Patients’ perceptions of nutrition care provided by general practitioners: focus on Type 2 diabetes

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Background. In Australia, GPs are central to managing individuals with chronic disease. Due to the influence of lifestyle behaviour on chronic disease health outcomes, GPs may counsel an individual about nutrition to assist the individual to improve their nutrition behaviour. Patients with a positive regard for their health care are more likely to adhere to lifestyle changes which have been recommended by a health professional. It is unclear whether this relationship extends to the context of nutrition and general practice. The management of Type 2 diabetes presents as a relevant scenario to investigate patients’ perceptions of nutrition care provided by Australian GPs.

Objectives. This study examines the perceptions of individuals with Type 2 diabetes regarding the nutrition care they have received from GPs.

Methods. Nine hundred and thirty-nine individuals with Type 2 diabetes completed a 54-item online survey. Individual survey items related to demographic information, health-related attributes, perspectives on ideal care and reflections on previous care.

Results. Eighty-four per cent of respondents perceived that ideal management of Type 2 diabetes by GPs includes nutrition care, however, only 43% of respondents report to have received this care from a GP. Over 91% of respondents are satisfied with their GP regarding nutrition care, but only 34% of respondents believe this care has been effective in improving their personal nutrition behaviour.

Conclusion. Patients do not receive nutrition care from GPs as often as they would like, and despite being satisfied with the overall care received, are concerned about the effectiveness of the nutrition care component.

Keywords. General practice, nutritional management, patient satisfaction, Type 2 diabetes mellitus.

Introduction

Preventing and managing chronic disease are fundamental to modern health care systems. Many chronic diseases such as Type 2 diabetes and cardiovascular disease are influenced by lifestyle factors, which broadly encompass nutrition, physical activity and smoking.1 As a consequence, achieving optimal health outcomes often relies on patients adopting healthy lifestyle behaviours. It is, therefore, important that models of health care incorporate factors which will facilitate patients to improve their lifestyle.

In Australia, GPs are central to managing the health care of individuals who live with a chronic disease,2 and it is expected that GPs will either provide or coordinate all related aspects of health care. In order to assist individuals to improve their health behaviour, GPs may engage in lifestyle-related care. For example, GPs may counsel an individual about nutrition in an attempt to assist the individual to improve their nutrition behaviour. This has previously been referred to as ‘nutrition care’.3

Over the past two decades, health care provided to individuals has changed from a practitioner-centred approach towards a more patient-centred approach.4 The concept of patient-centred care dominates the present Australian health care reform,5 perhaps due to observed improvements in the health outcomes of patients associated with a patient-centred approach. One of the reasons for these improvements is that patient-centred care usually improves patients’ regard for their received health care, which increases the likelihood that patients will adhere to the lifestyle changes recommended by health professionals.6 It is therefore
imperative that GPs, as central health service providers for individuals with chronic disease, provide patient-centred care if we are to maximize the probability that patients will adhere to recommended changes in behaviour.

Despite this general relationship between the perceptions of patients and subsequent adherence to lifestyle recommendations, the views of patients regarding the nutrition care they have received from GPs remains to be investigated in Australia. Investigations regarding the role of GPs in providing nutrition care remains controversial, with GPs expressing concerns over their competence to provide this care. Therefore, it is important to explore patients’ nutrition-related perceptions, particularly their experiences, expectations and satisfaction in order to support GPs to identify methods to improve future nutrition care.

This paper examines the perceptions of nutrition care received from GPs by individuals with Type 2 diabetes. Type 2 diabetes has been selected as the model disease for the study for the following reasons: (i) it is a chronic disease in which optimal health outcomes rely on patient self-management and appropriate nutrition behaviour; (ii) over 4.5 million general practice consultations in Australia each year involve diabetes-related care and (iii) nutrition care is a prominent feature of best practice guidelines for the management of Type 2 diabetes by Australian GPs.

Methods

Survey instrument

A cross-sectional online survey was developed using LimeSurvey™ version 1.82. The best practice guidelines for management of Type 2 diabetes in Australian general practice were used to inform the survey content, as this document describes the expected practices of GPs in this context. After a review of relevant literature and discussions with patients with Type 2 diabetes that were known to the research team, some additional topics were identified as requiring investigation and were included in the survey, such as diabetes-related characteristics and private health insurance coverage. Fifty-four survey items were clustered into four sections, each with a distinct rationale for investigation and a variety of response modes (Table 1).

