



Advancing Patient-Centred Care in Dietetics

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Advancing Patient-Centred Care in Dietetics

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Bachelor of Nutrition and Dietetics with Honours (Griffith University)

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Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, this document contains no material previously published or written by another person except where due reference is made in the thesis itself.

Ishtar Sladdin

(Date): 19/04/2019

Abstract

Patient-centred care (PCC) is an integral component of high-quality care and has been associated with significant benefits for patients. Despite the increasing emphasis on ensuring healthcare systems are patient-centred, limited research has been conducted on this topic in dietetics. Dietitians play an important role in the management of chronic, lifestyle-related diseases, particularly in the primary care setting. There is potential for patient-centred practices to lead to enhanced care by dietitians and ultimately better outcomes for patients.

To enhance understandings of PCC in dietetics, the aims of this research were to synthesise literature relating to PCC in dietetics and identify any gaps requiring further exploration; explore patients' perceptions and experiences of PCC in dietetics; develop and psychometrically test a patient and dietitian-reported inventory to measure PCC in dietetics; and compare patients' and dietitians' experiences of PCC. These aims were addressed in three phases of research.

In Phase I, a systematic literature search was conducted to identify studies that involved dietitians and/or patients who had participated in an individual dietetic consultation and related to one or more dimensions of PCC. Twenty-seven studies met the inclusion criteria and were analysed using meta-synthesis. Six themes arose: establishing a positive dietitian–patient relationship; displaying humanistic behaviours; using effective communication skills; individualising and adapting care; redistributing power to the patient; and lacking time for PCC practices. Findings suggested that research relating to PCC in dietetics was sparse, with only a small number of studies directly referring to PCC in their aims. The application of PCC in dietetics had not been widely investigated and no study specifically aimed to examine patients' understandings of PCC.

In Phase II, qualitative semi-structured interviews were conducted with a purposive sample of 11 adult patients who had participated in at least one dietetic consultation, had received nutrition care for the management one or more medical conditions and were English speaking. Participants were sought from dietitian-specific primary healthcare clinics using the patient database of a large primary healthcare service in Queensland, Australia. Participants' perceptions and experiences of PCC were explored, and data were analysed thematically. The results highlighted that patients valued PCC highly. Patients wanted dietitians to develop a holistic understanding of their background and the underlying factors influencing their health; tailor advice and strategies to patients' unique circumstances; be invested in their wellbeing; and be involved in decision-making. Some

participants perceived care as generic and non-individualised and thought that dietitians controlled the encounter, limiting patient involvement. These findings contributed to the development of a conceptual model of PCC in dietetics.

In Phase III, a patient and dietitian-reported inventory of five valid scales was compiled to reflect the conceptual model. The scales were the Communication Assessment Tool; 9-item Shared Decision-Making Questionnaire; Patient-Doctor Depth of Relationship Scale; SPNCS Seeing the Individual Patient sub-scale; and the PCPI-s Providing Holistic Care sub-scale. Between November 2017 and May 2018, the inventory was distributed as a survey to adult patients who had attended at least one individual dietetic consultation with an accredited practising dietitian (APD) working in primary care, and APDs with experience working in primary care. Six dietetic practices across Queensland (n = 3), New South Wales (n = 2) and Victoria (n = 1) participated in the recruitment of patients. Dietitians completed an e-survey that was initially distributed by the Dietitians Association of Australia. Subsequent strategies employed to enhance the response rate included an invitation via the Dietitian Connection weekly e-newsletter and dietitian specific social media sites. Exploratory factor analysis was performed using principal component analysis. Cronbach's alpha, inter-item correlations and corrected item-total correlations were computed to evaluate the internal consistency of each scale. Data from the cross-sectional survey were analysed using the Mann-Whitney *U* test to compare patients' and dietitians' median scale scores to identify any differences between participants' perspectives of PCC.

One hundred and eighty dietitians and 133 patients completed the survey. Five factors were extracted, and Cronbach's alpha values ranged from 0.73 to 0.91 and 0.87 to 0.97 across factors for the dietitian and patient versions respectively. Most items had strong loadings on only one factor. Factors were labelled shared decision-making; holistic and individualised care; patient–dietitian communication; knowing the patient/dietitian; and caring patient–dietitian relationships. Results suggested good preliminary validity and internal consistency for both inventories. Patients' scores were significantly higher than dietitians' for 'shared decision-making' (p=.004), but significantly lower for 'providing holistic and individualised care' (p=.005), 'knowing the patient/dietitian' (p=.001) and 'caring patient–dietitian relationships' (p=.009) suggesting small but important divergences between patients' and dietitians' experiences.

This research contributes novel and important findings relevant to PCC in dietetics. Patients clearly value PCC, but do not always perceive that dietitians adopt this approach

in practice. Strategies to enhance dietitians' PCC should particularly focus on ensuring care is holistic and individualised, and good patient–dietitian relationships are established. Finally, the conceptually grounded inventory has promising preliminary validity and reliability. This research provides a solid foundation for future work in advancing PCC in dietetics.

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List of Abbreviations

ACSQHC	Australian Commission on Safety and Quality in Healthcare
APD	Accredited practising dietitian
BMI	Body Mass Index
CAT	Communication Assessment Tool
CCCQ	Client-Centred Care Questionnaire
CFA	confirmatory factor analysis
CG	control group
CINAHL	Cumulative Index to Nursing and Allied Health Literature
DAA	Dietitians Association of Australia
DCE	discrete choice experiment
IAPO	International Alliance of Patients Organisation
IG	intervention group
IOM	Institute of Medicine
OPTION	Observing Patient Involvement in Decision-Making
PCC	patient-centred care
PCPI-s	Person-Centred Practice Inventory (staff)
PDDRS	Patient-Doctor Depth of Relationship Scale
PREM	Patient Reported Experience Measure
SDM-Q-9	9-item Shared Decision-Making Questionnaire
SDM-Q-Doc	9-item shared Decision-Making Questionnaire (physician version)
SPNCS	Schmidt Perception of Nursing Care Survey
UK	United Kingdom
US	United States
WHO	World Health Organization

Acknowledgement of Papers Included in this Thesis

Included in this thesis are papers in Chapters 4, 5 and 6 which were co-authored with other researchers. The candidate's contribution to each co-authored paper is outlined at the front of the relevant chapter. The bibliographic details for these papers, including all authors, are:

Chapter 4

Sladdin I, Ball L, Bull C, Chaboyer W. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet.* 2017;30(4):453-70.

Chapter 5

Sladdin I, Chaboyer W, Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet.* 2018;31(2):188-96.

Chapter 6

Sladdin I, Gillespie B, Ball L, Chaboyer W. Development and psychometric testing of an inventory to measure patient-centred care in dietetic practice: dietitian version. *J Hum Nutr Diet.* 2019.

Sladdin I, Chaboyer W, Ball L, Gillespie B. Development and psychometric testing of a patient-reported inventory to measure patient-centred care in dietetic practice [submitted to: *Aust J Prim Health*]. 2018 (under review, submitted March 2019).

Sladdin I, Ball L, Gillespie B, Chaboyer W. A comparison of patients' and dietitians' perceptions of patient-centred care: A cross-sectional survey. *Health Expect.* 2019. [Epub ahead of print].

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Chapter 1 Introduction

I care about the humanistic component of dietetic practice. This is the aspect that not only cares for the patient's diet-disease interaction but explores and acknowledges the complexity and interdependency of the patient's ongoing life experiences and how this impacts health and illness. It is always a patient's story that connects with my desire to help and care, more so than their disease or diet. It is the stories of loss, change, celebration and struggle that shape our eating, our health and ultimately our life. By adopting a holistic and compassionate patient-centred approach to care, dietitians may have a positive impact patients' healthcare experience and ongoing livelihood. Thus, this thesis focuses on the important topic of patient-centred care in dietetic practice.

1.1 Overview

Government and health organisations worldwide recognise patient-centred care (PCC) as integral to achieving high-quality healthcare. The benefits of PCC for patients and healthcare systems are increasingly understood, yet a significant knowledge-to-practice gap remains. Studies have found health professionals deliver low levels of PCC, and despite increasing focus on PCC across healthcare settings, this topic has not been well researched in dietetics. Without sufficient evidence, integrating PCC into dietetic practice is challenging. The aim of this thesis was to increase knowledge and understanding of PCC in dietetic practice. This thesis describes the background, aims and significance of this research, provides a review of the relevant literature, describes the three phases of the research and their findings, and offers conclusions and implications for future work in this area.

1.2 History of patient-centred care

Early pioneers set the foundations for PCC as early as the 1950s by acknowledging patients' contribution to health¹. Almost three decades later, the United States' (US) Picker Commonwealth Program for Patient-Centred Care explored patients' needs and concerns regarding care². Dimensions of PCC were identified as having a considerable influence over patients' experience, including respect for patients' values, preferences and expressed needs, clinician–patient communication, physical and emotional care and continuity of care³. These dimensions informed subsequent research carried out by the Picker Institute in collaboration with Harvard School of Medicine in the early 1990s,⁴

contributing to their understanding of the eight dimensions of PCC⁵. This research formed the foundation for the Institute of Medicine's (IOM's) definition of PCC in 2001 in the report *Crossing the Quality Chasm: a New Health System for the 21st Century*⁶. PCC was defined as "care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions" (p. 6). In this report, PCC was identified as one of six quality aims for improving healthcare⁷. The IOM advocated for the redesign of healthcare systems to be more patient centred⁶. Whilst the concept of PCC has evolved over time, the dimensions identified through early work are still reflected in contemporary definitions of PCC^{3, 8}.

Governments and health organisations have recognised the importance of PCC for decades. Non-profit organisations have advocated for PCC since as early as the 1970s⁸ and have assisted in placing PCC on healthcare agendas. For example, Planetree, founded in 1978 by a patient who had a vision to transform healthcare after having a depersonalising experience, has been supporting healthcare organisations toward achieving excellence in PCC⁸. Many other health organisations now advocate for PCC, including the IOM⁶; the International Alliance of Patient's Organisations (IAPO)⁴; the UK Health Foundation⁹; the World Health Organization (WHO)¹⁰; the US National Health Council and; the Australian Institute for Patient and Family Centred-Care⁸. Healthcare systems have embraced PCC at a policy level due to increasing evidence of the positive outcomes of PCC, government support and financial incentives^{11, 12}. This can be seen in policy changes across the United Kingdom⁷, Canada¹³, the US and Australia^{8, 12, 14}. In Australia, national initiatives encouraging PCC include:

- the Australian Charter of Healthcare Rights and the National Safety and Quality Framework, which advocates for safe, high quality patient-centred healthcare systems that understand patients' rights, and promote safety and quality improvements through patient engagement^{8, 12, 14};
- the National Chronic Disease Management Strategy, which emphasises the role of PCC in empowering patients to become autonomous individuals with the competence to self-manage their chronic disease¹¹;
- the Fourth National Mental Health Plan, which advocates for involvement of consumers at all levels of policy and service development and emphasises the importance of understanding individuals' unique social, cultural and environmental circumstances⁸; and

- the National Primary Healthcare Strategy, which developed an action plan including 10 elements for improving PCC in Australia, emphasising the need for addressing patients' needs and continuity of care¹⁵.

Clearly, PCC is a topic of interest for healthcare systems in Australia and across the world, and is an important focal point for practice, education and research.

1.3 Benefits of patient-centred care

Patient-centred care is associated with significant benefits for patients, health professionals and healthcare systems¹⁶. Intervention studies have evaluated the impact of PCC on the consultation process (extent to which PCC is achieved in practice), patient satisfaction with care, patients' healthcare behaviours (adherence to care plans, attendance, health service utilisation), and patient outcomes including health status, wellbeing, physiological measures, quality of life, symptom resolution and patient self-esteem¹⁶⁻¹⁸. The benefits of PCC specifically for patients include increased satisfaction with^{17, 19, 20} and engagement in care¹⁶, improved clinical outcomes^{17, 18}, increased adherence to treatment regimens²¹ increased quality of life²⁰ and functional status²², and reduced mortality²³ and symptom burden¹⁷. However, some studies have also demonstrated mixed findings²⁴. Understanding causal links between PCC and health outcomes has been challenging for researchers²⁵.

Most studies evaluating outcomes of PCC have been conducted in North America, Europe and Eastern Asia, with limited representation from low or middle-income countries^{16, 18}. Studies have included patients with a variety of clinical conditions and healthcare settings. Common clinical conditions include adults with general medical problems, as well as specific conditions such as diabetes, cancer, depression and cardiovascular disease¹⁶. Most studies of PCC have been conducted in hospitals and care centres^{16, 18}. Fewer have been conducted in primary care despite the longitudinal nature of care provided in this setting, though this number is increasing²⁶.

Dimensions of PCC such as positive clinician–patient relationships and patient-centred communication have been shown to directly improve patients' wellbeing by reducing anxiety and fears associated with their health^{20, 27}. A systematic review of 11 randomised controlled trials of PCC discovered significant improvements for patients with chronic disease¹⁸. These included significantly reduced glycated haemoglobin and serum triglyceride concentrations and improved competence and autonomy for patients with diabetes^{28, 29}; increased satisfaction and quality of life for patients suffering from stroke³⁰;

and improved physical function and reduced length of stay in patients with hip fractures³¹. Not all studies have found significant benefits associated with PCC for patients^{30, 32}. For example, a nursing intervention exploring the effect of PCC among patients found no significant differences between groups for satisfaction, length of stay, infection incidence, falls incidence, postoperative complications or quality of care³².

