.5 | 347 | 27.2 | 77 | 22.1 |
| Non-binary/gender diverse ($n = 10$) | 5 | 50 | 6 | 60.0 | 3 | 30.0 | 0 | 0 |
| Prefer not to say ($n = 1$) | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| Age | | 35.3 | | | | | | |
| 18–34 years ($n = 691$) | 244 | 29.5 | 389 | 56.3 | 255 | 36.9 | 16 | 7.6 |
| 35–44 years ($n = 587$) | 173 | 26.8 | 338 | 57.7 | 229 | 39.0 | 26 | 15.4 |
| 45–59 years ($n = 627$) | 168 | 27.2 | 395 | 63.1 | 182 | 29.0 | 33 | 22.9 |
| 60+ years ($n = 696$) | 189 | | 509 | 73.3 | 133 | 19.1 | 73 | 36.1 |
| Income | | | | | | | | |
| 0–$50 000 ($n = 795$) | 190 | 24.0 | 496 | 62.7 | 187 | 23.5 | 61 | 24.3 |
| $50 001–$100 000 ($n = 810$) | 262 | 32.3 | 484 | 59.8 | 232 | 28.6 | 50 | 21.1 |
| $100 001+ ($n = 996$) | 322 | 32.3 | 651 | 65.4 | 380 | 38.2 | 37 | 15.5 |
| Marital status | | | | | | | 90 | |
| Married/defacto ($n = 1594$) | 489 | 30.7 | 1008 | 63.3 | 504 | 31.6 | 30 | 20.2 |
| Single/never married ($n = 663$) | 181 | 28.7 | 374 | 59.3 | 204 | 32.2 | 21 | 18.6 |
| Separated/divorced ($n = 270$) | 77 | 28.5 | 188 | 69.6 | 69 | 25.6 | 6 | 24.4 |
| Widowed ($n = 76$) | 22 | 28.9 | 45 | 59.2 | 15 | 19.7 | 1 | 25.0 |
| Other ($n = 28$) | 5 | 17.9 | 16 | 57.1 | 7 | 25.0 | | 10.0 |
| Highest level of education | | | | | | | 24 | 28.2 |
| Year 11 or less ($n = 280$) | 74 | 26.5 | 180 | 64.5 | 61 | 21.8 | 22 | 20.6 |
| Year 12 or 13 or equivalent ($n = 433$) | 108 | 24.9 | 263 | 60.7 | 108 | 24.9 | 38 | 19.9 |
| Diploma or certificate ($n = 628$) | 200 | 31.9 | 415 | 66.3 | 188 | 29.9 | 49 | 17.1 |
| University bachelor degree or higher ($n = 1071$) | 339 | 31.7 | 664 | 62.0 | 391 | 36.5 | 15 | 31.3 |

(Continues)

**TABLE 5b** (Continued)

| | Dietitians selected as a source of nutrition and diet information | | GPs selected as a source of nutrition and diet information | | Online/telehealth as preferred location to visit a dietitian | | Doctor recommendation/referral as reason for having visited a dietitian | |
|---|---|---|---|---|---|---|---|---|
| | ***n*** | **%** | ***n*** | **%** | ***n*** | **%** | ***n*** | **%*** |
| Trade/apprenticeship ($n = 167$) | 51 | 30.5 | 99 | 59.3 | 47 | 28.1 | 0 | 0 |
| Unsure/don't know ($n = 22$) | 2 | 9.5 | 10 | 47.6 | 4 | 18.2 | | |
| Employment status | | | | | | | | |
| Employed/working ($n = 1704$) | 527 | 31.0 | 1040 | 61.1 | 592 | 34.7 | 69 | 15.1 |
| Not employed, looking for work ($n = 197$) | 57 | 29.1 | 112 | 57.1 | 58 | 29.4 | 9 | 15.0 |
| Not employed, not looking for work ($n = 700$) | 190 | 27.2 | 479 | 68.5 | 149 | 21.3 | 70 | 33.7 |
| Carer status | | | | | 279 | 36.1 | | |
| Yes, full-time ($n = 772$) | 223 | 28.9 | 444 | 57.5 | 104 | 33.4 | 33 | 12.7 |
| Yes, part-time ($n = 311$) | 106 | 34.1 | 187 | 60.1 | 416 | 27.4 | 11 | 9.7 |
| No ($n = 1518$) | 445 | 29.4 | 1000 | 66.1 | | | 104 | 29.4 |
| Healthcare | | | | | 333 | 27.8 | | |
| Public only ($n = 1197$) | 326 | 27.3 | 742 | 62.1 | 372 | 35.3 | 77 | 22.2 |
| Public and private ($n = 1055$) | 372 | 35.3 | 703 | 66.7 | 49 | 31.6 | 57 | 19.2 |
| Private only ($n = 155$) | 36 | 23.2 | 87 | 56.1 | 38 | 23.8 | 9 | 17.0 |
| None ($n = 160$) | 37 | 23.1 | 84 | 52.5 | 7 | 20.6 | 3 | 12.5 |
| Don't know ($n = 34$) | 3 | 8.8 | 15 | 44.1 | | | 2 | 40.0 |
| Primary language | | | | | | | 140 | 20.6 |
| English ($n = 2438$) | 743 | 30.5 | 1546 | 63.5 | 744 | 30.5 | 8 | 16.7 |
| Other ($n = 163$) | 31 | 19.0 | 85 | 52.1 | 55 | 33.7 | | |