Sections 1 and 2, respectively, related to general demographics and health-related attributes of respondents. Questions within these sections were included to enable the identification of relationships between participant characteristics and patient perceptions. Where possible, question response formats were composed in a comparable format to the Diabetes Australia, Queensland (DAQ) information database to enable comparisons between the survey sample and the potential participant pool. Additional demographic questions were included which were relevant to the Australian general practice context due to the potential to influence health services received by respondents, such as possession of a Medicare card, chronic disease management plan and private health insurance. A number of health-related attributes were also included due to the potential influence on the nature of health care received by respondents, such as frequency and continuity of GP consultations and consultations with additional health care providers.

The third survey section related to the perspectives of respondents regarding ‘ideal nutrition care’. This information enabled a comparison between the perspectives of patient regarding preferred nutrition care and the documented best practice guidelines for care in this context. Questions were modelled from the recommended practices listed in the best practice guidelines for Type 2 diabetes management in general practice. General care practices were included in addition to nutrition-specific practices for use as references to other aspects of care which are usually expected to be provided by GPs. The fourth survey section focussed on respondents’ reflections of nutrition care previously received from their GP. This information enabled respondents to identify practices that have been provided by their GP as well as report on their satisfaction with this received care. Questions reflected the content of Section three, as derived from the best practice guidelines for the management of Type 2 diabetes in general practice.

Initial survey piloting comprised of a review of the online survey by five GPs. These GPs provided feedback on face validity and reasonableness of question wording. Recommendations for changes to survey wording included minor word editing, which was completed prior to further piloting. Secondary survey piloting comprised of the online completion of the survey by 10 individuals with Type 2 diabetes, for feedback on the interpretation and understanding of survey items. The primary purpose of this pilot phase was to minimize question ambiguity. After completion of the survey, these individuals were asked to comment on their interpretation of each survey item as well as the clarity of item wording and survey layout. The recommendations to survey wording for the purposes of maximizing question interpretation and understanding included minor word editing, and this was completed prior to data collection. The finalized survey was intended to take ~15 minutes to complete and was only available in English.

Participant sampling

The potential participant pool were individuals with Type 2 diabetes who were registered with DAQ in February 2011 (n = 9518). DAQ is Queensland’s primary organization for support, advocacy and research
for people with Type 2 diabetes. An introductory e-mail was sent by DAQ to the potential participant pool including a brief description of the study, assurance of confidentiality, a link to complete the survey and contact details of the research team. Confidentiality of survey responses was ensured through the certified anonymous LimeSurvey™ program. Two reminder e-mails were sent to the potential participant pool, 2 and 4 weeks after the initial e-mail.

Data analysis
All analyses were conducted using the SPSS statistical software package version 19. Descriptive statistics were calculated for each survey item including frequency distribution, mean and mode responses. Gender and age were compared between survey respondents and the total potential participant pool using chi-square goodness-of-fit analyses to test for representation of the survey sample. Level of education was compared between survey respondents and the 2008 AusDiab survey using chi-square goodness-of-fit analysis. Participants’ expectation for nutrition care, rate of receiving nutrition care and satisfaction with nutrition care were compared with demographic characteristics including gender, level of education and income using Pearson’s chi-squared tests. In order to comply with the assumptions underpinning chi-square analyses, categories were collapsed to ensure that <20% of cells remained below minimum counts. Statistical significance level was set at \( P < 0.05 \).

Results
Of the 9518 e-mails sent to potential participants, 925 e-mails failed to reach a recipient and a further 17 individuals contacted the research team informing they were unable to access the survey on their computer.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>The survey consisted of four sections, each with a distinct Rationale for investigation and a variety of response modes</th>
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<tbody>
<tr>
<td>Section</td>
<td>Rationale for investigation</td>
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<tr>
<td>1. General demographics</td>
<td>Allows indication of representativeness of the sample by a comparison to the DAO total potential participant pool.</td>
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<td></td>
<td></td>
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<tr>
<td>2. Health-related attributes</td>
<td>Enables identification of relationships between participant characteristics and patient perceptions.</td>
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<td></td>
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<td></td>
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<tr>
<td>3. Perspective on ideal care	extsuperscript{c}</td>
<td>Enables comparison between patient perspectives of the ideal level of GP nutrition care and the documented best practice guidelines for care in this context.</td>
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<tr>
<td>4. Reflections on previous care</td>
<td>Enables reflection of patient satisfaction of nutrition care received in the general practice setting and resulting perceived enablement of healthy nutrition practices.</td>
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</tbody>
</table>

