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Research

Australian practice nurses' perceptions of their role and competency to provide nutrition care to patients living with chronic disease

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Abstract. Nutrition is important in the management of chronic disease, and practice nurses in the Australian primary care setting are increasingly providing nutrition care to patients living with chronic disease. The aim of the present study was to investigate practice nurses' perceptions of their role and competency to provide nutrition care to patients living with chronic disease in Australia. Twenty practice nurses currently employed in general practice participated in an individual semi-structured telephone interview. Interviews were transcribed verbatim and thematically analysed. Practice nurses perceived themselves to be in a prime position to provide opportunistic nutrition care to patients. Participants perceived that the ideal role of a practice nurse is to advocate for nutrition and provide a basic level of nutrition care to patients; however, the interpretation of the term 'basic' varied between participants. Participants perceived that practice nurses are highly trusted and approachable, which they valued as important characteristics for the provision of nutrition care. Barriers to providing nutrition care included time constraints, lack of nutrition knowledge and lack of confidence. Participants were concerned about the availability and accessibility of nutrition education opportunities for practice nurses. The present study has demonstrated that practice nurses perceive themselves as having a significant role in the provision of nutrition care to patients with chronic disease in the Australian primary care setting. Further investigation of strategies to enhance the effectiveness of nutrition care provision by practice nurses is warranted.

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Introduction

Health care within developed countries currently focuses on non-communicable chronic health conditions (World Health Organization 2006). Within Australia, the prevalence of chronic health conditions is considerable (Australian Institute of Health and Welfare 2007). Chronic disease is currently responsible for ~70% of the burden of illness experienced by the Australian population, and this figure is predicted to increase by a further 10% by 2020 (Australian Institute of Health and Welfare 2011). The National Public Health Partnership has identified 12 chronic conditions as creating a significant burden on morbidity, mortality and health care costs within Australia (National Public Health Partnership 2001). These chronic conditions include cardiovascular disease, type 2 diabetes, stroke, renal disease, mental health and certain cancers. Many of these chronic conditions are influenced by lifestyle factors, including nutrition (World Health Organization 2003).

Primary care is the initial contact point for individuals requiring health care in Australia (Australian Medical Association 2010). The main interface between individuals and the primary care system is through general practitioners (GP) (Royal Australian College of General Practitioners 2012). GP are increasingly involved in the health care of individuals with chronic health conditions (Britt *et al.* 2012) and perceive nutrition to be important for the management of these conditions (Ball *et al.* 2010). Nutrition care refers to the provision of nutrition-related advice and counselling by a health professional, and is conducted in an attempt to improve the nutrition behaviour of patients (Ball *et al.* 2012). However, GPs experience many barriers to providing nutrition care to patients, including a lack of time and low self-efficacy (Ball *et al.* 2010). As a result, patients do not receive nutrition care from GPs as often as they perceive to be beneficial (Ball *et al.* 2012).

Practice nurses (PNs) are internationally recognised as integral providers of primary care services, particularly in the UK and New Zealand (Halcomb *et al.* 2006). In Australia, PN are an emerging workforce, the aim of which is to support GPs in many areas including chronic disease management (Australian Practice Nurse Association 2011). For example, in July 2005 a Medicare item number (10997) was introduced to allow PNs to assist GPs in developing chronic disease management plans for individuals living with chronic disease (Australian Government Department of Health and Ageing 2012). In addition, PNs can provide consultations to individuals living with chronic disease in order to promote healthy lifestyle behaviours (Australian Practice Nurse Association 2011). Approximately 9000 PNs are currently

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What is known about the topic?

- Practice nurses are increasingly providing nutrition care to patients with lifestyle-related chronic disease. Practice nurses' perceptions regarding their role and the competencies required for effective nutrition care have not been investigated.

What does this paper add?

- Practice nurses perceive nutrition care to be an important part of their role and feel they possess sufficient general knowledge to provide nutrition care. However, further professional development opportunities are perceived as necessary.

working within general practice and it is estimated 60% of general practices employ at least one PN (Australian Practice Nurse Association 2011). Specific lifestyle interventions delivered by PNs have been shown to improve the nutrition behaviour and reduce the risk of developing chronic disease in individuals with an increased risk of chronic disease in the UK and Europe (Steptoe *et al.* 1999; Gibbs *et al.* 2004).