Patient-centred care is associated with benefits for health professionals and healthcare systems. Health professionals have described PCC as improving the overall quality of the care they provide³³. Improvements in clinician–patient relationships have also been identified²¹. Benefits of PCC for organisations and healthcare systems include fewer unnecessary diagnostic referrals, reduced strain on equipment resources and finances, and less use of medical services, resulting in lower healthcare cost^{12, 31, 34}.

Investigations of the effectiveness of PCC in improving healthcare outcomes have identified some important limitations, which may have contributed to mixed findings and criticism regarding PCC. Limitations that have been identified include a lack of clarity regarding the conceptual/theoretical underpinnings of PCC interventions; minimal descriptions of important aspects of the intervention (e.g. the context, randomisation process, and who the intervention trainers were), making it difficult to evaluate study findings; small sample sizes and subsequently underpowered studies; use of varying outcome measures, making pooling results challenging; and some outcome measures having poor evidence of validity and reliability^{16, 19, 24, 32}. For example, in a nursing intervention the instrument used to measure patient satisfaction and quality of care had been established as reliable but not valid. The authors proposed that the instrument's lack of sensitivity may have contributed to the non-significant results³². These limitations may explain why findings across studies have been diverse and emphasise the need for conceptual clarity regarding PCC and for high-quality studies using robust outcome measures.

There is clearly scope for further research on PCC. As noted, several studies have shown benefits of PCC, but mixed research findings may have reduced some stakeholders' confidence in a patient-centred approach, hindering the integration of PCC into strategies and implementation in practice. Enhancing confidence in effectiveness of PCC requires well-planned interventions, including process evaluations, high-quality PCC measurement instruments that have undergone psychometric testing, and better conceptualisation of PCC, including researchers being explicit about how their interventions are designed to align with its conceptual underpinnings.

1.4 Barriers to delivering patient-centred care

Despite long-standing interest in PCC, barriers to its implementation remain. For more than half a century, PCC has been a topic of interest for patients, health professionals, researchers, health organisations and governments, yet early advocates faced significant barriers in promoting it^{1, 35, 36}. Whilst awareness of the importance of PCC has increased, barriers to its use still exist, including the time and resource limitations inherent to healthcare systems^{37, 38}, adversary attitudes and/or beliefs of health professionals^{37, 39}, inconsistent conceptualisation of PCC⁴⁰, limited understanding of patients' perceptions of PCC⁴, and methodological challenges with measuring PCC and its value in practice⁴⁰. For healthcare systems to continue to evolve, barriers at both the research and practice level need to be overcome.

The lack of a globally accepted definition of PCC is a considerable barrier to this approach⁷. Health professionals', researchers' and policymakers' understandings of PCC vary across different settings³³. Lack of a definition has made it challenging to implement PCC consistently in practice, measure and subsequently monitor patient-centred practices, synthesise research on PCC, and design interventions with strong conceptual/theoretical underpinnings that provide evidence of links between PCC and specific outcomes^{25, 40}.

Health professionals' adversary attitudes and beliefs regarding PCC is another perceived barrier to its implementation^{37, 39, 41}. Attitudes and beliefs may stem from traditional biomedical beliefs; health professionals have not traditionally acknowledged patients' expertise and the role of patients' unique contexts in influencing their health³⁶. To achieve PCC, health professionals need to recognise the unique expertise patients bring to the consultation, relinquish control over healthcare decisions, and actively engage patients in their healthcare processes. On the other hand, health professionals who are interested, committed and have flexible attitudes toward practice can be important facilitators of PCC.

Healthcare systems have inherent features that act as barriers to PCC. These include short consultation times, limited resources and funding scarcity⁴. Some health professionals believe that PCC is an added expense in an already overstretched system³⁹. Pressures of the work environment can make PCC less appealing for health professionals³⁹. For example, in the UK the average consultation time in general practice is approximately 7–8 minutes⁴². Health professionals often report that a lack of time is a key barrier to providing PCC^{37, 38, 43}. Some researchers have found a positive correlation between consultation length and health professionals engaging in PCC practices (such as shared

decision-making), with longer consultations producing higher rates^{44,45}. However, others have found that providing PCC did not increase consultation length¹⁷ and in fact could result in more appropriate use of time^{46, 47}. Findings from one study suggested that patients' perception of what constituted adequate time was more dependent on their needs being met than the actual length of consultation⁴⁸. In another study, researchers found no significant relationship between dietitians displaying empathy and length of consultation⁴⁹. Researchers have also suggested that patient-centred practices can help to minimise overuse of some treatments¹⁷. Overall, an assumption that PCC results in higher costs and increased consultation lengths may be a misconception, but increasing consultation times does not necessary result in significant outcomes relevant to PCC¹⁷.

1.5 Patient-centred care and chronic disease management

Chronic disease is the leading cause of disability and illness, and accounts for 87% of all deaths in Australia⁵⁰. The prevalence of chronic disease continues to rise despite significant advancements in medical treatments⁵⁰; one in two Australians have at least one of eight common chronic conditions⁵⁰. Chronic disease is associated with increased morbidity and mortality and places a significant burden on healthcare systems¹¹. As the prevalences of lifestyle-related chronic diseases – including obesity, diabetes and cardiovascular disease – rise, reorientation of health services from the acute and episodic illness paradigm to long-term management is needed⁵¹. Clearly, better approaches to chronic disease management are required^{11, 52}.

Patient-centred practices have become increasingly recognised as important for managing chronic disease, as evidenced in strategy development and advocacy by governments and health associations. PCC is promoted by the WHO⁵², the National Chronic Disease Strategy, endorsed by the Australian Health Ministers Conference in 2005^{11, 53}, and many health associations in Australia⁵⁴. The Australian Diabetes Educators Association's position statement on PCC states that people with diabetes need to be active partners in their healthcare processes to achieve and sustain positive health outcomes and improved wellbeing⁵⁴. Patient-centred practices are evidently important to patients, health associations and governments, particularly in the context of chronic disease management.

Managing chronic disease is challenging for patients^{52, 55}. Patients with chronic disease require ongoing support from health services but are also responsible for self-managing their conditions most of the time. The lifestyle changes necessary for optimal health

outcomes can be difficult and frustrating^{56, 57}. Patients have reported traumatic and overwhelming experiences of being diagnosed with a chronic disease⁵⁸, and can have numerous personal barriers to effective self-management, including depression, fatigue, low family support and financial stress⁵⁵. Patients commonly experience a loss of autonomy and feel criticised and judged when health professionals adopt a traditional biomedical approach⁵⁹. Further, health professionals have expressed a sense of frustration towards patients when they do not follow instructions⁵⁹. Patients want to be respected as autonomous individuals, be actively involved in care, and desire health professionals to acknowledge and explore their emotional and psychological challenges⁶⁰⁻⁶². Different approaches to traditional healthcare practices are needed to assist patients with managing chronic diseases.

Patient-centred care has been associated with greater self-care practices by patients, such as increased adherence to care plans¹⁶. This association is important because an estimated 25% to 50% of patients with chronic disease do not undertake self-care practices that support optimal health outcomes⁶³. The WHO proposed that patients' self-care behaviours are influenced by clinician–patient relationships, patients' demographic characteristics and socioeconomic factors⁶⁴. It is also important that health professionals possess patient-centred communication skills: a meta-analysis found that patients whose doctors were trained in communication were almost twice as likely to follow self-care behaviours as those whose doctors were not⁶⁵. Therefore, health professionals are likely to facilitate patients' self-care behaviours by practising patient-centred communication, fostering positive relationships with patients and considering patients' personal contexts. Overall, there is evidence of the benefits of PCC in managing chronic disease.

Patients with chronic disease are being increasingly supported by health professionals, including dietitians in the primary healthcare context^{53, 66}. In Australia, the Medicare Benefits Schedule provides subsidies for patient care, particularly the planning and management of patients with chronic and terminal conditions. Patients can attend up to five Medicare-subsidised allied health services directly related to the treatment of their chronic condition⁶⁷. Given the potential benefits associated with PCC for patients with chronic disease, and the important role primary care plays in supporting patients with chronic disease, it is vital to conduct research to gain a better understanding of PCC in this context.

1.6 Patient-centred care in the dietetics profession

The food people eat influences the prevention and management of chronic diseases such as cardiovascular disease, diabetes and obesity^{68, 69}. Dietitians are health professionals trained in supporting patients to have a healthy diet (also known as “dietary behaviours”)⁷⁰. Dietitians apply scientific knowledge relating to food and nutrition to assist patients to achieve optimal health. Individual dietetic consultations are structured to follow the nutrition care process, which involves assessment, goal setting, nutrition education, and nutrition counselling⁷¹. In this context, dietitians have the opportunity to assist patients with chronic disease who are seeking support for self-management to address associated lifestyle-related risk factors^{11, 72}. According to the *Dietitians Association of Australia Annual Report 2017–18*, the Association has more than 6800 members⁷³; this represents a 42% increase in workforce size in the previous 10 years (2001–11)⁷⁴. Dietetics is clearly a growing profession in Australia, and initiatives that support dietitians to provide optimal care should have significant benefits for patients.

Dietitians can engage patients in their healthcare and empower patients to adopt effective self-management practices^{75, 76}. It is important that dietitians understand and can implement a PCC approach to support optimal outcomes for patients. Australian, Canadian, US and European professional standards for dietitians contain numerous references to PCC^{70, 77, 78}; the Professional Standards of Dietitians in Canada mentioned the “client-centred approach” as early as 1997⁷⁸. These standards refer to PCC as a client-centred or client-driven approach and mention the dietitian–client partnerships^{70, 77, 78}; respecting clients’ individual needs^{70, 77-79}; empowering clients to self-manage their condition^{70, 78}; displaying empathy and building trust and rapport with clients^{70, 78}; encouraging patient participation through collaborative goal setting^{70, 77-79} and decision-making^{70, 78}; and using appropriate verbal and non-verbal communication skills (e.g. active listening)^{70, 77}. Clearly, there is professional support for a patient-centred approach in the dietetic profession.

Whilst the dietetic profession recognises PCC as an important component of practice, some evidence suggests few dietitians have adopted PCC⁸⁰⁻⁸³. For example, research has demonstrated that dietitians employ low levels of shared decision-making in their care^{80, 81}. However, PCC has not been widely researched in dietetics, so evidence about dietitians’ practices is limited. Findings from a systematic review suggest the effectiveness of usual care delivered by dietitians to patients in the primary care setting (primarily for the management weight, cardiovascular risk and diabetes) was modest⁸³.

For example, subsequent meta-analyses of pooled results identified only small difference between groups with regard to weight loss (-1.03kg in favour of the dietitian over comparator group, $p < 0.0001$)⁸⁴ and blood lipids; while triglycerides were statistically significant lower in favour of the dietitian (-0.22 mmol/L, $p = 0.03$), there were no statistically significant difference between groups for total, LDL or HDL cholesterol⁸⁵. Clear opportunities exist to enhance dietitians' effectiveness⁸³⁻⁸⁵. There is potential for dietitians to better support patients with chronic disease through improved patient-centred practices.

1.7 Research aims

The overall aim of this research was to advance PCC in dietetic practice. The specific aims, addressed in three sequential phases, were to:

- 1) synthesise evidence on PCC in dietetics, and identify gaps in understanding requiring further research;
- 2) explore patients' perceptions and experiences of PCC in individual dietetic consultations;
- 3) develop and test a conceptual model of PCC in dietetic practice (incorporating findings addressing aims 1 and 2);
- 4) develop and psychometrically test a patient and dietitian-reported inventory to measure PCC in dietetic practice; and
- 5) compare patients' and dietitians' perceptions of PCC in dietetic consultations to highlight any discrepancies between their perceptions, identify aspects of care requiring improvement, and inform the development of strategies to enhance PCC in dietetics.

1.8 Significance

The high prevalence of chronic disease and significant associated human and economic burden justify the need for health services to be reoriented to place patients at the centre^{10, 50}. One in every two Australians has at least one chronic condition, and the prevalence continues to rise despite advancements in medical treatments⁵⁰. It is necessary to establish more effective strategies for managing such complex conditions^{11, 52}. PCC is an approach to care that has been associated with important benefits for patients with chronic disease such as increased patient satisfaction with and engagement in care, improvements in clinical outcomes and improved quality of life^{17, 18}.

Dietitians are trained in supporting patients to have a healthy diet. Therefore, dietitians are well placed to assist patients to make healthy lifestyle changes for the prevention and management of chronic disease. Based on evidence from other healthcare settings, it is possible that dietitians' adoption of patient-centred practices could result in positive health outcomes for their patients^{17, 18}. However, prior to this work there was minimal research on this topic in dietetics, warranting exploration to confirm the benefit of dietitians' use of PCC.

This research was designed to contribute important new knowledge relevant to PCC in dietetics and is significant for dietetic practice, research and education for several key reasons. First, results from the research can be used to facilitate better integration of PCC in dietetics. Varying or unclear definitions of PCC and its comprising dimensions has been a key barrier to implementing PCC in practice. By providing conceptual clarity, this work helps to overcome this important barrier. The conceptual model provides a clear framework that enables patients, dietitians, researchers and policymakers to have shared understanding of PCC.