*Note*: % = % of respondents in the demographic category. %* = % of respondents in the demographic category who had seen a dietitian.
Abbreviation: GP, general practitioner.

**TABLE 5c** Results of follow-up 2×2 Pearson's chi-square tests.

| | $\chi^2$ | df | *V* | *p* |
|---|---|---|---|---|
| Following a special dietary pattern (Yes/No) | | | | |
| Caring responsibilities (full time and part time carers vs. not a carer) | 17.675 | 1 | 0.082 | <0.001 |
| Have seen a dietitian for themselves (in any setting vs. has not seen a dietitian) | 186.757 | 1 | 0.268 | <0.001 |
| Have seen a dietitian as a carer (in any setting vs. has not seen a dietitian) | 85.923 | 1 | 0.182 | <0.001 |
| Taking dietary supplements (Yes/No) | | | | |
| Country (Australian vs. New Zealand resident) | 9.039 | 1 | 0.059 | 0.003 |
| Gender (women vs. men) | 62.168 | 1 | 0.155 | <0.001 |
| Income (highest tertile vs. lower tertiles combined) | 17.107 | 1 | 0.081 | <0.001 |
| Health insurance (hold private health insurance vs. no private health insurance) | 35.142 | 1 | 0.116 | <0.001 |
| Highest level of education attained (diploma or university vs. lower levels of education) | 33.942 | 1 | 0.114 | <0.001 |
| Dietitians selected as a source of nutrition and diet information (Yes/No) | | | | |
| Age (18–34 years vs. older quartiles) | 13.883 | 1 | 0.073 | <0.001 |
| Annual household income (<$50 000 vs. higher tertiles) | 18.800 | 1 | 0.085 | <0.001 |
| GPs selected as a source of nutrition and diet information (Yes/No) | | | | |
| Age (60+ years vs. younger quartiles) | 44.168 | 1 | 0.130 | <0.001 |
| Interested in seeing at dietitian if available at no cost (Yes + maybe vs. No) | | | | |
| Age (18–34 years vs. older quartiles) | 99.657 | 1 | 0.196 | <0.001 |
| Employment status (employed or looking for work vs. not employed and not looking for work) | 85.595 | 1 | 0.180 | <0.001 |
| Caring responsibilities (full time and part time carers vs. not a carer) | 44.099 | 1 | 0.130 | <0.001 |
| Online/telehealth as preferred location to visit a dietitian | | | | |
| Highest level of education attained (university vs. lower levels of education) | 28.670 | 1 | 0.105 | <0.001 |
| Country (Australian vs. New Zealand resident) | 11.700 | 1 | 0.067 | <0.001 |
| Age (18–34 years vs. older quartiles) | 60.184 | 1 | 0.152 | <0.001 |
| Employment status (employed vs. looking for work or not employed and not looking for work) | 37.572 | 1 | 0.120 | <0.001 |
| Have seen a dietitian for themselves (in any setting vs. has not seen a dietitian) | | | | |
| Country (Australian vs. New Zealand resident) | 9.581 | 1 | 0.061 | 0.002 |
| Age (45–59 years vs. other quartiles) | 10.043 | 1 | 0.062 | 0.002 |
| Annual household income (<$50 000 vs. higher tertiles) | 12.943 | 1 | 0.071 | <0.001 |
| Caring responsibilities (full time and part time carers vs. not a carer) | 38.209 | 1 | 0.121 | <0.001 |
| Health insurance (hold private health insurance vs. no private health insurance) | 11.305 | 1 | 0.066 | <0.001 |
| Have seen a dietitian as a carer of a child or other family member (in any setting vs. has not seen a dietitian) | | | | |
| Age (under 45 years vs. 45 years and over) | 74.178 | 1 | 0.169 | <0.001 |
| Annual household income (<$100 000 vs. > $100000) | 9.592 | 1 | 0.061 | 0.002 |
| Primary language (English vs. other) | 15.060 | 1 | 0.076 | <0.001 |
| Employment status (employed or looking for work vs. not employed and not looking for work) | 30.240 | 1 | 0.108 | <0.001 |
| Doctor recommendation/referral as reason for having visited a dietitian (Yes/No) | | | | |
| Age (60+ years vs. younger quartiles) | 40.772 | 1 | 0.125 | <0.001 |
| Employment status (not employed and not looking for work vs. employed or looking for work) | 33.152 | 1 | 0.113 | <0.001 |
| Annual household income (<$50 000 vs. higher tertiles) | 11.735 | 1 | 0.067 | <0.001 |