PN believe they have an important role in providing nutrition care to individuals with chronic disease and strongly perceive that diet can improve patients' health outcomes (Mitchell *et al.* 2011). However, the study by Mitchell *et al.* (2011) obtained information from only 12 PNs responding to a quantitative questionnaire with relatively few questions about the role and specific competencies required by PNs for the provision of effective care. Competency can be defined as a multidimensional construct constituting the knowledge, skills and attitudes required to perform a given task (Gonczi 1994). There is a clear need to expand on the study by Mitchell *et al.* (2011) using a more exploratory approach to capture in-depth information about the perceptions of PNs. Understanding the role and capacity for provision of nutrition care by PNs will contribute to greater insight into optimal delivery of primary health care services for the management of chronic disease. Therefore, the aim of the present study was to investigate the perceptions of PNs regarding their role and competency to provide nutrition care to patients living with chronic disease.

Methods

Study design

This qualitative study utilised a semi-structured interview design with open-ended questions. The questions were strategically developed to investigate the perceptions of PNs regarding their role and competency (knowledge, skills and attitudes) to provide nutrition care to patients living with chronic disease. The study protocol was approved by the Griffith University Human Research Ethics Committee (PBH/03/12/HREC).

Participant recruitment

Purposive sampling was utilised to recruit PNs currently employed by a general practice within Australia. Australian Practice Nurses Association, Australian General Practice Network and General Practice Queensland were identified as potential recruitment bodies because each organisation has contact with a considerable portion of PNs in Australia. An introduction email was sent to the organisations, which then distributed the information to PNs via email and newsletter advertisements. Participant recruitment was conducted over approximately 2 months and continued until data saturation was achieved, whereby additional interviews did not result in new themes (Fade and Swift 2011). To determine when data saturation was reached, data review and analysis was undertaken in conjunction with data collection.

Data collection

An individual semi-structured telephone interview was conducted with each participating PN. The open-ended questions were developed through an enquiry logic process (Table 1) (Creswell 2006). The enquiry logic process refers to the development of interview questions that directly align with the investigative aims of the study. Interview data were recorded and written notes were also taken by the researcher. The duration of the telephone interviews ranged from 11 to 39 min, with an average of 21 min.

Data analysis

Immediately following each telephone interview, audiotapes were transcribed verbatim by one investigator (SC) into an electronic format identified by the numeric code for each participant. Audiotapes were transcribed using indexing and partial transcription (Fade and Swift 2011). The index process formulated main topics discussed during the interviews and the estimated occurrence time in the recording. The transcripts were then examined by one investigator (SC) for thematic trends and coded, allowing for comparison between interviews (Fade and Swift 2011). This process was completed before carrying out any further interviews in order to identify data saturation.

The transcripts were analysed using a thematic analysis approach involving the inductive identification of codes that represented themes and emerging patterns (Fade and Swift 2011). Manual qualitative data analysis was conducted by one investigator (SC) and the themes were confirmed through discussions with the other research team members (LB, ML). Original transcripts were edited grammatically to provide examples of key and/or contradicting themes.

Results

Sample characteristics

A total of 20 Australian PNs participated in the study throughout March and April 2012. The demographic characteristics of participants are listed in Table 2. All participants in this sample were female. Prior to their current role as a PN, all participants had at least 1 years' experience as a nurse in another setting. On average, participants had 9 years' experience in primary care. A summary of themes identified from participant interviews are displayed in Table 3.

In summary, the PNs perceived nutrition care to be an important part of their role in chronic disease management. The role includes general advocacy as well as more specific nutrition-related assessment and advice. The PNs were very aware of professional boundaries around nutrition care and were conscious not to overstate their role in relation to other health professionals. The PNs felt that they possessed supportive attitudes and had sufficient general knowledge to provide nutrition care to patients.