The lack of appropriate instruments to measure and monitor patients' experience of PCC is another barrier⁸⁶. The inventory can be used in practice as a patient-reported experience measure (PREM) to gather patients' feedback on their healthcare experience. Therefore, this work can be used to increase the availability of PREMs in the dietetic setting. Obtaining patient feedback recurrently can identify opportunities for practice improvements and inform valid, appropriate and sustainable service improvements⁸⁷.

Dietetic education will benefit from the conceptual model and inventory, which highlight specific skills and attributes that are reflective of PCC in dietetics. Educators can use them to guide the development of PCC-related courses and workshops. Further, the inventory can be used to evaluate students' and practising dietitians' patient-centred practices – for example, as an assessment tool for objective structured clinical examinations.

Finally, this work provides a foundation for future research. PCC has been associated with significant benefits for patients with chronic disease across other healthcare settings, yet evidence of this nature is lacking in dietetics. The conceptual model and inventory can support researchers undertaking evaluations of the effectiveness of PCC in dietetics. By providing conceptual clarity and describing specific skills/qualities needed to enact PCC, this work can inform development and testing of high-quality interventions to examine links between PCC and outcomes, such as biomedical and psychosocial outcomes for patients. Further, the inventory could be used to evaluate whether

interventions to train dietitians and patients in PCC produce improvements in patient-centred practices. This would provide information about the best way to educate patients and dietitians in patient-centred practices. Ultimately, this research contributes to the overall goal of ensuring dietetic care aligns with PCC, an integral component of dietetic professional standards.

1.9 Summary

PCC has been a topic of interest for decades and is encouraged by governments and healthcare organisations. Patient-centred practices are associated with significant benefits for patients, health professionals, and healthcare systems. Evidence suggests PCC has great potential to improve healthcare delivery, and ultimately, health outcomes for patients. Dietitians play an important role in supporting patients with chronic disease, particularly in the primary health care context. Yet, evidence of dietitians' effectiveness is modest and there is potential for practice improvements. Aspects of PCC were emphasised in international dietetic competency standards as early as 1997, but evidence suggests that dietitians' adoption of specific dimensions of PCC is poor. However, no study has measured dietitians' patient-centred practices holistically and PCC remains relatively unexplored in dietetics. The lack of valid and reliable instruments for measuring PCC in dietetics may explain this gap in knowledge. This PhD research will advance dietetic practice in Australia through a clearly articulated conceptual understanding of PCC and the contribution of an instrument for measuring PCC in dietetics.

Chapter 2 Literature Review

This chapter provides a critical review of literature on PCC, including a description of its definitions, dimensions and measurement. The conceptualisation of PCC over time is reviewed first, including a description of PCC dimensions. The second section of the chapter describes the importance of measuring PCC, how PCC has been previously measured, an overview of existing instruments, and an analysis of the methodological challenges of measuring PCC.

Bibliographic databases including Medline, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus and Google Scholar were searched between January 2016 and January 2019 for peer-reviewed papers relevant to the topic. Search terms included patient-centred care, person-centred care, shared decision-making, clinician–patient relationship, measuring patient-centred care, patient-centred care instruments, chronic disease, and dietetic practice. Additionally, reference lists were cross-checked, and forward citation searching was performed to identify further potentially relevant literature. Grey literature including Australian and international government reports, websites and associated documents were sourced to inform discussion on chronic disease prevalence, dietetic practice, and policy relevant to PCC.

2.1 Definitions and dimensions of patient-centred care

Multiple terms are used synonymously to refer to PCC, including person-centred, consumer-centred, family-centred, client-centred and client-driven care^{7, 9, 88}. Ekman and colleagues recommend “person-centred”, as they believe this term better represents the person behind the patient⁸⁸; further, they believe the term “patient” represents someone who is passively acted on⁸⁸. Person-centred care is also used in reference to caring for people living in residential care and nursing homes and for people with dementia⁹. “Consumer-centred care” is believed to have stemmed from business and management models of service delivery⁸, whilst “family-centred care” is used in paediatric literature⁷. Dietetic competency standards refer to “client-centred” and “client-driven” care^{70, 78}. Early advocates for PCC used the term “patient-centred”^{3, 36, 89}. This term has also been used by the IOM⁶, the IAPO⁴, the Picker Institute⁹⁰ and the Australian Commission on Safety and Quality in Healthcare (ACSQHC)⁸. Several published literature reviews on PCC also use the term “patient-centred care”^{75, 91, 92}. The UK Health Foundation describes the different terms as independent concepts that share similarities with “person-centred care”⁹. However, these terms are often used interchangeably. For example, the UK Health

Foundation describes dimensions of “person-centred care” that are consistent with those of “patient-centred care”, including respect for patients’ needs and circumstances, shared decision-making, integrated care, trusting clinician–patient relationships and clinician–patient communication ⁹. Further, a synthesis of reviews published between 2000 and 2017 described important similarities between “patient-centred” and “person-centred care”; key dimensions were consistent across both models, including empathy, respect, engagement, relationship, communication, shared decision-making, holistic focus and individualised focus⁹³.

The debate regarding the most appropriate term for this concept continues, but in this PhD the term “patient-centred care” is used. This term was chosen as it is used extensively in policy documents, by researchers, by non-profit organisations and by government agencies. If this research intends to inform health organisations and policy, it is important that its language is consistent with that used by these groups. In any case, alternative terms for PCC share similar core values, so it appears they are not vastly different concepts⁹. Therefore, articles related to any of the aforementioned terms were used to inform this research.

2.1.1 Definitions of patient-centred care

There are several definitions of PCC. According to the US IOM, PCC is defined as “care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions” ⁶ (p. 6). The UK Health Foundation defines PCC as coordinated, personalised and enabling care that affords people dignity, respect and compassion ⁹. The ACSQHC defines PCC as “healthcare that is respectful of, and responsive to, the preferences, needs and values of patients and consumers” ⁸ (p. 7). Whilst the definition of PCC varies across healthcare disciplines, the essence of PCC is providing individualised care that respects patients’ preferences and needs.

2.1.2 Dimensions of patient-centred care

Between four and 14 dimensions of PCC have been described previously. Dimensions that appear frequently are shared decision-making, understanding patients’ biopsychosocial context, the clinician-patient relationship or therapeutic relationship, clinician–patient communication, and providing individualised care^{3, 4, 36, 48, 75, 89, 91}. Table 2.1 provides an overview of the dimensions of PCC described in five reviews (involving systematic, integrative and narrative reviews and concept analysis).

It is important to note the interrelationship between PCC dimensions. For example, establishing positive health professional–patient relationships depends on health professionals possessing humanistic qualities and establishing effective two-way communication with patients. Further, good communication skills are essential to facilitate patient involvement in decision-making. To establish trusting, respectful and collaborative partnerships, health professionals need to respect patients’ unique needs, preferences and values. The interrelationships between PCC dimensions have been described by several prominent authors^{75, 94, 95}. The fact that some dimensions can only be achieved in the presence of others suggests that adopting PCC requires health professionals to practise all dimensions.

Table 2.1: Dimensions of PCC

Author, year	Country	Approach	Findings
Scholl et al. 2014 ⁷⁵	Germany	Systematic review and concept analysis 417 articles	<p><i>Principles</i></p> <ul style="list-style-type: none"> • Essential characteristics of the clinician • Clinician–patient relationship • Patient as a unique person • Biopsychosocial perspective <p><i>Enablers</i></p> <ul style="list-style-type: none"> • Clinician–patient communication • Integration of medical and non-medical care • Teamwork and teambuilding • Access to care • Coordination and continuity of care <p><i>Activities</i></p> <ul style="list-style-type: none"> • Patient information • Patient involvement in care • Involvement of family and friends • Patient empowerment • Physical support • Emotional support
Slater et al. 2006 ⁹⁶	Australia	Concept analysis	<p><i>Defining attributes</i></p> <ul style="list-style-type: none"> • Recognition of personhood • Evidence of a therapeutic relationship between person and health care provider • Respect for the individuality of the person • Provision of care that reflects professional ethical standards • Identification and reinforcement of the person’s strengths and positive aspects rather than the weaknesses and problems • Acknowledgement of the person’s lived world

Author, year	Country	Approach	Findings
			<ul style="list-style-type: none"> • Empowerment for the person to make their own decisions about their health <p><i>Antecedents</i></p> <ul style="list-style-type: none"> • Dignity • Autonomy • Respect • Therapeutic relationship <p><i>Consequences</i></p> <ul style="list-style-type: none"> • Improved health outcomes • Perceived improved relationship between person and health care provider
Sidani et al. 2014 ⁹²	Canada	Integrative review 178 articles	<p><i>Holistic</i></p> <ul style="list-style-type: none"> • Encompasses biophysical, cognitive, emotional, behavioural, social and spiritual domains of health • Addresses health promotion, illness prevention and management • Comprehensive, considers the “whole” person <p><i>Collaborative</i></p> <ul style="list-style-type: none"> • Consists of a partnership between patient and health professional • Aims to facilitate patient participation and patient engagement in shared decision-making <p><i>Responsive care</i></p> <ul style="list-style-type: none"> • Individualisation of care • Customisation of interventions / services to patients expressed needs and preferences • Recognition of patients’ individual needs, experiences, expectations and knowledge <p><i>The therapeutic relationship</i></p> <ul style="list-style-type: none"> • Non-specific element that facilitates implementation of above three elements • Characterised by a trusting and nurturing health professional – patient relationship

Author, year	Country	Approach	Findings
			<ul style="list-style-type: none"> • Health professionals and patients respect each other, and exchange information that guides the planning, implementation and evaluation of care
Kitson et al. 2013 ⁹¹	Australia	Narrative review 60 articles	<p><i>Patient participation and involvement</i></p> <ul style="list-style-type: none"> • Respected as autonomous individual; care plan based on individual needs addressing physical and emotional needs <p><i>Relationship between patient and healthcare professional</i></p> <ul style="list-style-type: none"> • Genuine relationship; open communication; appropriate skills/knowledge held by clinician; cohesion and cooperation <p><i>Context where care is delivered</i></p>
Mead and Bower, 2000 ⁸⁹	UK	Narrative review of medical texts	<ol style="list-style-type: none"> 1. Biopsychosocial perspective 2. The patient-as-person 3. Sharing power and responsibility 4. The therapeutic alliance; the doctor as person

PCC = patient-centred care; UK = United Kingdom

Shared decision-making

Shared decision-making is the most operationalised dimension of PCC⁹. Shared decision-making involves presenting patients with treatment options and helping them clarify their values and preferences so they can make informed and appropriate treatment decisions⁹⁷. Research has shown that shared decision-making can empower patients⁹⁸ and increase their emotional wellbeing, self-management and motivation⁹⁹. Involving patients in decision-making has been associated with improvement such as decreased levels of depression, reduced breathlessness, and improved compliance with medication and other treatment regimens⁹⁹. Shared decision-making is associated with clear benefits and is considered easier to measure and defined than other dimensions of PCC⁹. However, studies in medicine and nursing have shown shared decision-making is not widely applied in practice^{97, 1010, 102}. Better efforts are needed to encourage health professionals' adoption of shared decision-making.

Holistic care

Holistic care, also referred to as the “biopsychosocial” model, considers patients' illness broadly, exploring the influence of patients' unique biopsychosocial context on illness. Providing holistic care requires that health professionals understand the “whole person”³⁵. The argument of “disease” versus “illnesses” arises when comparing biomedical and biopsychosocial models of health¹⁰. Whilst disease is defined as an objective biological event disturbing normal bodily function, the biopsychosocial model focuses on illness – the multifaceted relationship between individual psychosocial, biological and social variables^{36, 103}. Patient-centred practices advocate for exploration of both the patient's disease and their illness experience (i.e. the whole person)³⁶. Patients' documented perspectives suggest that to practise PCC and truly assist patients, health professionals need to understand the significance and meaning of illness to the individual patient and consider the medical and non-medical aspects of the problem^{36, 89}.

Clinician–patient relationship

Positive health professional–patient (or clinician–patient) relationships are described as trusting and respectful^{88, 95} and are influenced by multiple factors^{75, 94, 95}. Health professionals who possess certain qualities and good communication skills are better equipped to establish positive relationships. Desirable qualities include being respectful, caring, genuine, honest and encouraging⁷⁵. Displaying empathy is particularly important

because patients can sense when their emotions and feelings are being considered and when health professionals have a genuine interest in their unique circumstances and life story⁹⁵. Unfortunately, health professionals' empathic behaviours have been shown to decline with the pressures of work⁹⁵. Indirectly, clinician–patient relationships can increase the likelihood of patients being satisfied and returning for follow-up visits, thereby improving continuity of care⁹⁹.

Clinician–patient communication

Clinician–patient communication refers to both verbal and non-verbal communication. Good communication skills include open-ended questions, listening, reflecting, paying attention to patients, summarising important information, allowing patients adequate time to talk, asking the patient to repeat, making eye contact and nodding⁷⁵. Also important to patient-centred communication is the exchange of tailored information between health professionals and patients that respects patients' unique needs and preferences.