capturing the perspectives of non-consumers and current consumers of a broad range of dietetics services. This work promotes a critical discussion for practising dietitians, dietetic educators, and policymakers.

Participants noted dietitians were highly trusted sources of food, nutrition, and dietary advice, second only to medical practitioners (specialist doctors and GPs). This is consistent with findings in other general population

studies in international and Australian cohorts.[15–18] In this study, the first to explore trust with New Zealand residents alongside Australians, dietitians were most trusted by younger participants and those with higher incomes, while GPs were most trusted by participants over 60 years of age. No such associations were identified or reported in earlier studies.[15–18] Given that individuals are likely to access their GPs at least annually,[19] it is unsurprising that they hold a position of trust. However, there is currently limited nutrition content in medical education and training[20] and GPs have reported real or perceived lack of nutrition knowledge and capability.[21,22] Dietitians, as nutrition advocates, are able to address this gap in knowledge by providing entry-level training and continuing professional development for doctors.[21] Other barriers to doctors providing nutrition advice, such as a lack of interest or time to provide nutrition advice in consultations, may require structural changes to health systems and funding models, or better working relationships and referral pathways to dietitians.[21–23] However, given the greater government funding for medical services in both Australia and New Zealand, the public's preference to receive nutrition advice from doctors may relate to a health system with limited access to dietitians. Regardless, most participants in the present study knew that dietitians hold university qualifications in nutrition, and many of those who had seen a dietitian were referred by their doctor. These factors may contribute to the public's trust and confidence in dietitians.

In this study, the internet and food packaging or product information were more frequently chosen information sources than dietitians or nutritionists, although GPs were the most popular source of nutrition information. This differs from other studies, where written and online sources, not doctors, have been the most popular,[15–18] with online sources increasing.[16] Similarly to the role dietitians may play in educating other health professionals, dietitians can support public access to credible nutrition information by contributing to publicly available nutrition information such as websites, social media, podcasts, books, magazines and food packaging or product information.