Table 1. Enquiry logic and interview questions, including the area of prompting provided by the interviewer

Interview questions	Enquiry logic
Tell me about your experience and current involvement in general practice?	Identify experiences important to the development of perceptions regarding the roles and responsibilities of practice nurses
Describe a situation in which you provide nutrition advice? Confidence	Explore the confidence levels of practice nurses in providing nutrition care to patients surrounding chronic disease
How would you describe the ideal role of practice nurses with regard to nutrition care for patients? Barriers and enablers	Determine what practice nurses perceive their role to be surrounding nutrition care provision in relation to chronic disease
What is the capacity of practice nurses to promote nutrition in general practice? Barriers and enablers	Estimate what practice nurses are able to do in their own scope of practice to promote nutrition, influencing nutrition care provision
What determines whether/when you refer a patient to other health professionals for nutrition care? Referral network Logic process for referral	Explore practice nurse perceptions surrounding their professional boundaries based on beliefs and experiences
What competencies would you identify as necessary for practice nurses to provide nutrition care? Knowledge Skills Attitudes	Compose a list of practice nurse competencies perceived as essential to the successful assessment and treatment of nutrition-related conditions
Is there any additional education or training that practice nurses require in order to provide effective nutrition care to patients? Continuing professional development Availability and awareness	Explore whether practice is aligning with education and training competencies of these health professionals

Table 2. Demographic characteristics of the interview sample (*n* = 20), including gender, years of experience, state of residence and highest level of education

Demographic characteristic	Number of participants
Gender	
Female	20 (100%)
Male	0 (0%)
Years of experience	
<10 years	11 (55%)
10–20 years	6 (30%)
>20 years	3 (15%)
State of residence	
New South Wales	12 (60%)
Queensland	3 (15%)
Western Australia	3 (15%)
Victoria	1 (5%)
Tasmania	1 (5%)
Highest level of education	
Hospital training	5 (25%)
Undergraduate degree	7 (35%)
Postgraduate degree	8 (40%)

The PNs perceived themselves to be in a prime position to advocate for the importance of diet for optimal health.

> *The ideal role is that if you're not taking the opportunity to talk to patients about their diet and exercise, you are just missing every opportunity to save the nation's health in every way possible.* (Participant 17, NSW, 25 years' experience)

In addition, most participants perceived that the role of a PN included provision of basic, evidence-based nutrition advice to patients. However, the interpretation of the term 'basic' varied between participants.

> *I think the ideal practice nurse should have a basic understanding for good nutrition. . .a bit about portion sizing, what are the healthier vegetables and fruits.* (Participant 1, NSW, 24 years' experience)

> *For a newly diagnosed diabetic. . .explain to them that it's not just sugar you have to watch, you also have to watch your carbohydrate. . .probably explain to them how it* [carbohydrates] *gets broken down. . .how that when they eat carbohydrates your body still uses it and stores it as fat and energy. . .It's quite basic, not like a dietitian.* (Participant 20, WA, 5 years' experience)

> *What I've found handy is knowing about the guidelines, so evidence-based.* (Participant 8, NSW, 2 years' experience)

Many participants felt that a non-judgmental, empathetic attitude toward patients was required for effective nutrition care provision. Participants perceived that PNs possessed these attitudes and were therefore in a position to provide nutrition care.

> *And they* [patients] *tell us all sorts of things that they, that really the doctor should be aware of and that the doctor doesn't even know. . .so I think nurses are really well situated to do it* [nutrition care]. (Participant 7, NSW, 10 years' experience)

> *Patients often listen to the nurse, even if they don't take everything on board, they do listen. They don't feel threatened by the nurse usually; they're much more at ease.* (Participant 16, Vic., 4 years' experience)

> *I think we* [PNs] *are much more approachable because we are more relaxed in the way we deliver our health care. I think that approachability is the most important, non-judgemental too.* (Participant 12, NSW, 3 years' experience)

Table 3. Summary of the themes identified during participants' interviews, in accordance with each area of inquiry