Patient-centred communication is associated with benefits for patients including improved patient knowledge, shared understanding between health professionals and patients, establishment of therapeutic alliances, and increased patient self-efficacy and empowerment⁹⁹. Good communication skills are clearly important for health. Despite the importance of patient-centred communication, studies have found practitioners fail to listen to patients' concerns and do not always involve patients in decisions about treatment options⁹⁷. For patients to feel comfortable and listened to in consultations, it is essential that health professionals are adept in these skills.

Individualising care

Individualising care to meet patients' unique needs, preferences and values is integral to achieving PCC and this is acknowledged in many widely accepted definitions^{6, 48}. Individualising care requires that all other dimensions of PCC are achieved. First, good communication skills are needed to elicit patients' needs and preferences and to explore their unique biopsychosocial context⁷⁵. Second, health professionals must engage in shared decision-making to ensure that treatment decisions are truly appropriate and individualised to patients. Finally, when patients' needs are met, trusting collaborative relationships can be formed and this reinforces ongoing communication. Therefore, practising PCC holistically is important as dimensions are interrelated and cannot be achieved in silos.

1.2 Measuring patient-centred care

Patient-centred care can be studied in several ways, such as through patient interviews, case studies and focus groups²⁶. Some researchers suggest that multiple sources including qualitative (i.e. interviews, focus groups) and quantitative data (i.e. observations, patient surveys) should be used to capture a comprehensive understanding of PCC⁴⁰. One way to gain a deeper understanding of PCC is through measurement.

Measuring PCC is important for several reasons. In practice, PCC measurement instruments can be used to evaluate PCC delivery in a given setting and determine the extent to which patients' individual needs and preferences are met²⁶. These findings can then be used to identify any areas requiring practice improvements and tailor care accordingly¹⁰⁴. Instruments can also be used to assess the impact of patient-centred interventions in research and/or be used as educational tools to evaluate/assess patient-centred practices by practitioners.

There are many factors to consider when measuring PCC. These include the dimensionality and type of scale to be used and who will measure PCC.

- *Dimensionality*: instruments can be designed to measure multiple dimensions of PCC or individual dimensions (e.g. the Observing Patient Involvement (OPTION) scale which measures shared decision-making)¹⁰². In general, scales can be unidimensional, or they can be multidimensional and therefore contain sub-scales¹⁰⁵. Dimensionality of scales will depend on the underlying construct the scale intends to reflect. A scale that contains a construct/concept with a single dimension will be unidimensional, whilst a scale that is designed to measure a concept encompassing several dimensions is considered multidimensional and should have sub-scales. Sub-scales should measure independent dimensions or factors of the construct, but dimensions can still be correlated. A decision should be made *a priori* as to whether the scale is going to be unidimensional or multidimensional.
- *How PCC is measured*: A variety of mediums can be used to measure PCC, including self-report, observational and interviewer-administered questionnaires. Self-assessment questionnaires can be used to gain health professionals' and patients' views and experiences of care. For example, PREMs have become a popular means of gaining patient experience data to inform service improvements¹⁰⁶. Observer instruments can be useful for observing and evaluating the clinician–patient encounter (e.g. the OPTION instrument which is used for assessing shared

decision-making behaviours)¹⁰⁷. Measurement instruments can also be interviewer administered, which has the advantage of being cost-effective, but risks greater social desirability bias.

- *Who will measure PCC*: another factor to consider is who measures PCC (i.e. patients, health professionals, researchers), which will influence the type of instrument chosen (e.g. self-administered, observational).

To date, there have been numerous methodological challenges with measuring PCC. Some authors have used inappropriate or poorly designed measurement instruments that lack validity and reliability, or outdated instruments¹⁰⁸. Some earlier instruments lack comprehension of what is now known as PCC, because conceptual/theoretical understandings of PCC and its dimensions, and the ways in which PCC is measured, have advanced over time²⁶. PCC encompasses a range of dimensions, but developers of instruments for measuring PCC have not always justified the inclusion of some dimensions and exclusion of others⁸⁷. To reduce these limitations, instruments need to undergo rigorous development and psychometric testing, be informed by updated relevant literature, and consider stakeholder perspectives.

Numerous scales exist for measuring PCC across healthcare settings, some with established validity and reliability. The UK Health Foundation review *Helping measure person-centred care* lists the most commonly used measurement tools (n=160)²⁶. Most instruments focus on single aspects of PCC, such as communication (n=40), patient (n=35) and carer (n=5) experience (satisfaction, perceived quality of care, illness severity, access, coordination and continuity of care), shared decision-making (n=13), and carer dignity and empathy (n=11). Fifteen instruments were categorised into two broad aspects of care: self-management support, which included decision support, delivery system design and organisational infrastructure (n=4), and engagement, which related to patient empowerment and encouragement (n=11). Forty-one instruments were considered to measure multiple aspects of PCC²⁶. Of these, 23 were developed for use by health professionals, and 18 for patients and/or carers. Instruments were designed for use in a variety of patient populations including older populations (n=8), dementia care (n=6), paediatric care (n=6), endometriosis (n=1) and fertility care (n=1). Eighteen were designed for general use. Most were for use in hospitals (n=23), care homes (n=11) and the primary care setting (n=6). Instruments for use in community (n=1) and fertility clinics (n=1) were also present.

Researchers have previously questioned whether aspects of PCC being measured by existing instruments are actually important to patients²⁷. It is imperative to obtain end-users' input when designing measurement instruments¹⁰⁹. Instruments should reflect what is meaningful and valuable to the individuals receiving care. The IAPO states that patients are the most reliable measure of patient centeredness¹¹⁰. It has also been suggested that understanding PCC from patients' perspectives is critical to ensure that care delivery aligns with patients' unique needs, preferences and values, and thus, is truly patient centred^{48, 62, 94}. Health professionals' perceptions of PCC also need to be considered, as they have experience with care delivery and therefore can offer unique insights. However, a limitation of gathering subjective-self assessment data from health professionals is the possibility that they may report greater levels of PCC than actually being provided (e.g. the social desirability effect). Combining both patient and professional perspectives can provide a more comprehensive understanding. Epstein and colleagues emphasise the importance of involving multiple stakeholders (i.e. patients, families, clinicians, health systems) in instrument development to align their perspectives on what counts as PCC and how it should be accomplished⁴⁰. Health professional and patient perspectives of PCC should therefore be sought as they may have different perceptions of which PCC components to measure.

Despite the large number of existing instruments designed to measure PCC and comprising dimensions, no instrument has been developed for use in the dietetic setting²⁶. It is important that measurement instruments are suitable to the context in which they are used⁴⁰. To better understand the level of PCC currently being delivered and how dietitians can optimise their patient-centred practises, an instrument for measuring PCC in the dietetic context is a necessary step.

Chapter 3

Overview of the Phases Comprising this Research

This chapter provides an overview of the three phases in this PhD and their respective studies. A more detailed description of these methods can be found in the five papers reported in Chapters 4–6. The sequential, multi-phased design of this thesis allowed the researcher to identify and subsequently address key gaps requiring further exploration. The use of multiple methods also provides a more holistic understanding of PCC by investigating the phenomenon from different viewpoints.

The selection of research methods for the different phases was guided by two contrasting research paradigms. Each paradigm has unique epistemological assumptions that guide the creation, acquisition and communication of knowledge and influence the researcher's choice of methods¹¹¹. For Phases I and II, an interpretivist/constructivist paradigm was appropriately adopted to develop an in-depth understanding of PCC. The epistemological position of the constructivist / interpretivist paradigm is that reality is not discovered but is constructed in different ways, by different individuals¹¹¹. Therefore, interpretivist researchers seek to explore and understand phenomenon from the individual's perspective using qualitative research methods, such as participant interviews and narratives / theme identification. Contrastingly, epistemological assumptions underpinning the positivism paradigm are concerned with explaining relationships and positivist researcher believes that reality can be measured. Methodologies include experimental and survey research, and quantitative research methods, such as measurement¹¹¹. Thus, the positivist research paradigm was appropriately selected for Phase III, which sought to develop and validate a measurement instrument.

Figure 3.1 provides an overview of the phases.

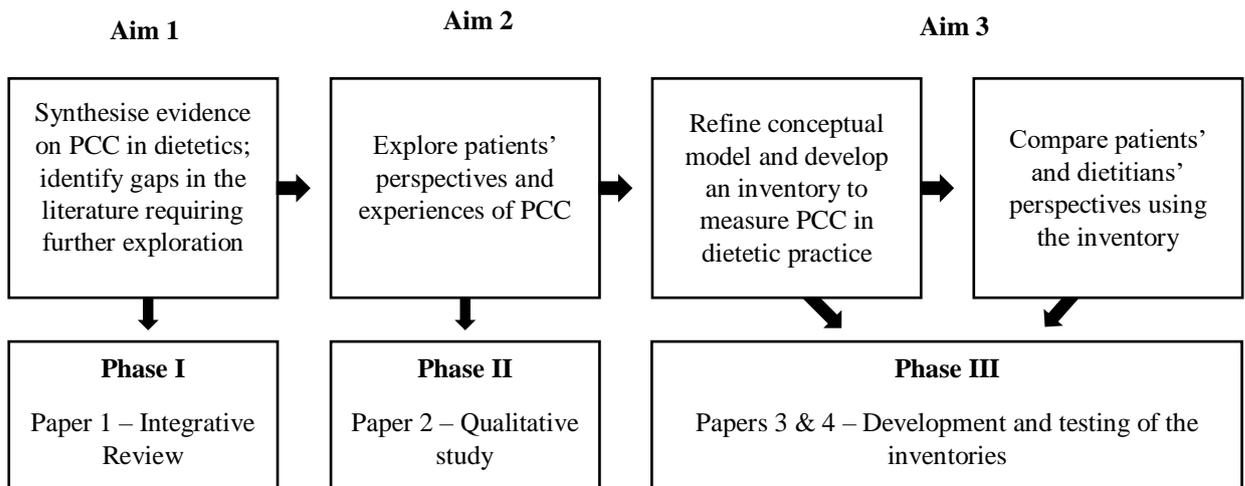


Figure 3.1: Overview of the three sequential phases comprising this PhD and their respective studies

3.1 Phase I – Paper 1

There was a need to gain an understanding and synthesise evidence of PCC in dietetic practice. This understanding was achieved by undertaking an integrative review, a type of knowledge synthesis that examines qualitative and quantitative findings to produce a comprehensive overview of the literature¹¹². This type of review is particularly appropriate for the topic of PCC in dietetics since the emerging body of literature includes a diverse range of qualitative and quantitative studies. A systematic literature search was undertaken in February and March 2016. Studies were included if they involved dietitians and/or patients who had participated in an individual dietetic consultation; related to one or more components of PCC; were described in full-text publications in English appearing between 1997 and 2016; and involved empirical research on adult participants. Twenty-seven studies met the inclusion criteria and were analysed using meta-synthesis. Information generated from this review informed the research aim and interview guide for Phase II. This paper (chapter 4) was published in the *Journal of Human Nutrition and Dietetics* in 2017.

3.2 Phase II – Paper 2

The aim of Phase II was to explore patients' perceptions and experiences of PCC. This study was situated in the constructivist–interpretivist paradigm. Constructivist researchers seek to explore individuals' perceptions of a phenomenon (i.e. PCC) within a

given context, believe that multiple realities exist and that findings are co-created by researchers and participants¹¹³. The constructivist position is that meaning is discovered when researchers interact with and reflect on the data¹¹⁴. Qualitative methodologies are appropriate to this paradigm¹¹³. Maximum variation purposive sampling was used to recruit English-speaking adult patients who had participated in at least one dietetic consultation for nutrition care. Semi-structured interviews were conducted with 11 participants and data were analysed thematically. Findings from Phase I and II were used to develop the conceptual model and guided the development of the inventory for Phase III. This paper (chapter 5) was published in the Journal of Human Nutrition and Dietetics in 2018.

3.3 Phase III – Papers 3–5

The understandings gained from Chapters 1 through 5 suggest that no study had offered a conceptual model of PCC or measured PCC specifically in dietetic practice, and no instrument had been developed or tested for use in this setting. Therefore, the aim of Phase III was to develop and psychometrically test an instrument to measure PCC specifically for use in the dietetic context. Data collected with the inventory were also analysed to explore any differences between patients' and dietitians' perceptions of PCC. First, a patient and dietitian-reported inventory was compiled to reflect the conceptual model, which captured five dimensions of PCC: patient–dietitian communication, shared decision-making, patient-dietitian relationship, individualised care, and holistic care. Thus, five scales that had previously been validated in other healthcare settings (i.e. nursing and medicine) were selected to include in the inventory: The Communication Assessment Tool, 9-item Shared Decision-Making Questionnaire, Patient–Doctor Depth of Relationship Scale, the Schmidt Perception of Nursing Care Survey (SPNCS) Seeing the Individual Patient sub-scale, and the Person-Centred Practice Inventory (staff) (PCPI-s) Providing Holistic Care sub-scale. The inventory was distributed as a questionnaire in a cross-sectional survey of adult patients who had attended at least one individual dietetic consultation with an APD working in primary care, and APDs with experience working in primary care. Exploratory factor analysis was performed to evaluate the underlying factor structure. Cronbach's alpha (criteria ≥ 0.80), inter-item correlations and corrected item-total correlations (criteria 0.30–0.70) were computed to evaluate the internal consistency of each scale. Data from the cross-sectional survey were also analysed using the Mann-Whitney *U* test to compare patients' and dietitians' median scale scores to

identify any differences between participants perspectives of PCC. Paper 3 was accepted for publication in the Journal of Human Nutrition and Dietetics in February 2019; paper 4 is under review at the Australian Journal of Primary Care (submitted March 8, 2018) and; paper 5 was published in Health Expectations in 2019 (chapter 6).