Almost one third of participants had previously consulted a dietitian; about half of these were in clinic settings while others were seen in hospital inpatient and community outpatient settings. Hospital inpatient and community outpatient settings were more commonly utilised by those with lower household incomes, while clinic settings were more commonly utilised by those with private health insurance. These results suggest that cost of services plays a role in choice and access to services. Indeed, cost was the most frequently reported factor influencing choice of dietetic services in this study, and also a main theme in a qualitative study with 25 health consumer representatives.[24] Inpatient and outpatient services are typically available for patients with acute, serious or complex nutrition-related health concerns, and although services may be at no cost to individuals, wait lists may apply. Private clinic settings provide an opportunity for individuals to be seen for management of nutrition-related chronic diseases, commonly cardio-metabolic conditions[25] and for preventive services to maintain and optimise good health. Services in clinic settings may be privately funded or supported by a government rebate (for those in Australia; government rebates are not currently available in New Zealand), although clients will usually incur out-of-pocket costs. Government rebates for dietetics services in Australia require medical referral for only a limited number of conditions, reinforcing dietitians in a treatment rather than prevention context. Out of pocket costs or limited scope for medical referral restricts nutrition care for health optimisation, disease prevention, and chronic disease management to those able to pay privately for these services.

Participants in this study who were most interested in seeing a dietitian were young, with caring responsibilities, and working or looking for work. The cost of private dietetics services is likely to make these services inaccessible for those most interested in accessing them. Addressing the nutrition-related health concerns of young adults with caring responsibilities may yield considerable savings in government healthcare expenditure related to long-term chronic disease management, as demonstrated in the recent New Zealand economic evaluation of dietetics services and other studies.[2,8] While further research is needed to demonstrate the economic benefit of dietetics services in Australia, greater funding for private services in both Australia and New Zealand through, for example, increasing and extending the government rebates for broader, longer, and more frequent services may yield similar outcomes.

In-person visits were preferred by the majority of participants in this study, consistent with their preference for body measurements and blood tests (which can only be done in person) and valuing the client-practitioner relationship (which may be easier to establish face to face). GP and health clinics were the preferred locations for accessing dietetics services by participants in this study. These were also the most popular settings identified in Elliott and Gibson's 2023 systematic review[14] and Somerville et al.'s 2021 qualitative exploration.[24] In addition to providing convenience for clients, co-located dietetic and medical services support collaboration and strong referral relationships between dietitians and GPs, who are their main source of referral.[25,26] However, dietetics services in these settings continue to be limited by available funding and again would benefit from revision of government-subsidised visits.[14]

Online dietetic services were preferred by younger, working, and university-educated participants. The ability for individuals to access services conveniently extends the availability of these services to those with significant work, personal, or caring responsibilities, those experiencing challenges with mobility or transport, and those geographically disparate from dietetics services. Online and telehealth services have been demonstrated to be an effective mode of providing dietetic services[27] and preferred by younger clients.[14,28] Thus, it is likely that this will be an expanding area of practice that will require a continued shift in practice and funding models as well as training for dietitians.[27] Providing online services, particularly if operating remotely in a sole-practitioner setting, has implications for how dietitians practice, learn, receive referrals, and collaborate with other health professionals. New systems and ways of working, including shared electronic health records, developing supportive networks and engaging in virtual practice supervision, will be important to support effective patient care.[26,29–31]

Participants in this study expected nutrition service providers to provide take-home written information including meal plans, information about food, and assessment results. This is consistent with the expectations of participants in studies included in the Elliott & Gibson[14] review who wanted personalised written information and individual meal plans. Individually tailored resources may help to differentiate dietetics services from generic nutrition information in publicly available resources and elevate the perceived value of such a service. This could combat the negative perceptions of some participants in this study who reported that the dietitian did not provide any new information beyond what they could find online. Strategies for providing personalised advice and templates for individual meal plans and other written information could be introduced and practised during dietetic education and training. These types of practices are considered entry-level skills for dietitians[32] and involve limited elements of the Behaviour Change Technique Taxonomy.[33] Behaviour change techniques have been demonstrated to be effective in informing the development of dietetics interventions.[34,35] They have been included in dietetics curricula for over a decade and continued inclusion with greater focus, scaffolding, and integration of behaviour change science is recommended to further enhance client outcomes and satisfaction.[34,36]