Area of inquiry	Summary of themes
Role of practice nurses and nutrition care	• Practice nurses are in a prime position to advocate for the importance of nutrition • The ideal role of a practice nurses is to provide a basic level of nutrition advice to patients, and participate in team-based care regarding nutrition • Practice nurses are highly trusted and approachable
Professional boundaries of practice nurses for nutrition care provision	• Acute awareness of professional boundaries exists but the nature of boundaries is not clear • Practice nurses' decisions to refer a patient on for nutrition-related care are based on perceptions of their own confidence • Practice nurses are aware of the importance of nutrition but often lack confidence to provide nutrition care
Competencies required for effective nutrition care	• Evidence-based nutrition care was seen as very important • Practice nurses require a foundation level of nutrition knowledge in order to provide effective nutrition care • The essential skills for practice nurses to provide effective nutrition care are nutrition assessment and nutrition communication • Practice nurses require a non-judgmental, empathetic attitude toward patients for effective nutrition care provision
Nutrition education of practice nurses	• There is a lack of specific nutrition education opportunities available to practice nurses • Practice nurses want nutrition education and training to be specific, mandatory and continual • Common barriers preventing practice nurses from partaking in nutrition education are a lack of time, funding and available courses

Although the participants felt that the provision of nutrition care was part of the role of a PN, several barriers were identified that impaired the provision of effective nutrition care. These barriers included time constraints, a lack of nutrition knowledge and confidence and unenthusiastic attitudes of patients toward nutrition.

> *There are always time limits and knowledge limits. Also, probably my confidence in that, I am not a dietitian.* (Participant 3, NSW, 3 years' experience)

> *Sometimes I'm really not the best person when I'm not really sure of what they should and shouldn't be eating. But we've got a few dietitians who are specialised and will be quite happy to do this* [provide nutrition care]. (Participant 20, WA, 5 years' experience)

> *We* [PNs] *are just so busy and just so overworked that we don't get time to do that sort of thing* [nutrition care]. (Participant 15, WA, 23 years' experience)

> *People are not willing to listen or change, so I get a lot of dishonest people, and that does make it* [nutrition care] *difficult at times*. (Participant 14, Qld, 3 years' experience)

Most participants were very aware of the existence of professional boundaries around the provision of nutrition care. However, the exact nature of these boundaries was not always clear and the need for referral was based on an individual's perception of their own competence.

> *I do stipulate to people that I am not a dietitian and in my role I am not an expert...my knowledge is general and it is also a lot of common sense as well.* (Participant 14, Qld, 3 years' experience)

> *If I could recognise that it* [patient's nutrition care need] *was beyond my scope of practice, then I would refer definitely.* (Participant 7, NSW, 10 years' experience)

The skills deemed as necessary in providing effective nutrition care were nutrition-related assessment and nutrition-related communication. The importance of the skill to communicate simply yet effectively to patients was commonly highlighted among participants for effective nutrition care.

> *We get the BMI of the patient, weigh them, measure them, talk about their food, all of that*. (Participant 9, Tas., 3 years' experience)

> *You're looking for information while you're looking at them, while you're talking to them and you continually are assessing them and documenting what they say and put it together with the physical observations that you've made*. (Participant 4, Qld, 6 years' experience)

> *Engagement and communication are probably the most important* [skills]. (Participant 13, NSW, 3 years' experience)

> *Communication skills. To be able to talk to the patients and gather information you need. Much the same as what we're doing now.* (Participant 4, Qld, 6 years' experience)

Numerous participants expressed a desire for undertaking continuing professional development in nutrition. However, concern and uncertainty of the availability of professional development opportunities were expressed. Lack of time and funding were identified as potential barriers preventing PNs from accessing professional development opportunities.

> *We* [PN] *could probably be studying and continually updating but it is just a matter of trying to find places to do those or courses to do it and also courses that are not too expensive or lengthy.* (Participant 14, Qld, 3 years' experience)

> *I don't think there is anything out there...there are plenty of updates all the time, but not so much nutrition focussed...I just want to learn more that's all, just to be up on it* [nutrition]. (Participant 2, NSW, 1 years' experience)

> *I think we* [PN] *should all do a nutritional course, solely on nutrition. Yes, definitely because it is in every aspect of what we do. We could use it in any particular area...it*

[nutrition education] *should be compulsory...and it should be an ongoing thing as it changes all the time.* (Participant 6 NSW, 15 years' experience)