Ethics approvals are presented in Appendix A and Participant Information Forms for Phases II and III are presented in Appendix B. Note that verbal consent was obtained and reported in the study notes for Phase II and implied by completion of the questionnaire in Phase III. The Phase II Interview Guide is provided in Appendix C, the Contact Summary Form used in Phase II is provided in Appendix D, and the Phase III Research Survey for patients and dietitians is provided in Appendix E.

Chapter 4 Phase 1

Paper 1 - Patient-centred care to improve dietetic practice: An integrative review

Reader's Note: This chapter consists of the following co-authored paper. The bibliographic details of the co-authored paper, including all authors, are:

Sladdin I, Ball L, Bull C, Chaboyer W. Patient-centred care to improve dietetic practice: An integrative review. *J Hum Nutr Diet.* 2017;30(4):453-70

The candidate's contribution to this publication was leading the:

- study conception,
- study design,
- database search, screen and appraisal,
- data analysis,
- interpretation of the data, and
- writing of the manuscript.

4.1 Abstract

Background: Patient-centred care (PCC) is associated with significant improvements in patients' health outcomes and healthcare systems. There is an opportunity to better understand PCC in dietetics. Thus, the present integrative review aims to critically synthesise literature relating to PCC in dietetics.

Methods: A systematic literature search was conducted between February and March 2016. Studies were included if they (i) involved dietitians and/or patients who had participated in an individual dietetic consultation; (ii) related to one or more components of PCC; and (iii) were empirical full text studies in English, involving adult participants, published between 1997 and 2016. Following title and abstract screening, full texts were retrieved and independently assessed for inclusion by two of the investigators. Two independent investigators conducted data extraction and quality assessment using the Mixed Methods Appraisal Tool. Study findings were analysed thematically using meta-synthesis. Twenty-seven studies met the inclusion criteria.

Results: Six themes were discovered inductively: (i) establishing a positive dietitian–patient relationship; (ii) displaying humanistic behaviours; (iii) using effective communication skills; (iv) individualising and adapting care; (v) redistributing power to the patient; and (vi) lacking time for PCC practices. The first three themes were closely related. Studies used a broad range of methodological designs. Limitations of the studies included a lack of reflexivity and a lack of representativeness of the study population.

Conclusions: It is apparent that dietitians require good communication skills and humanistic qualities to build positive relationships with patients. Patients strongly desire individualised nutrition care and greater involvement in care. Ensuring dietitians are able to incorporate patient-centred practises during care requires further research.

4.2 Introduction

Patient-centred care (PCC) is a priority for modern healthcare systems^{1,2}. Patient-centred care increases patient and doctor satisfaction, enhances relationships between clinicians and patients, better engages patients in care, increases patients' quality of life³, and is associated with significant improvements in clinical outcomes⁴⁻⁷. Benefits to healthcare systems and organisations have also been recognised, including increased healthcare

effectiveness², decreased healthcare costs^{3,6,8} and reduced length of stay^{6,7}. Internationally, the importance of PCC has been endorsed by the World Health Organization¹, the United Kingdom Health Foundation² and the United States Institute of Medicine⁹. In Australia, implementation of PCC has been supported by the Australian Charter of Healthcare Rights⁸, the National Safety and Quality Framework¹⁰ and the National Chronic Disease Strategy, as well as being endorsed by the Australian Health Ministers Conference in 2005^{11,12}. Clearly, PCC is emerging as a core component of healthcare systems, warranting further attention.

There are a variety of definitions of PCC. The World Health Organization defines PCC as care that ‘meets people’s expectations and respects their wishes’¹. Similarly, the UK Health Foundation defines PCC as coordinated, personalised and enabling care that afford people dignity, respect and compassion². Three systematic⁵, integrative^{13,14} and narrative¹⁴ reviews have described 15 dimensions of PCC. Examples include: ‘essential characteristics of the clinician’; ‘clinician–patient relationship’^{5,14} or ‘therapeutic relationship’¹³; ‘patient as a unique person’^{5,13,14}; ‘clinician–patient communication’^{5,14}; and ‘patient involvement in care’^{5,13,14}. In line with this, an abundance of research now exists to better understand how PCC can be defined, implemented and measured^{2,7,15–18}. This research is important to facilitate a shift from the theory of PCC to practice.

Dietitians are health professionals who support patients to improve their dietary behaviours¹⁹. Dietitians practice in a variety of settings and contexts; usually through individual (also known as one-on-one) consultations^{19–21}. Aspects of PCC have been emphasised in international dietetic competency standards since 1997^{19–21}. Currently, the Canadian and European competency standards advocate for the respect of patients’ individuality and autonomy and promote enablers of PCC, such as clinician–patient communication^{20,21}. Competency standards for dietitians in Europe, Australia, the USA and Canada encourage partnership with patients, involving collaboration between clinicians and patients, patient involvement in decision-making, and formation of relationships based on mutual respect, trust and shared objectives^{19–21}. Evidently, the dietetic profession recognises the importance of a patient-centred approach to practice.

Evidence suggests there is opportunity for dietitians to enhance the care they provide by ensuring that it is patient-centred^{22,23}. Despite an emerging body of literature on PCC in dietetics, there have been no published reviews on PCC involving dietitians and their patients. One literature review has examined patient-centred outcomes in dietetic research; however, it focused on ‘patient participation’²⁴ and therefore did not encompass

the previously mentioned variety of PCC dimensions^{1,2,5}. Furthermore, it is more than a decade old and, because the average monthly publication rate of PCC has increased from three to seven between 2000 and 2011⁷, research in the area of PCC has clearly progressed⁷. There is need to better understand how PCC can be integrated into dietetic practice and gain evidence of its effectiveness.

One way to gain this understanding is to undertake an integrative review. An integrative review is a type of knowledge synthesis that examines qualitative and quantitative findings to enable a comprehensive overview of the literature²⁵. Integrative reviews can provide insight on a phenomenon of interest to inform future research, practice and policy²⁶. This type of review is particularly appropriate for the topic of PCC in dietetics because the emerging body of literature includes a diverse range of empirical studies. Therefore, the present integrative review aimed to synthesise existing literature on the topic of PCC in dietetics.

For the purpose of this review, the definition of PCC and its respective dimensions encompasses descriptions provided by the three previous reviews^{5,13,14}. Thus, PCC pertains to care that affords patients respect, empathy and compassion; sees the patient as a unique individual who's needs, values, beliefs, and expectations are respected; and views the clinician-patient relationship as a 'partnership' that is collaborative, reciprocal and engaging.

4.3 Materials and methods

Overview

By contrast to a systematic review, which addresses a specific clinical question, an integrative review synthesises a diverse range of literature (both qualitative and quantitative), to provide a comprehensive understanding of the phenomenon of interest²⁵. Although the diversity and inclusivity of integrative reviews allows for a rich understanding of the topic, it also makes data analysis more complex^{25,26}. To maintain a rigorous review process, this integrative review was conducted utilising the five steps outlined by review guidelines²⁵: problem identification, literature search, data evaluation, data analysis and presentation.

Sample and inclusion/exclusion criteria

A lack of understanding on how to reorientate dietetic consultations to be more patient-centred is the problem this integrative review addresses. From this, the review question

(what is currently known about PCC in dietetic practice?) was developed using the SPIDER tool (Sample, Phenomenon of Interest, Design, Evaluation and Research type)²⁷. Studies were included if: (i) an aspect of the study related to one or more dimensions of PCC based on those described in three reviews^{5,13,14} (e.g. ‘shared decision-making’, ‘clinician–patient relationship’, ‘clinician–patient communication’); (ii) the study involved qualified dietitians and/or patients participating in individual consultations where nutrition care was delivered by a dietitian; and (iii) the study was empirical, full-text, in English, involving adult participants, published between 1997 and 2016. This time period was chosen because the first mention of PCC in dietetic care came from the Professional Standards for Dietitians in Canada published in 1997²⁰.

Studies that involved group-based patient-centred interventions were excluded because the group dynamic is likely to influence the clinician–patient relationship. Furthermore, care provided within this context is not necessarily designed to cater for individual patients’ needs and preferences. Studies involving student dietitians were excluded because they are not yet classified as ‘competent’. Studies involving dietitians and other healthcare professionals as one group were excluded if data relating specifically to dietetics was unable to be extracted. Paediatric populations were excluded as a result of the focus of ‘family-centred care’ in this population group²⁸.

Literature search

A systematic literature search was conducted between February and March 2016. Because computerised searches only reveal approximately 50% of eligible studies²⁵, ancestry searching and journal hand-searching were also conducted. With the assistance of a health librarian, a systematic, computer-based literature search was conducted. Databases searched included MEDLINE, PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL) and SCOPUS. Boolean connectors AND, OR and NOT were used to combine search terms. Medical subject headings (MeSH), were used in the execution of PubMed and MEDLINE database searches. Search terms relating to PCC included: ‘patient-centred care’, ‘patient-focused care’, ‘client-centred care’, ‘person-centred care’, ‘professional–patient relationship’, ‘health professional–patient relationship’, ‘clinician–patient relationship’, ‘patient empowerment’ or ‘patient-participation’. Three search terms for the sample of interest were used: ‘dietitian’, ‘dietician’ or ‘dietetics’. Google Scholar and PUBMED were used to obtain additional articles identified by journal hand searching. All database search results were imported into EndNote prior to screening.

One investigator (IS) screened the title and abstracts of all 642 studies initially identified through the search using the inclusion and exclusion criteria. Studies that appeared to meet the inclusion criteria based on their titles and abstracts were retrieved for further review. A total of 128 studies were included from the initial screen. Two investigators (IS and CB) independently assessed the 128 full texts using inclusion and exclusion criteria to establish a final number of included studies. Disagreement occurred in the case of two studies; thus, a third assessor (LB) was present to resolve these discrepancies and a final decision was made. Studies excluded were coded based on the exclusion criteria.

Data extraction and evaluation

Data were extracted using a table developed by the research team. Data extracted included: author, year, country, aim, research design, sample, participants (dietitians and/or patients) and key findings that related to PCC with reference to the three reviews^{5,13,14}. To ensure accuracy, two investigators (IS and CB) extracted the data. Critical appraisal of the data was conducted by two independent investigators (IS and CB) using the Mixed Methods Appraisal Tool (MMAT), version 2011²⁹. Agreement was reached on 82.5% of the appraisal items. Where scores differed, discrepancies were resolved with input from all members of the research team during meetings. Because the MMAT allows for simultaneous evaluation of all empirical literature; qualitative, quantitative and mixed methods studies²⁹, it is particularly appropriate for an integrative review. This tool has been shown to be efficient (15 min per study), user-friendly and have high intra-class correlation³⁰.

Data analysis

This integrative review included both qualitative and quantitative studies, which were analysed thematically using meta-synthesis. Meta-synthesis is an integrative interpretation of results to offer a novel finding²⁶. Data analysis involved iterative comparison of studies to cluster recurrent themes and sub-themes²⁵. All investigators participated in the data analysis. Findings of all studies were independently read and re-read, coded and organised into categories, which were then compared across studies to identify relationships and themes²⁵. This process was continued until data saturation was achieved, where no new themes emerged.

4.4 Results

Descriptive findings

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram (Figure 4.1) shows the identification of an initial 642 possible studies; 27 met the inclusion criteria (Table 4.1). Studies used a broad range of methodological designs, including qualitative focus group and/or interviews (n = 7)^{22,31–36}, descriptive quantitative studies (n = 13) and intervention studies (n = 5). A variety of descriptive quantitative designs were utilised, including Delphi studies (n = 3)^{37–39}, observational studies (n = 2)^{23,40} and questionnaires/surveys (n = 5)^{41–45}. Three sequential qualitative–quantitative studies were also included^{31,46,47}. Intervention studies included both randomised controlled trials (n = 3)^{48–50} and nonrandomised prospective cohort studies (n = 2)^{51,52}.

Participant numbers for all 27 studies ranged from seven to 1158; most (n = 24) were between nine and 258, with the exception of one larger study (n = 1158)⁴⁴. The majority of studies (n = 22) were published between the years 2009 and 2016^{23,31–34,36–38,40–44,46,48,50–55}. Studies were mostly conducted in Europe (n = 7)^{33–35,40,41,44,52}, Canada (n = 6)^{23,32,38,39,42,43}, the USA (n = 6)^{22,37,45,49–51} and Australia (n = 6)^{31,36,46,47,53,54}. Of the seven European studies, six were from the UK, one was from the Netherlands⁵². One study was conducted in Brazil⁴⁸ and another in Israel⁵⁵.