MCQ, multiple choice question; pt, point.
	extsuperscript{a}Demographic questions derived in compatible format to DAO database.
	extsuperscript{b}Care practices derived from best practice guidelines for management of Type 2 diabetes in Australian general practice.
	extsuperscript{c}Questions relate to care practices provided from an unidentified health professional.
Nine hundred and fifty people accessed the survey, with 939 (99%) meeting the eligibility criterion of being diagnosed with Type 2 diabetes. An accurate response rate is difficult to determine because there was no way to estimate the number of potential participants who were sent the e-mail but did not read it. Nevertheless, the response rate was at least 11%. The general demographics of respondents are illustrated in Table 2. No significant difference was observed between the survey respondents and the potential participant pool with regards to gender \((P > 0.05)\). A difference in age was observed between the survey respondents and the potential participant pool \((P = 0.008)\). From visual inspection of the data, survey respondents reported lower age groups than the potential participant pool. A difference in education level was observed between the survey respondents and the potential participant pool \((P = 0.000)\). From visual inspection of the data, survey respondents reported a higher education level than the 2008 AusDiab report \((P = 0.000)\).

A clear discrepancy was identified between respondents’ preference for nutrition care, and nutrition care practices reported as being received from a GP. Eighty-four per cent of respondents stated that receiving nutrition care would be beneficial to the management of their diabetes, however, only 43% of respondents have received this advice from their GP. These experiences are contrary to other diabetes-related practices, such as explaining risk factors of diabetes or prescribing medication for diabetes. For example, 86% of respondents reported that ideal Type 2 diabetes management encompasses an explanation of diabetes risk factors and 84% of respondents reported previously receiving this care from a GP.

### Table 2  Demographic characteristics of survey respondents \((n = 939)\)

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Number of respondents ((n))</th>
<th>Percentage ((%))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>505</td>
<td>53.2</td>
</tr>
<tr>
<td>Female</td>
<td>434</td>
<td>46.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25 years</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>25–34 years</td>
<td>5</td>
<td>0.5</td>
</tr>
<tr>
<td>35–44 years</td>
<td>43</td>
<td>4.5</td>
</tr>
<tr>
<td>45–54 years</td>
<td>161</td>
<td>16.9</td>
</tr>
<tr>
<td>55–64 years</td>
<td>359</td>
<td>37.8</td>
</tr>
<tr>
<td>65–74 years</td>
<td>274</td>
<td>28.8</td>
</tr>
<tr>
<td>&gt;75 years</td>
<td>90</td>
<td>9.5</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>30</td>
<td>3.4</td>
</tr>
<tr>
<td>Some high school</td>
<td>240</td>
<td>25.7</td>
</tr>
<tr>
<td>Completed high school</td>
<td>179</td>
<td>19.2</td>
</tr>
<tr>
<td>Completed University/Technical</td>
<td>484</td>
<td>51.7</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>54</td>
<td>6.0</td>
</tr>
<tr>
<td>$1–$79 per week (($52–$4159 per year))</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>$80–$199 per week (($4160–$10 399 per year))</td>
<td>28</td>
<td>3.1</td>
</tr>
<tr>
<td>$200–$399 per week (($10 400–$20 799 per year))</td>
<td>118</td>
<td>12.8</td>
</tr>
<tr>
<td>$400–$599 per week (($20 800–$31 199 per year))</td>
<td>123</td>
<td>13.3</td>
</tr>
<tr>
<td>$600–$799 per week (($31 200–$41 599 per year))</td>
<td>120</td>
<td>13.0</td>
</tr>
<tr>
<td>$800–$1499 per week (($41 600–$77 999 per year))</td>
<td>231</td>
<td>24.8</td>
</tr>
<tr>
<td>$1500 or more per week (($78 000 or more per year))</td>
<td>251</td>
<td>26.9</td>
</tr>
<tr>
<td>Medicare and private health insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possession of Medicare Card</td>
<td>922</td>
<td>98.2</td>
</tr>
<tr>
<td>Utilization of Medicare program</td>
<td>453</td>
<td>48.2</td>
</tr>
<tr>
<td>Private health insurance</td>
<td>665 (593 with extras cover)</td>
<td>70.6 (63.2 with extras cover)</td>
</tr>
</tbody>
</table>

\(^a\)No significant difference was observed between the survey respondents and the potential participant pool with regards to gender \((P > 0.05)\).

\(^b\)A difference in age was observed between the survey respondents and the potential participant pool \((P = 0.008)\). From visual inspection of the data, survey respondents reported lower age groups than the potential participant pool.

\(^c\)A difference in education level was observed between the survey respondents and the 2008 AusDiab report \((P = 0.000)\). From visual inspection of the data, survey respondents reported a higher education level than the 2008 AusDiab participant pool.
Males were more likely to receive nutrition care from GPs than other health professionals ($P = 0.000$). Conversely, females were more likely to receive nutrition care from other health professionals than from GPs ($P = 0.000$). No associations were found between the source of nutrition care and level of education or income.