They [PN] *definitely need to attend nutritional courses, funded. Funded nutritional courses...I mean I am trying to do, well I am wanting to do a degree in nutritional medicine but it's just too expensive and I can't get funding.* (Participant 10, Qld, 10 years' experience)

Discussion

The aim of the present study was to investigate the perceptions of PN regarding their role and competency to provide nutrition care to individuals living with chronic disease. The PN in this study perceived nutrition as important for chronic disease management. Other health professionals, including GPs, have been shown to have similar views (Dennis *et al.* 2008; Ball *et al.* 2010). This recognition of the importance of nutrition was viewed by participants as an enabler for PNs to provide nutrition care to individuals living with a chronic disease. These perceptions support best-practice guidelines for the management of patients with chronic disease in general practice (Australian Government Department of Health and Ageing 2003; Diabetes Australia and Royal Australian College of General Practitioners 2008) and may contribute to the positive perception of PN toward providing nutrition care.

PN perceived themselves as having a role in providing nutrition care because they are accessible to a significant proportion of the Australian population. This finding is in line with existing literature indicating that PNs are ideally positioned to provide nutrition care and are often the first contact point regarding nutrition (Parker *et al.* 2011; Nolan *et al.* 2012). In addition, PNs perceived themselves to be more approachable than GPs and that this may provide a counselling environment that may be better suited to facilitate lifestyle behaviour change. This finding is similar to that of Nolan *et al*. (2012) who reported that PNs feel confident in their ability to build rapport with patients in order to negotiate goals for lifestyle change. Collectively these studies suggest that despite concern over their competence to provide nutrition care, PNs are well positioned to influence health behaviours of individuals with chronic disease.

The PNs in the present study felt competent at providing basic nutrition care to patients. Similarly, eight out of twelve PNs involved in delivering lifestyle change programs in New South Wales report confidence in their ability to provide nutrition counselling (Mitchell *et al.* 2011). However, the present study found variations in perceptions of 'basic' nutrition care and a reluctance of PNs to cross professional boundaries in relation to nutrition care. Decisions to refer patients for more-specialised nutrition care may be related to the perceived competence of the individual PN and may therefore be quite variable. Further research is required to clarify what constitutes basic nutrition care, and the subsequent pathway of care if a patient requires more-specialised nutrition care.

The PNs were reluctant to cross professional boundaries in the extent of nutrition care provided to patients. The PNs would often refer to 'not being a dietitian' when explaining the scope of their own practice. Interestingly a recent study of different health professionals' views of nutrition care provision suggests that professional boundaries are largely seen as ways of protecting the identity of individual health professions rather than a way of progressing a patient through a coordinated nutrition care process (Ball *et al.* 2013).

Participants suggested that a broad range of competencies are required for effective nutrition care provision, including the need for basic nutrition knowledge, expertise in nutrition assessment, counselling and communication skills, as well as a positive attitude toward nutrition for the delivery of effective nutrition care. A detailed model of the nutrition care process as it relates to dietetic practice has been proposed by Lacey and Pritchett (2003). This model has been shown to improve the consistency of dietetic practice, but it is still unclear if this approach is the optimal way to facilitate changes in nutrition behaviour and subsequent health outcomes in patients with chronic disease. The model proposed includes substantial detail and is not likely to be appropriate for PNs given the time available for consultations (Atkins 2010). Interestingly, brief lifestyle interventions delivered by PNs have been shown to improve the nutrition behaviour and reduce the risk of chronic disease of individuals in the UK and Europe (Steptoe *et al.* 1999; Gibbs *et al.* 2004). Therefore, there may be many different approaches to nutrition care, delivered by a variety of health professionals, which can be effective in the management of chronic disease.

Inadequate knowledge was perceived by PNs to be a barrier to providing effective nutrition care to patients. This finding is in line with research investigating the emerging role of PNs, whereby a lack of adequate knowledge in new areas may affect the care provided by PNs (Pascoe *et al.* 2006). Other health professionals, including GPs, have reported similar perceptions that a lack of sufficient nutrition knowledge results in an inability to provide effective nutrition care to patients (Ball *et al.* 2010, 2013; Pomeroy and Cant 2010). Interestingly, literature on GPs indicates that this perceived lack of knowledge results in an aversion to provide nutrition care (Ball *et al.* 2010). This however does not seem to be the case with PNs as the PNs in the present study were willing to opportunistically provide nutrition care to patients regardless of a perceived low level of nutrition knowledge.