Eight studies involved only patients, including all five intervention studies and three qualitative studies^{34,35,48–52,54}. Nine quantitative^{31,37–39,42,44–47} and three qualitative studies^{22,32,36} involved dietitians only. Four quantitative^{23,40,41,43} and three qualitative studies^{33,53,55} involved both patients and dietitians. Dietitians worked in a variety of settings, including hospital inpatient and outpatient^{31–33,46,47,53,55}, community and/or private practice^{31,36,38,39,44,46,47,53}. Others also worked in research and education^{36,44}, and some were specialised, such as in the management of diabetes⁴⁰ or inflammatory bowel disease⁴¹. Of the studies that detailed the patients' medical conditions (n = 12), 10 included patients who were suffering from a chronic condition, including diabetes^{23,33,40,53–55}, obesity^{23,33–35,43,49,53,55}, cardiovascular disease^{23,33,43,55} and cancer⁵². One study included dietitians who also worked with patients with eating disorders and high-risk pregnancy²³.

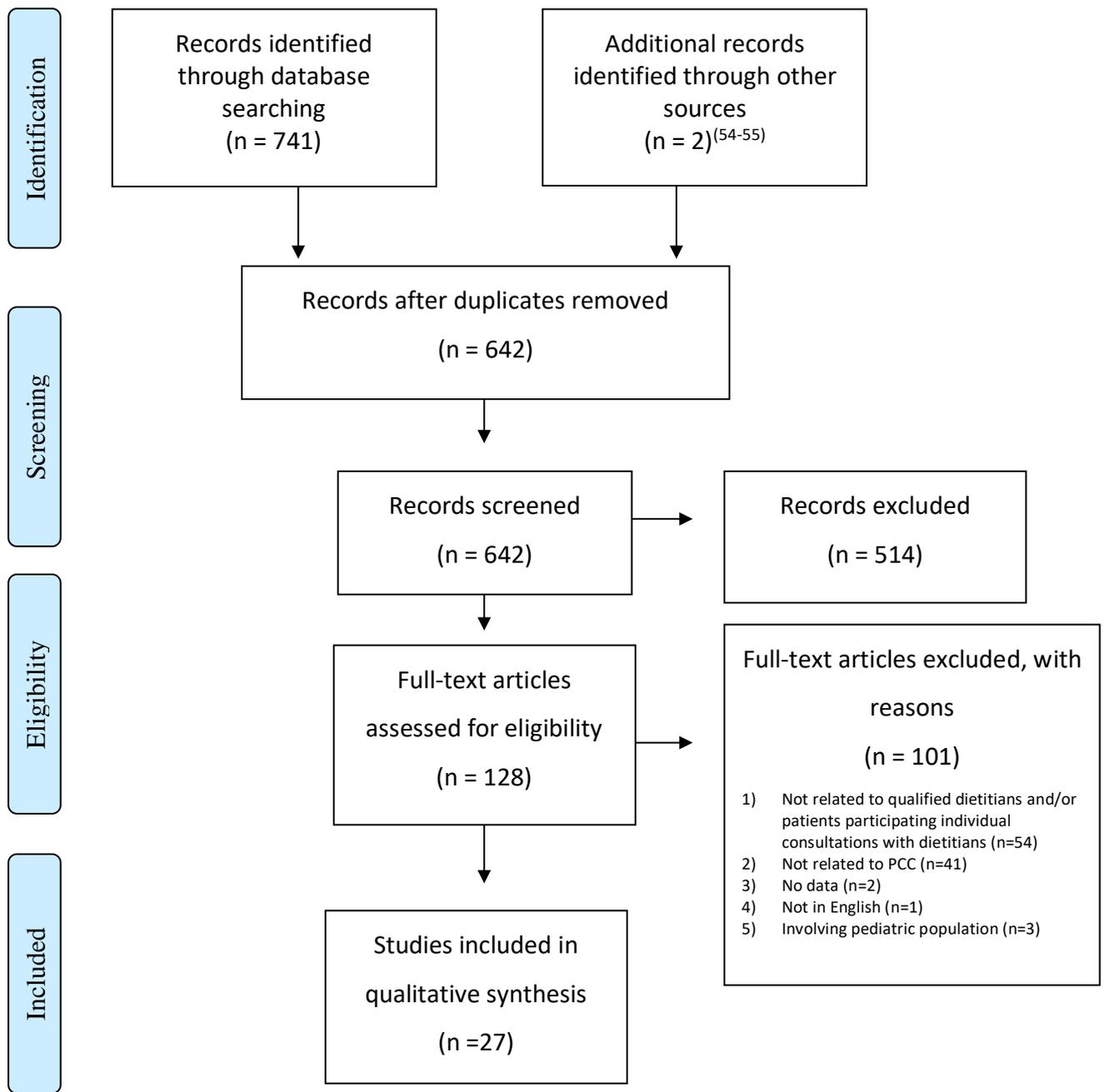


Figure 4.1: PRISMA Flow Diagram

Table 4.1: Description of included studies in order of methodological design

Author (year); Country	Design	Participants / Sample size (n=p)	Aim	MMAT Score[†]	Findings related to PCC
Almeida, Segurado ⁴⁸ ; Brazil	RCT	Patients (n=53)	Evaluate impact of nutritional counselling program on prevention of morphologic and metabolic changes in patients living with HIV/AIDS receiving HAART	**	No-significant difference between intervention and control groups
Bowen, Ehret ⁴⁹ ; USA	RCT	Patients (n=164)	Develop, implement and evaluate IIP based on MI to motivate participants within dietary study of WHI to meet study's nutritional goals	***	Control group significantly reduced percentage of energy from fat between baseline and follow up; difference between groups = 2.6% difference (p<0.001) Intervention group tended to complete more fat scores (monitoring) and more intervention sessions (attendance)

Locher, Vickers ⁵⁰ ; USA	RCT	Patients (n=43)	Evaluate feasibility / efficacy of multilevel self-management intervention to improve nutritional status in a group of high-risk older adults	*****	No main effect of intervention for either caloric intake or weight
Everett, Wolf ⁵¹ ; USA	Non-randomised prospective cohort	Patients (n=71)	To evaluate the effect of patient-centred nutrition counselling methods on clinical outcomes in SLE patients enrolled in a CVD prevention counselling program	***	Between baseline and six months: Percentage calories from fat (p=0.011) and grams of sodium (p=0.06) significantly reduced between Percentage of diet rich in fruit and vegetables (p<0.001), high in fibre (p=0.011), and following low cholesterol diet (p=0.034) significantly increased Intervention resulted in significant loss of weight (-1.64kg, p=0.025)
van den Berg, Rasmussen- Conrad ⁵² ;	Non-randomised	Patients (n=38)	Assess the value of individual adjusted counselling by a	*****	BMI between groups did not differ significantly at any time

Netherlands	prospective cohort		dietitian compared to standard nutrition care		In early rehabilitation (10-12 weeks) malnutrition prevalence had decreased in intervention (from 4 to 0 of 20 patients) and increased in control (from 3 to 5 of 18 patients) Significantly difference between groups (p<0.05)
Cant and Aroni ⁴⁷ ; Australia	Sequential qualitative-quantitative	Dietitians (n=258)	Examine perceptions of dietitians and patients about dietitians' skills / attributes required for nutrition education of individuals	** a	Four main communication competencies identified, agreement among dietitians of importance of these competencies. Results indicate preference for educating or counselling clients using a two-way communication mode rather than information-giving through lecture or instruction
Cant and Aroni ⁴⁶ ; Australia	Sequential qualitative-quantitative	Dietitians (n=258)	Examine dietitians' and clients' perceptions of competence required for the process of nutrition education	*a	Results indicate a preference for educating / counselling clients using a two-way communication mode rather

			of individuals and used results to validate performance criteria		than information giving through lecture / instruction Dietitians were of the opinion that “everything varies according to the client” and selected education topics, strategies and materials they perceived as meeting the needs of an individual client Dietitians aimed to treat their patients with “encouragement, praise and courtesy so that they are empowered to help themselves”
Cant and Aroni ³¹ ; Australia	Sequential qualitative-quantitative	Dietitians (n=34)	To examine process evaluation methods used by Australian dietitians in nutrition education of individual clients	* a	Most frequently used strategies for process evaluation were: ‘observe a client’s body language for non-verbal messages about their cooperation with the education process’, ‘ask clients if they understood the information provided’ and ‘clarify understanding of diet-disease interaction’

					Main comments about process evaluation were centred on dietitians' inability to carry out evaluation due to time constraints
Brody, Byham-Gray ³⁷ ; USA	Delphi	Dietitians (n=89)	Gain consensus on the practice activities of advanced-practice RD and NS who provide direct clinical nutrition care	***	Dietitians placed emphasis on communicating with patient and /or family in nonjudgmental manner, understanding patient literacy, barriers, and adjusting education to their needs Employed active listening, choosing appropriate strategies based on the client/patient and situation
Desroches, Lapointe ³⁸ ; Canada	Delphi	Dietitians (n=51)	To assess Dietitians' perspectives on the importance and applicability of interventions to enhance adherence to dietary advice for preventing and managing	**	Four interventions reached strong consensus: 1) feed-back based on self-monitoring, 2) multiple interventions, 3) portion size awareness and 4) video

			chronic diseases in adults in the Canadian context		<p>Patient characteristics and time constraints were identified as barriers for several interventions</p> <p>Dietitians noted that time constraints were a barrier to the implementation of multiple interventions</p>
MacLellan and Berenbaum ³⁹ ; Canada	Delphi	Dietitians (n=65)	The concept of client-centeredness was explored within a nutrition counselling relationship	***	<p>Participants strongly or partially agreed with relevance of most approaches to client-centred care</p> <p>Did not agree with: “providing clients with only information they want” and “recognizing the client as experts when it came to their own nutrition care”</p> <p>Most frequently cited barriers; unrealistic client expectations, limited time allocated for nutrition counselling</p>

Parkin, de Looy ⁴⁰ ; UK	Observational	Dietitians (n=4); patients (n=86)	To examine the relationship between professional expression of empathy and agreement about decisions made in the consultation	***	Dietitians empathetic responses were mainly categorised as 2 (Minimal encourages), 3 (acknowledgement) and 4 (acknowledgement and pursuit) – No dietitians responded with highest level of empathy (6) Significant correlation between empathy and agreement about a decision
Vaillancourt, Légaré ²³ ; Canada	Observational	Dietitians (n=19); patients (n=19)	To assess the extent to which dietitians involve patients in decisions about dietary treatment	***	Overall OPTION score was 29% OPTION positively correlated with duration of consultation. Dietitians scored highest for: (i) exploring patients' expectations about how to manage problem, (ii) explaining pros / cons of options, (iii) discussing possibility of deferring decision, and (iv) listing dietary options including taking no option. Dietitians scored lowest for: (i) assessing patients preferred approach to receiving

					info to assist in decision-making, (ii) indicating need for a decision-making stage, (iii) stating there is more than one way to deal with the problem, and (iv) eliciting patients preferred level of involvement in decision-making
Prince, Moosa ⁴¹ ; UK	Survey/questionnaire	Dietitians (n=100); Patients (n=72)	To assess type and quality of written information on nutrition and diet available to patients with IBD and the opinions of patients and health professionals	***	Only 11% of dietitians considered the extent to which written information 'considered individual needs' Open questioning with patients revealed the importance of individualisation and personalisation of information, as IBD was identified as a very personal journey
Deschênes, Gagnon ⁴² ; Canada	Survey/questionnaire	Dietitians (n=203)	To identify the factors influencing dietitians' intentions to adopt two SDM behaviours; 1) present dietary treatment options to patients	***	Intention for both behaviours quite high, greater intention for behaviour 2 (mean of 5.68±0.74) than 1(mean of 5.00±1.14)

			and 2) help patients clarify their values and preferences.		<p>Intention for behaviour 1 predicted by: perceived behavioural control, subjective norm and moral norm</p> <p>Intentions for behaviour 2 predicted by: perceived behavioural control, attitudes and professional norms</p> <p>Salient beliefs that significantly explained intention for both behaviours included lack of time (p<0.0001; p<0.0001) and lack of interviewing skills (p=0.05; p=0.06)</p>
Vaillancourt, Légaré ⁴³ ; Canada	Survey/questionnaire	Dietitians (n=13); Patients (n=13)	To explore both dietitians' and patients' adoption of SDM behaviours in dietetic consultations regarding the nutritional treatment of dyslipidaemia	***	<p>Overall mean OPTION score was 28% (SD+-6%)</p> <p>62% of DTs preferred to 'share the decision' whilst 54% of patients preferred to 'make the decision'</p> <p>Perceived behavioural control was the only TPB construct significantly associated with intentions 'to discuss</p>

					<p>nutritional treatment options' and 'discuss patient's values and preferences' for patients and dietitians (P<0.05)</p> <p>Stated reasons for not presenting treatment options; dietitian considering some options not appropriate due to their initial evaluation of patient's health condition and/or lifestyle habits (n=4) or lack of time (n=3)</p>
Whitehead, Langley-Evans ⁴⁴ ; UK	Survey/questionnaire	Dietitians (n=1158)	Investigated the views of UK dietitians about their training needs and experiences in relation to communication skills in dietetic practice	***	98% rated communication skills as either very or extremely important in client consultation. Highly important communication skills included: greeting appropriately, putting at ease, communication at appropriate level for individual clients, appropriate non-verbal cues, listening attentively, appropriate nonverbal communication, summarising and closing interview (90%)