Beyond personalised written and verbal advice, these findings show that Australian and New Zealand consumers want their personalised services to be informed by specific weight and other body measurements, blood tests, dietary analysis results, and eating behaviour analysis results. Currently, most dietitians in Australia and New Zealand are trained to perform basic anthropometric measurements and may have limited familiarity with tests used to inform personalised recommendations including nutrigenomic testing. Dietitians may require further training to provide these services, and funding models will need to adapt to provide sufficient time for dietitians to incorporate these into their practice. It is not usually considered within dietetic scope of practice to order blood tests in Australia, although international models exist for this extended scope.[37] In New Zealand, following completion of Dietitian Prescriber Training and continued monitoring by the Dietitians Board, dietitians are able to either prescribe or authorise dispensing of specific subsidised products and special foods.[38] Other models to extend dietetics scope of practice have been evaluated in Australia and New Zealand, and this research is timely to advance these discussions in relation to consumer expectations of services.[39,40] Conversely, dietitians may need to engage in public education to shift consumer expectations and understanding of the multiple and varied roles of dietitians.[10]

Participants who were satisfied with dietetics services described the dietitian as professional, encouraging, empathetic, friendly, understanding, helpful, and easy to discuss issues with and implement their advice. Professionalism and client-dietitian relationships have been the focus of recent dietetic research in Australia. Dart et al have defined professionalism[41,42] and published recommendations for teaching and assessment of professionalism in dietetics[43] which may serve as useful guidelines for dietetic educators to use when facilitating the development of professionalism with student dietitians. Many of the other terms used to positively describe dietitians relate to the client-dietitian relationship, which has been found to be important to clients and perceived to positively influence client outcomes in a systematic integrative review of 76 studies.[44] Relationships between stakeholders, and particularly the client-dietitian relationship was also a key theme identified by Elliott & Gibson[14] that influenced patients' healthcare progress. Developing relationships with clients is complex and requires skills training.[45] Through an analysis of curriculum documentation and programme coordinators' perspectives, Nagy et al. found that the client-dietitian relationship was ambiguously and inconsistently embedded in dietetics programmes in Australia and highlighted the need for dietetic educators to define and focus this content more clearly.[46]

A strength of this study was the large representative sample of the populations from two countries. The mixed methods approach with free-text response options to follow up multi-select responses enabled the research team to explore the rationale for responses provided, better understand participants' motivations, and provide opportunities for participants to share perceptions and experiences beyond those provided as survey response options. However, there are some limitations of this research. The sample

was representative of the population based on select demographic characteristics and may misrepresent the population in relation to other characteristics. Selection bias is present in the inherent requirement for participants to be able to read and write in English and incentivised participation. Potential biases in the survey and question design include acquiescence bias, where participants make a selection that is available but may not have identified it on their own, and omission bias, where an option that may have been particularly relevant was not listed. Free text responses were sometimes too brief and/or vague to be meaningfully included in analyses (e.g., 'it was good' does not describe what was 'good' or why it was perceived to be 'good'). Free text questions also asked only about experiences with dietitians, and information about experiences with other health professionals is not available for comparison. Finally, this survey considers perspectives related to only one aspect of dietetics practice (management of individuals), while there are many diverse current and future roles in dietetics.[10]

The results of this study have implications for practising dietitians, dietetics educators, and funders of dietetics services. Doctors are still perceived as a primary informant for nutrition advice therefore dietitians need to advocate for better training of medical practitioners in nutrition, to support dietetics input. Cost as a barrier to seeing a dietitian suggests that funding for type, duration, and number of visits (access) to dietitians requires review, with advocacy to government by dietetics leaders and professional bodies. Services such as provision of personalised written information are expected. Dietetics educators should prepare future dietitians to meet the needs of clients reported here, play a role in educating other health professionals, and advocate for health funding review.

## AUTHOR CONTRIBUTIONS

All authors conceptualised and designed the study, AF analysed the data, all authors interpreted the data, AF drafted the manuscript, and all authors critically revised the manuscript. All authors agree to submit the manuscript and declare that the content has not been published elsewhere. All authors wish to acknowledge the contributions of Professor Deborah Kerr, Dr Katrina Campbell, Professor Claire Palermo, Ms Tina Gingell, and Professor Danielle Gallegos for their advice and support for this project.

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## CONFLICT OF INTEREST STATEMENT

The authors have no conflicts to declare.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in QUT Research Data Finder at https://doi.org/10.25912/RDF_1712207067618.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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