Participants perceived nutrition education to be the highest priority for competency development in nutrition care. Participants expressed a desire for such education to be mandatory in nurse education programs. Opportunities for continuing professional development for PNs in Australia is limited (Pascoe *et al.* 2006). Nutrition-specific continuing professional education for doctors has been shown to improve nutrition knowledge and self-efficacy in addition to enhancing attitudes about the importance of nutrition (Carson *et al.* 2002; Katz *et al.* 2005). However, it is unclear whether these approaches result in practice changes and, ultimately, improved patient health outcomes (Crowley *et al.* 2012). Clearly more research is necessary to evaluate the effectiveness of nutrition-specific continuing professional development programs for PNs.

Conclusion

PNs perceive nutrition care to be an important part of their role in chronic disease management. This role includes general

advocacy as well as more-specific nutrition assessment and advice. The PNs were very aware of professional boundaries around nutrition care and were conscious not to overstate their role in relation to other health professionals. The PNs felt that they possessed supportive attitudes and had sufficient general knowledge to provide nutrition care to patients. However, they expressed a desire to participate in further professional development opportunities in nutrition.

Conflicts of interest

None declared.

References

Atkins M (2010) Canadian perspectives on the nutrition care process and international dietetics and nutrition terminology. *Canadian Journal of Dietetic Practice and Research* **71**(2), 18–20.

Australian Government Department of Health and Ageing (2003) Clinical practice guidelines for the management of overweight and obesity: a guide for general practitioners. Australian Government Department of Health and Ageing, Canberra.

Australian Government Department of Health and Ageing (2012) Chronic disease management (CDM) Medicare items. Available at http://www.health.gov.au/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement [Verified 7 February 2013]

Australian Institute of Health and Welfare (2007) Incidence and prevalence of chronic diseases. Available at http://www.aihw.gov.au/cdarf/data_pages/incidence_prevalence/index.cfm [Verified 7 February 2013]

Australian Institute of Health and Welfare (2011) 'Health expenditure Australia 2009–10, no. 46.' (AIHW: Canberra)

Australian Medical Association (2010) Primary health care – 2010. Available at http://ama.com.au/node/5992 [Verified February 2012]

Australian Practice Nurse Association (2011) About general practice nursing. Available at http://www.apna.asn.au/scripts/cgiip.exe/WService=APNA/ccms.r?PageId=11012 [Verified 20 October 2011]

Ball LE, Hughes RM, Leveritt MD (2010) Nutrition in general practice: role and workforce preparation expectations of medical educators. *Australian Journal of Primary Health* **16**(4), 304–310. doi:10.1071/PY10014

Ball L, Hughes R, Desbrow B, Leveritt M (2012) Patients' perceptions of nutrition care received from general practitioners: focus on type 2 diabetes. *Family Practice* **29**(6), 719–725. doi:10.1093/fampra/cms025

Ball L, Hughes R, Leveritt M (2013) Health professionals' views of the effectiveness of nutrition care in general practice setting. *Nutrition & Dietetics* doi:10.1111/j.1747-0080.2012.01627.x

Britt H, Miller G, Henderson J, Charles J, Valenti L, Harrison C, Bayram C, Zhang C, Pollack A, O'Halloran J, Pan Y (2012) 'General practice activity in Australia 2011–12.' General practice series number 31. (Sydney University Press: Canberra)

Carson JA, Gillham MB, Kirk LM, Reddy ST, Battles JB (2002) Enhancing self-efficacy and patient care with cardiovascular nutrition education. *American Journal of Preventive Medicine* **23**(4), 296–302. doi:10.1016/S0749-3797(02)00518-4

Creswell J (2006) 'Qualitative inquiry and research design: choosing among five approaches', 2nd edn. (SAGE Publications: Thousand Oaks, CA)

Crowley J, Ball L, Wall C, Leveritt M (2012) Nutrition beyond drugs and devices: a review of the approaches to enhance the capacity of nutrition care provision by general practitioners. *Australian Journal of Primary Health* **18**(2), 90–95. doi:10.1071/PY11116

Dennis SM, Zwar N, Griffiths R, Roland M, Hasan I, Powell Davies G, Harris M (2008) Chronic disease management in primary care: from evidence to policy. *The Medical Journal of Australia* **188**, S53–S56.