Over 91% of respondents were either ‘satisfied’ or ‘very satisfied’ with the nutrition care they have received from their GP. The degree of satisfaction with nutrition care was similar to satisfaction with other diabetes-related practices, such as explaining medication options (91% satisfied), explaining diabetes-related risk factors (93%) and potential diabetes-related complications (90% satisfied). Males reported higher satisfaction levels than females regarding the nutrition care received from GPs ($P = 0.015$). No associations were found between satisfaction levels and level of education or income.

Despite the high level of satisfaction reported, a mixed response was identified with regards to the perceived effectiveness of the nutrition care received. When asked on a three-point Likert scale if receiving nutrition care had been effective in improving their personal nutrition behaviour, 34% of respondents responded with ‘definitely effective’, 42% reported ‘somewhat effective’, while 24% reported nutrition care as ‘not effective’.

### Discussion

The present study examines the perceptions of individuals with Type 2 diabetes regarding the nutrition care they have received from GPs. This study is important because a knowledge of patients’ perceptions of nutrition care, particularly their experiences, expectations and satisfaction, will allow GPs to identify methods to improve future nutrition care.

This study suggests that respondents strongly perceive ideal Type 2 diabetes management to include nutrition care. The preference for nutrition care is comparable to other care practices such as explaining the risk factors of Type 2 diabetes and prescribing medications when appropriate. These results indicate a clear agreement between patients and expert groups regarding the important role of nutrition in diabetes management provided by GPs. This finding also reflects the importance of health promotion activities in general practice, as evidenced by national guidelines for GPs.

Careful consideration of this finding is essential, as GPs experience substantial barriers in the delivery of nutrition care to patients, primarily time deficits and poor self-efficacy relating to nutrition. These barriers may why only 43% of the survey respondents reported that they have previously received nutrition care from their GP. It appears that although GPs regard nutrition care as important, and it constitutes part of best practice guidelines, the barriers to nutrition care provision are pervasive, to the extent that less than half of patients are receiving this care.

Despite less than half of respondents reporting to have received nutrition care, the reported satisfaction levels regarding nutrition care are extremely high. This finding raises an issue, as the level to which patient expectations are met has traditionally been regarded as one of the major indicators of patient satisfaction. ‘Patient expectation’ in the general practice context has been previously defined as performed tests or provision of information which is anticipated by the patient in the consultation. Therefore, it is possible

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**Table 3**  
**Respondent perspectives on ideal care, received care and satisfaction of practices received from GPs, in order of perceived ideal care**

<table>
<thead>
<tr>
<th></th>
<th>Ideal care (%)</th>
<th>Previous care (%)</th>
<th>Satisfied with care (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain potential complications of Type 2 diabetes</td>
<td>87</td>
<td>75</td>
<td>94</td>
</tr>
<tr>
<td>Explain risk factors for Type 2 diabetes</td>
<td>86</td>
<td>84</td>
<td>93</td>
</tr>
<tr>
<td>Prescribe appropriate medication</td>
<td>85</td>
<td>81</td>
<td>95</td>
</tr>
<tr>
<td>Provide nutrition advice</td>
<td>84</td>
<td>43</td>
<td>91</td>
</tr>
<tr>
<td>Explain diabetes physiology</td>
<td>83</td>
<td>72</td>
<td>96</td>
</tr>
<tr>
<td>Explain term ‘diabetes’</td>
<td>81</td>
<td>74</td>
<td>92</td>
</tr>
<tr>
<td>Referral to further care or information</td>
<td>78</td>
<td>86</td>
<td>96</td>
</tr>
<tr>
<td>Provide written information on Type 2 diabetes</td>
<td>72</td>
<td>49</td>
<td>95</td>
</tr>
<tr>
<td>Provide exercise advice</td>
<td>71</td>
<td>54</td>
<td>93</td>
</tr>
<tr>
<td>Monitor weight</td>
<td>70</td>
<td>71</td>
<td>88</td>
</tr>
<tr>
<td>Monitor waist circumference</td>
<td>59</td>
<td>30</td>
<td>85</td>
</tr>
</tbody>
</table>

*Ideal care’ refers to the percentage of respondents who claimed that the respective practice would ‘definitely’ assist in the management of Type 2 diabetes. Measured by a 5-point Likert scale where 5 is ‘definitely’ and 1 is ‘not at all’.

*Previous care’ refers to the percentage of respondents who perceive themselves as having received this care by a GP in the past.