					73% undertook post registration training, 90% perceived post-registration training had led to improvement in their relationships with patients, confidence in interviews, ability to cope with challenging clients 21.4% felt time keeping in interviews had worsened, 79% experienced greater job satisfaction
Williamson, Hunt ⁴⁵ ; USA	Survey/questionnaire	Dietitians (n=75)	To identify factors that contribute to the barriers to dietary adherence in individuals with diabetes, and obtain recommendations from dietitians for strategies to overcome these	*	Recommendations for overcoming barriers were similar regardless of cause of barrier and included: more education, better education, simplifying language and tools used in counselling, making referrals to other health professionals, building rapport 69% of respondents indicated need to individualise a plan ahead to overcome time factor

					Individualised education based on patient readiness to learn was a recommendation to overcome barriers of denial and the perception that diabetes is not serious
Ball, Davmor ⁵⁴ ; Australia	Semi-structured telephone interviews	Patients (n=10)	To explore the perceptions of patients recently diagnosed with type 2 diabetes regarding nutrition care received from dietitians	****	Participants valued genuine relationships, tailored advice, open communication and sufficient time in consultations The initial interactions with dietitians were often viewed as challenging and overwhelming because of the directive, instructional nature of the consultation Participants desired care and resources individually tailored to their unique nutrition requirements Participants perceived their dietitians as generally supportive however many described feeling rushed and not heard

Cant ⁵³ ; Australia	In-depth interviews / focus groups	Dietitians (n=46); Patients (n=34)	Explore trust in communication from viewpoint of both client and Dietitian	***	Dietitians aimed to build rapport with clients to gain their trust and respect, patients wanted to be listened to, receive individualised guidance and feel comfortable; dietitians should be ‘easy to talk to’ for this to be achieved Desirable communication style seen by patients as enabling positive partnership Dietitians wanted to build relationships with patients to gain patients trust; dietitians felt integrity was important for building helping relationships with patients Dietitian-patient relationship depended on openness and trustworthiness Overall patients portrayed collaborative partnerships with dietitian
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Desroches, Lapointe ³² ; Canada	Focus groups	Dietitians (n=21)	Identify dietitians' salient beliefs regarding their exercise of two behaviours during the clinical encounter, both deemed essential for SDM to take place: 1) present dietary treatment options to patients and 2) help patients clarify their values and preferences	***	Participants discussed disadvantages of behaviour 1: making patients feel less secure and increasing dietitians' feelings of incompetence Perceived advantages of adopting behaviour 2: allow them to target the patient's treatment more precisely, improve the patient's adherence to treatment, and reinforce patients trust in the dietitian Time was a barriers associated with both behaviours
Endevelt and Gesser-Edelsburg ⁵⁵ ; Israel	Focus-groups and in-depth interviews	Dietitians (n=17) Patients (not stated) 12 focus groups	To ascertain the role of the dietitian–patient relationship and the counselling approach in influencing individual patient decisions to adhere to counselling by persisting with nutritional treatment	***	Dietitians explained the degree as mostly clinical and teaching dietitians how to provide patients with information, largely disregarding patients' personality, psychological needs and lifestyle When dietitians took an educational and instructional approach some patients

					<p>indicated this discouraged them from returning to the dietitian, for some patients the informative educational approach is substantial</p> <p>Patients perceived the ‘contact’ between themselves and the dietitian as long term when dietitians counselled and guided patients</p> <p>Dietitians lack of empathy encouraged some patients to terminate treatment</p>
Hancock, Bonner ³³ ; UK	Focus groups	Dietitians (n=33); Patients (n=17)	To better understand patients experiences of the dietetic consultation using qualitative analysis	***	<p>Patients appreciated individualised and adapted care, resources and information, some patients felt advice and information did not account for personal situation and was therefore irrelevant</p> <p>Some dietitians were described as non-prescriptive; guiding rather than instructing, most patients liked this approach</p>

					<p>Patients saw working with the dietitian an important factor in effectiveness of consultation and positive feedback from the dietitian was important motivator for some patients</p> <p>Characteristics and behaviours important for dietitians to possess included listening, rapport, body language, acceptance, support, professionalism and empathy, negative experience expressed when dietitian didn't listen properly, unlikable manner of dietitian negatively affected trust, acceptance and non-judgement equated to openness, patients respected their dietitians' professionalism</p>
Hardcastle and Hagger ³⁴ ; UK	Interviews	Patients (n=14)	To explore the experiences of obese patients following participation in a counselling intervention, to identify	***	<p>Patients were disappointed when dietitians took an expert-driven approach</p> <p>Interviews highlighted the importance of client-centred approaches, where direct</p>

			influence on behaviour change in relation to physical activity and diet		advice giving was rarely the key to change.
Jones, Furlanetto ³⁵ ; UK	Interviews	Patients (n=24)	Collect patients views on the dietetic service, the treatment outcomes in terms of lifestyle change and impact that attending dietetic services had on lives in order to improve dietetic treatment and assist in selection of appropriate outcome measures in future	***	Many interviewees valued professional support, motivation and encouragement that they received from the dietitian A few patients felt literature provided lacked individualisation 50% reported positive relationship with the dietitian
MacLellan and Berenbaum ²² ; USA	Interviews	Dietitians (n=25)	Explore dietitians' understanding of client-centred nutrition counselling	***	When asked how they would define 'client-centred nutrition counselling' most referred to 'meeting patients' needs and wants' Many voiced concerns that clients did not always recognise what they 'need' to know, and may need more information

than they 'want' to make an informed decision

Many stated they always designed their service to meet clients' needs but not necessarily their wants, some dietitians' felt they were the healthcare experts, not patients

Dietitians referred to needs expressed by clients as 'perceived need or want', and when identified by the dietitian, the need was perceived as a 'medical / real' need
Several participants talked about the 'meeting of two experts.'

McMahon, Tay ³⁶ ; Australia	Interviews	Dietitians (n=7)	Examine dietitians' perspectives about working with clients in the current client-centred environment.	****	The over-riding theme, 'professional identity dilemma', related to the tension dietitians experience in being confident with their own professional identity (experts in nutrition) at the same time as
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ensuring optimal health outcomes within
a supportive nurturing environment
One dietitian noted how reflective
listening by both parties enabled more
appropriate strategies for adherence to
dietary plans

BMI =Body Mass Index; CVD= Cardiovascular disease; HAART= Highly active antiretroviral therapy; IBD= Irritable bowel disease; IIP=
Intensive Intervention Program; MI= Motivational Interviewing; MMAT= Mixed-Method Appraisal Tool; OPTION=observing patient
involvement; PCC =patient-centred care; RCT= Randomised controlled trial; SDM= Shared decision-making; SLE= Systemic Lupus
Erythematosus; TPB= Theory of Planned Behaviour; WHI= Women's Health Initiative

† Quality Score ranges from * (meeting one of four criteria) to **** (meeting all criteria)

^a Mixed-method studies score range * to ****

Only four studies explicitly referred to PCC in their aims^{22,36,39,51}, four mentioned shared decision-making^{23,32,42,43} and one mentioned the dietitian–patient relationship⁵⁵, both critical components of PCC^{5,56}. Several studies explored aspects of PCC indirectly; for example, by gaining consensus on dietitians’ perceptions of the importance of practice activities³⁷, skills and attributes⁴⁷, evaluation methods³¹ competence and performance criteria⁴⁶, quality of information available⁴¹, communication skills⁴⁴ and recommendations for overcoming patients’ barriers to dietary adherence in patients with diabetes⁴⁵.

Qualitative studies indirectly revealed findings relevant to PCC by exploring dietitians’ perceptions of delivering nutrition care⁵³, as well as patients’ experiences and perceptions of receiving nutrition care from dietitians^{33–35,54}. The methodological quality of studies ranged from low to high. The most frequent limitations of qualitative studies were a lack of reflexivity (i.e. acknowledgement of the effect of the context and researcher)^{22,32,53} and unclear explanations of the selection process or reason for some participants not consenting^{33,34,55}. Limitations for quantitative descriptive studies included a lack of representativeness of the study population^{23,39–42}, low response rates^{38,43,45} and inappropriate sampling strategies^{37,38,45}. Inadequate description of randomisation was a limitation of two^{48,49} out of the three randomised controlled trials. All three mixed-methods studies^{31,46,47} failed to acknowledge the limitations associated with integration of qualitative and quantitative findings. MMAT scores for qualitative and quantitative studies ranged from meeting one out of the four criteria (*) to meeting all criteria (****). Mixed-method studies scores ranged from meeting one of three criteria (*) to meeting all three criteria (***)).

Meta-synthesis

Six themes were discovered inductively: (i) establishing a positive dietitian–patient relationship; (ii) displaying humanistic behaviours; (iii) using effective communication skills; (iv) individualising and adapting care; (v) redistributing power to the patient; and (vi) lacking time for PCC practices. The first three themes were closely related.

Establishing a positive dietitian–patient relationship

The first theme highlighted the importance of positive relationships between dietitians and patients. Positive relationships were viewed as integral to engaging patients in care⁵³, negotiating action plans, problem solving, and gaining patients’ trust and confidence³³.

Dietitians wanted to develop rapport with patients to build relationships that enabled collaborative problem solving³¹, and considered that this depended on their empathy, integrity, trustworthiness and respect^{31,53}.

Only two^{33,35} of eight studies representing this theme^{31,33,35,44,46,48,53} investigated patients' perspectives. Patients described good rapport as critical³³ and reported that, when dietitians were friendly and encouraging, patients' confidence and trust were increased, and patients explained they were motivated to share information with their dietitian³³. In one study, half of the patients reported having a positive relationship with their dietitian, and valued the support, motivation and encouragement provided by their dietitian³⁵. This theme closely related to the second theme because friendliness³³, supportiveness³⁵, integrity, and empathy⁵³ were humanistic behaviours seen as conducive to positive relationships between dietitians and patients.

Displaying humanistic behaviours

The second theme related to dietitians displaying specific behaviours or characteristics perceived as helpful and motivating to patients. Characteristics included empathy, encouragement, honesty, integrity, trust and respect^{33,53,57}. These characteristics appeared to be important because patients were more receptive when dietitians possessed these qualities. Patients responded negatively when dietitians did not demonstrate these qualities.

Dietitians reported that patients' engagement in care depended on the integrity, honesty and 'realness' dietitians brought to the consultation⁵³. Furthermore, dietitians considered that they could empower patients through praise and encouragement^{46,47}. Patients found it helpful when dietitians were relatable and shared their own personal experience, and viewed 'well-rounded', 'easy going' dietitians positively⁵³. Patients reported that dietitians with an encouraging manner helped overcome barriers to behaviour change^{33,35}. Patients' trust depended on the friendliness and approachability of dietitians³³. Empathy was also particularly important to patients but not always demonstrated by dietitians^{33,53,55}.

Using effective communication

The third theme demonstrated the importance of dietitians using effective communication skills during dietetic consultations. These included verbal communication skills such as active listening, constant questioning and paraphrasing, as well as nonverbal

communication skills (i.e. body language, placement of furniture). Good communication skills were important in facilitating collaborative partnerships between patients and dietitians. Patients and dietitians emphasised both the value of and their desire for effective communication. This theme relates to the first theme, ‘Establishing a positive dietitian–patient relationship’ because dietitians discussed the importance of good communication skills in establishing relationships with patients^{33,53}.

Patients wanted to be listened to³³ and were appreciative when dietitians were ‘easy to talk to’^{33,53}. Dietitians valued communication skills^{36,37,44,53} and considered that reflective listening skills enabled the formation of a collaborative partnership between dietitians and patients³⁶. Dietitians who undertook post-registration training in communication skills reported improvements in their relationships with patients, confidence in interviews, ability to cope with challenging clients and greater job satisfaction⁴⁴. Dietitians had a preference for two-way communication over didactic lecturing and instructing³¹.

Individualising and adapting care

The fourth theme emphasised the importance of dietitians providing care that was appropriate to patients’ unique needs and wants. When care provided was ‘basic’³⁴, patients experienced disappointment, felt their ‘wants’ were not considered³⁴, and reported that the advice was not relevant³³. Patients valued individualised and adapted care^{33,34,41,53,54}, when dietitians considered their individual medical, family or economic circumstances and adapted advice accordingly³³.

Dietitians acknowledged the importance of individualising care to meet their patients’ needs in four studies^{36,37,46,53}. Many dietitians attempted to select education topics, strategies and materials to meet individual patients’ needs in a mixed-method study^{31,46}. Although some dietitians did not consider individualising care⁴¹ and described this process as challenging^{22,36}, many still recognised the importance of individualising and adapting care^{37,44–46}. Dietitians’ suggested two key challenges to adapting and individualising care were: (i) the uniqueness of each patient, making individualising care difficult³⁶ and (ii) dietitians’ professional beliefs hindering the process²². Some dietitians considered that patients’ ‘wants’ did not always align with their ‘needs’ and that, as health experts, dietitians better understood patients’ ‘real/medical’ needs²².

Redistributing power to the patient

The fifth theme illustrated challenges faced by dietitians in redistributing power to the patient. Possible strategies for power sharing included shared decision-making⁴² and adopting a ‘nondirective’³³, ‘counselling’ approach³¹, rather than having a superior and expert attitude^{22,34}. Some dietitians perceived themselves as the sole experts who were responsible for patients’ decisions^{22,34}. The investigators from one study concluded that some dietitians considered their ‘expert-defined’ needs more important than patients’ ‘perceived’ needs²². Dietitians perceived a risk in being viewed by patients as ‘less expert’³² or experiencing feelings of incompetence⁴² if they presented all treatment options to patients rather than choosing themselves. This was also referred to as a ‘professional identity dilemma’; dietitians struggled with what it means to be the professional in a context where patients too are experts in their care³⁶.