Diabetes Australia, Royal Australian College of General Practitioners (2008) 'Diabetes management in general practice', 14th edn. (Diabetes Australia: Sydney)

Fade SA, Swift JA (2011) Qualitative research in nutrition and dietetics: data analysis issues. *Journal of Human Nutrition and Dietetics* **24**, 106–114. doi:10.1111/j.1365-277X.2010.01118.x

Gibbs H, Broom J, Brown J, Laws R, Reckless J, Noble P, *et al*. (2004) A new evidence-based model for weight management in primary care: the Counterweight Programme. *Journal of Human Nutrition and Dietetics* **17**(3), 191–208. doi:10.1111/j.1365-277X.2004.00517.x

Gonczi A (1994) Competency based assessment in the professions in Australia. *Assessment in Education: Principles, Policy & Practice* **1**(1), 27–44.

Halcomb EJ, Patterson E, Davidson PM (2006) Evolution of practice nursing in Australia. *Journal of Advanced Nursing* **55**(3), 376–390. doi:10.1111/j.1365-2648.2006.03908_1.x

Katz S, Feigenbaum A, Pasternak S, Vinker S (2005) An interactive course to enhance self-efficacy of family practitioners to treat obesity. *BMC Medical Education* **5**, 4.

Lacey K, Pritchett E (2003) Nutrition care process and model: ADA adopts road map to quality care and outcomes management. *Journal of the American Dietetic Association* **103**(8), 1061–1072. doi:10.1016/S0002-8223(03)00971-4

Mitchell LJ, Macdonald-Wicks L, Capra S (2011) Nutrition advice in general practice: the role of general practitioners and practice nurses. *Australian Journal of Primary Health* **17**, 202–208. doi:10.1071/PY10101

National Public Health Partnership (2001) Preventing chronic disease: a strategic framework – background paper. National Public Health Partnership, Canberra.

Nolan C, Deehan A, Wylie A, Jones R (2012) Practice nurses and obesity: professional and practice-based factors affecting role adequacy and role legitimacy. *Primary Health Care Research and Development* **13**(4), 353–363. doi:10.1017/S1463423612000059

Parker R, Keleher H, Forrest L (2011) The work, education and career pathways of nurses in Australian general practice. *Australian Journal of Primary Health* **17**, 227–232. doi:10.1071/PY10074

Pascoe T, Hutchinson R, Foley E, Watts I, Whitecross L, Snowdon T (2006) General practice nursing education in Australia. *Collegian (Royal College of Nursing, Australia)* **13**, 22–25. doi:10.1016/S1322-7696(08)60520-X

Pomeroy SEM, Cant RP (2010) General practitioners' decision to refer patients to dietitians: insight into the clinical reasoning process. *Australian Journal of Primary Health* **16**(2), 147–153. doi:10.1071/PY09024

Royal Australian College of General Practitioners (2012) What is general practice? Definition of general practice and general practitioners. Available at http://www.racgp.org.au/whatisgeneralpractice [Verified October 2012]

Steptoe A, Doherty S, Rink E, Kerry S, Kendrick T, Hilton S (1999) Behavioural counselling in general practice for the promotion of healthy behaviour among adults at increased risk of coronary heart disease: randomised trial. *British Medical Journal* **319**(7215), 943–947. doi:10.1136/bmj.319.7215.943

World Health Organization (2003) WHO Technical Report Series: diet, nutrition, and the prevention of chronic diseases. World Health Organization, Geneva.

World Health Organization (2006) Stop the global epidemic of chronic disease: a practical guide to successful advocacy. World Health Organization, Geneva.

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