*Satisfied with care’ refers to the percentage of respondents who reported themselves as satisfied with each respective practice. Satisfaction was described as scoring 4 or 5 on a 5-point Likert scale where 1 was ‘not satisfied at all’, 4 was ‘satisfied’ and 5 was ‘very satisfied’. Respondents were asked all questions, regardless of whether they reported to have received the respective care practice.
that although patients perceive ideal Type 2 diabetes management to encompass nutrition care, patients may not necessarily expect a GP to provide nutrition care in a given consultation. This suggests that the relationship between patients’ perceptions of ideal care and expectations of actual care is unclear and requires further investigation.

The high level of patient satisfaction with regards to nutrition care is interesting, considering the low self-efficacy reported by GPs for providing nutrition care.5,7 In Australia, patients are not registered to a sole GP practice and are therefore not restrained to a GP service provider. Potentially, these ratings of satisfaction are a result of the ability to visit an alternative GP if unsatisfied, thereby distorting satisfaction ratings by patients. This may also explain the high satisfaction levels regarding other practices listed in the survey as well as previous literature exploring patient satisfaction with Australian GPs.20 Interestingly, the male participants in the survey reported higher satisfaction levels than females with regards to the nutrition care received from GPs. The male participants were also more likely to receive nutrition care from GPs rather than other health professionals. It appears that males may be utilizing GPs for nutrition care due to their high satisfaction levels. However, more research is required to determine whether this association is significant.

Furthermore, the validity of patients’ satisfaction as an indicator of quality care provision has been questioned due to the assumptions of consumers’ determinants of satisfaction.21-23 Many factors have been identified as contributing to patient satisfaction with the care received from GPs, such as frequency and continuity of GP consultations.24-27 However, this has not yet been investigated in a nutrition-specific context.

This study suggests that individuals do not necessarily perceive the nutrition care received from GPs as resulting in improved personal nutrition behaviours. This finding demonstrates dissociation between patient satisfaction and perceived effectiveness of care. The aim of nutrition care is to improve the health outcomes of patients via improvements to their nutrition behaviour.3 Therefore, it is important that the effectiveness of nutrition care is appropriately measured. Measurements should include the health outcomes of a patient in conjunction with their nutrition behaviour. These measures will allow GPs to determine whether the nutrition care provided is resulting in improved health outcomes of their patients. Further research is required to explore the effectiveness of nutrition care provided by GPs on improving patients’ health outcomes.

This study contributes to the body of knowledge regarding patients’ perceptions of nutrition care received from GPs. However, a number of limitations of the study are noted. Those individuals who have a particular interest in their diabetes management may have been more likely to participate in the current survey, thereby potentially influencing the overall results of the study. Despite this, the survey portrays perceptions of a considerable number of people living with Type 2 diabetes and is therefore important for consideration.

This study experienced a lower response rate (11%) when compared to evidence of expected response rates for online surveys (24%-31%).28 It should be acknowledged that online surveys assume that potential participants actively manage the e-mail account listed with the host organization. This assumption may be overestimated with an organization, such as DAQ, where a greater mean age of members may result in less activity online.29 Furthermore, a difference was observed for education levels of survey respondents in comparison to a recent large survey of Australians living with Type 2 diabetes.12 Education levels were assessed in comparison to the 2008 AusDiab survey, which utilized ‘door-to-door’ methods of participant sampling rather than an online survey. This methodological difference may explain why there was an observed difference in respondents’ education levels, as people with higher education levels are more likely to be comfortable with e-mail communication and regularly manage their e-mail account.30

This difference may influence respondents’ perceptions of the diabetes-related care and should be taken into consideration before generalizing the findings to other Australians living with Type 2 diabetes.

This study reports on the perceptions of nutrition care from the perspective of patients. It is important to note that patients’ perceptions of experiences with GPs do not necessarily reflect true occurrences. However, in the context of the managing chronic disease, where a fundamental goal is to assist patients to improve their lifestyle, perceptions of consultations from the perspectives of patients are important considerations.

In conclusion, the current study highlights the complex nature of nutrition care and its role in general practice. Our results suggest that patients do not receive nutrition care from GPs as often as they would like, and despite being satisfied with the overall care received, are concerned about the effectiveness of the nutrition care component. Further research is required to explore the effectiveness of nutrition care provided by GPs on improving patients’ health outcomes.

Acknowledgements

The time, insights and opinions shared by survey respondents are appreciated. Consultation regarding statistical analysis was provided by Dr Mike Steele, Assistant Professor of Statistics, Bond University, Australia.
Declaration

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Ethical approval: the study protocol was reviewed and approved by the Griffith University Human Research Ethics Committee (Protocol Number PBH/30/10/HREC).

Conflict of interest: none.

References