Some dietitians described themselves as the ‘expert’²² and, similarly, some patients perceived dietitians as being ‘expert-driven’³⁴. In one study, patients were disappointed when dietitians took this approach and felt direct instruction was not helpful; one patient reported not adopting the dietitian’s advice because it did not match their preferences³⁴. Some patients described dietitians’ directive and instructional approach as ‘challenging’ and ‘overwhelming’⁵⁴. When dietetic consultations were purely ‘educational’ and ‘informative’, some patients were discouraged from returning to the dietitian⁵⁵. Alternatively, some patients described dietitians as ‘guiding’ rather than ‘instructing’^{34,55}. Patients’ frustrations were reduced when information was adequately explained and patients were encouraged to reflect rather than being told what to do³³. Furthermore, when dietitians adopted a more ‘counselling’ aligned consultation style, patients were encouraged to engage in ongoing nutrition care with their dietitian⁵⁵.

Lacking time for patient-centred practises

The sixth theme illustrated that time was seen by dietitians as a significant barrier to the implementation of PCC practises, identified in seven^{38,42–44,54} of the 27 studies included in this review. Dietitians explained that, to adopt shared decision-making, more time was required during consultations to explore patients’ thoughts³⁸, and inadequate time allocation hindered the delivery of nutrition counselling²². Lack of time was a significant predictor of dietitians’ adoption of shared decision-making⁴², and a stated reason for not presenting patients with treatment options⁴³. Dietitians who undertook post-registration training to further develop their counselling and communication skills said their time

keeping in interviews had declined⁴⁴. Some patients also desired more time during dietetic consultations, and reported feeling ‘rushed’ and ‘not heard’ by their dietitian⁵⁴.

4.5 Discussion

The aim of this integrative review was to critically synthesise existing literature on PCC in dietetics to inform future research, practice and policy. Synthesis of the 27 eligible studies identified six themes. Collectively, this work contributes valuable findings for improving dietetic practice. The findings suggest that: (i) dietitians can establish positive relationships with patients through displaying specific behaviours and using good communication skills; (ii) positive relationships fosters trust and, can increase patients’ engagement in care, and are important to patients and dietitians; (iii) considering patients’ unique needs and wants to deliver individualised care is important to patients; and (iv) shared decision-making is an important component of PCC, and achieving shared decision-making requires shared power between dietitians and patients. The present study also highlights several significant opportunities for future research.

A multifaceted relationship was observed between the three themes: ‘Establishing positive dietitian–patient relationships’ ‘displaying humanistic behaviours’ and ‘using effective communication skills’. These themes represent three interrelated dimensions of PCC⁵. Previous studies in other health settings have also identified the relationship between these dimensions^{5,58,59}. Specific clinician characteristics or behaviours, including empathy, integrity and honesty, as well as good communication skills, are critical to the establishment of positive clinician–patient relationships. By understanding the importance of these components as a collective, future research can implement PCC more holistically. Thus, the integration of these themes suggests a model for establishing positive relationships with patients, which is fundamental to PCC⁵ and should be central in future PCC interventions.

Dietitians and patients perceived positive dietitian–patient relationships as important for enabling problem solving, engaging patients in care⁵³, and particularly, gaining patients’ trust³³. These findings are consistent with empirical evidence from nursing⁵⁸ and occupational therapy⁶⁰ practice. As previously discussed, humanistic characteristics^{31,33,35,53} and good communication skills were viewed as integral to establishing positive dietitian–patient relationships^{33,53,57}. This was also identified in a qualitative study involving occupational therapists and their patients, where successful client-centred relationships depended on therapists’ being respectful, trustworthy and

having good listening skills⁶⁰. Positive relationships and good communication is essential in providing high-quality healthcare. These practises ensure correct diagnoses are made, appropriate treatment plans are established between patients and clinicians, patients' knowledge is increased, and patients are encouraged to maintain ongoing self-care^{58,61}. These studies collectively demonstrate how positive dietitian–patient relationships can be established, which has the potential to improve dietetic practice.

Associations between various PCC dimensions and health outcomes have not been demonstrated in dietetic research but have been shown in other healthcare settings. For example, a systematic review of thirteen studies in the physical rehabilitation setting found that positive clinician–patient relationships were associated with improved symptoms and health status, greater patient attendance and adherence, and greater patient satisfaction with care and treatment⁶². Additionally, effective doctor–patient communication has been positively associated with patient recall, understanding, treatment adherence⁶³ and psychological well-being⁶¹. These dimensions may be integral to future patient-centred interventions because they are clearly important to patients and dietitians. Such interventions could also evaluate the effectiveness of these dimensions because this has not yet been achieved in dietetics.

Two studies included in this review suggest that dietitians' adoption of shared decision-making is inadequate^{23,43}. Shared decision-making is a critical component of PCC⁵⁶. It involves presenting patients with treatment options and helping patients clarify their values and preferences, so they can make informed and appropriate treatment decisions⁵⁶. Shared decision-making has been shown to increase patients' emotional well-being, sense of control over disease, self-management⁶¹ motivation and sense of empowerment⁶⁰. Some dietitians prioritise their expert-defined needs rather than patients' perceived needs²² and fail to recognise the patient as an expert regarding their own health³⁹. For shared decision-making to be embedded in dietetic practice, dietitians need to relinquish their authority as the sole experts and acknowledge patient's expertise in understanding their own situation. Dietitians' adoption of shared decision-making is also influenced by their perceived ability to perform these practises⁴²; thus, greater confidence may increase dietitians' likelihood of implementing shared decision-making. There is opportunity for future research to trial strategies to modify dietitians' attitudes to be conducive to patient-centred shared decision-making practices. Interventions in this area, although particularly challenging, have the potential to increase dietitians' confidence in implementing shared decision-making.

No study included in the present review specifically aimed to examine patients' understandings of PCC; therefore, it is difficult to comment on patients' perspectives on the meaning and importance of PCC. Patients' perspectives should be sought in research that informs the development of patient-centred interventions^{58,64}. Gaining a greater understanding of patients' preferences and beliefs regarding PCC would allow interventions to better cater to patients' unique wants and needs and therefore be more appropriate, sustainable, and truly patient-centred.

To date, PCC has not been a focal point in dietetic research despite being emphasised by dietetic competency standards in Australia, UK, USA and Canada¹⁹⁻²¹ as early as 1997²⁰. The large number of eligible studies (n = 27) may suggest the contrary; however, only a small number of studies directly referred to PCC in their aims^{22,36,39,51}. The diversity in study aims is surprising considering the time span of two decades, as well as the increasing popularity and relevance of PCC in healthcare⁷. Future research in this area should more explicitly focus on investigating PCC to increase the clarity and significance of PCC-related findings relevant to dietetics.

There is a need to develop and evaluate interventions to promote greater PCC practises of dietitians. Only a small number of intervention studies (n = 5) relating to PCC in dietetics have been conducted in the past two decades, and these intervention studies have found inconclusive results. None of these interventions evaluated changes in dietitians' confidence, skills or attitudes regarding PCC. Furthermore, these studies mainly used clinical outcome measures, including anthropometric (weight, body mass index), metabolic (HbA1c, cholesterol) and dietary intake (24-h intake, food frequency questionnaire) measures. As a result, these studies have not examined how factors such as dietitians' confidence in PCC practise, as well as patients' empowerment, satisfaction and self-efficacy, might mediate the relationship between PCC practises and health outcomes. To be patient-centred, future intervention studies should include patient-centred outcomes (i.e. outcomes that are important to patients, such as quality of life). These additions to future interventions might facilitate identifying meaningful associations of potential health outcomes with the patient-centred aspects of the intervention, which is something that no dietetic interventions have achieved so far.

There are both strengths and limitations of the present review. A strength is the inclusion of a wide variety of studies; 27 studies comprising a range of methodological designs and objectives provides a broad overview of PCC in dietetics. However, the synthesis of both qualitative and quantitative findings can be complex and can also introduce bias²⁵. The

quality of this integrative review has been maximised through use of the systematic and rigorous process²⁵. To reduce bias, two independent researchers screened 128 full texts against inclusion and exclusion criteria. A third reviewer was available for discussion of any discrepancies. Furthermore, data extraction and quality assessment was performed by two investigators to ensure consistency. Meta-synthesis is an iterative process; therefore, emerging themes were reviewed and revised by all of the investigators. Although the methodological quality of studies did not influence their inclusion or exclusion, the results of the review should be interpreted with caution as a result of the poor quality of some studies.

In conclusion, the findings of the reviewed studies suggest that dietitians can establish trusting relationships with patients by being empathetic, honest, integral and supportive, and also by using effective communication skills. It is clearly important to patients that dietitians ensure care is individualised to meet patients' unique needs and wants. Shared decision-making between patients and dietitians requires power redistribution, which has been challenging for dietitians. The importance of a patient-centred approach is accepted in dietetic competency standards, although the evidence base on how to enact it is sparse.

Conflict of interests, source of funding and authorship

The authors declare they have no conflicts of interest. This review was completed as a component of doctoral research for the first author (IS) and was supported by an Australian Postgraduate Award. IS, LB and WC contributed to the design of the integrative review and developed the protocol. IS and CB had a lead role in identifying articles for inclusion, extracting data and appraising study methodologies. IS, LB, CB and WB contributed to the data analysis, drafting of the paper, and all agreed to the final version of the manuscript.

References

1. World Health Organization. People-Centred and Integrated Health Services: An Overview of the Evidence. Services Deliver and Safety. Geneva, Switzerland: WHO;2015, [cited 2016 April 20]. Available from: https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf?sequence=1&isAllowed=y

2. Harding E, Wait S & Scrutton J. The state of play in person-centred care: A pragmatic review of how personcentred care is defined, applied and measured, featuring selected key contributors and case studies across the field. London, UK: The Health Foundation;2015 [cited 2016 April 20]. Available from: <http://www.healthpolicypartnership.com/wp-content/uploads/State-of-play-in-person-centred-care-full-report-Dec-11-2015.pdf>
3. Sahlen KG, Boman K & Brannstrom M. A cost-effectiveness study of person-centered integrated heart failure and palliative home care: based on a randomized controlled trial. *Palliat Med.* 2016;30(3):296–302.
4. Holmstrom I & Roing M. The relation between patient-centeredness and patient empowerment: a discussion on concepts. *Patient Educ Couns.* 2010;79(2):167–172.
5. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one.* 2014;9(9):e107828..
6. Olsson LE, Hansson E, Ekman I et al. A costeffectiveness study of a patient-centred integrated care pathway. *J Adv Nurs.* 2009;65(8):1626–1635.
7. Olsson LE, Jakobsson Ung E, Swedberg K et al. Efficacy of person-centred care as an intervention in controlled trials - a systematic review. *J Clin Nurs.* 2013;22(3-4):456–465.
8. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, NSW: ACSQHC; 2012 [cited 2016 April 20]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2011/09/NSQHS-Standards-Sept-2012.pdf>
9. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. pp. 309–322. Washington, DC: National Academies Press; 2001.
10. Australian Commission on Safety and Quality in Health Care. Australian Safety and Quality Framework for Health Care. Sydney, NSW: ACSQHC; 2010 [cited 2016 April 20]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/04/Australian-SandQ-Framework1.pdf>
11. Dennis SM, Zwar N, Griffiths R et al. Chronic disease management in primary care: from evidence to policy. *Med J Aust.* 2008;188(8);S53–S56.
12. National Health Priority Action Council. National Chronic Disease Strategy. Canberra, Australia: Department of Health and Ageing; 2006 [cited 2016 April 20]. Available from: [https://extranet.who.int/ncdccc/Data/AUS_B3_Att%20A%20-%20National%20Chronic%20Disease%20Strategy%202005%20\(D15-706588\).PDF](https://extranet.who.int/ncdccc/Data/AUS_B3_Att%20A%20-%20National%20Chronic%20Disease%20Strategy%202005%20(D15-706588).PDF)

13. Sidani S, Fox M. Patient-centered care: clarification of its specific elements to facilitate interprofessional care. *J Interprof Care*. 2014;28(2):134–141.
14. Kitson A, Marshall A, Bassett K et al. What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *J Adv Nurs*. 2013;69(1):4–15.
15. Dwamena F, Holmes-Rovner M, Gauden CM et al. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database Syst Rev*. 2012; 12: CD003267.
16. Epstein RM, Franks P, Fiscella K et al. Measuring patient-centered communication in patient-physician consultations: theoretical and practical issues. *Soc Sci Med*. 2005;61(7):1516–1528.
17. Mead N & Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med*. 2000;51(7):1087–1110.
18. Ouwens M, Hermens R, Hulscher M et al. Development of indicators for patient-centred cancer care. *Support Care Cancer*. 2010;18(1):121–130.
19. Dietitians Association of Australia. National Competency Standards for Dietitians in Australia. ACT, Australia: DAA;2015 [cited 2016 April 20]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/NCS-Dietitians-Australia-with-guide-1.0.pdf>
20. Dietitians of Canada and College of Dietitians of Ontario. Professional standards for dietitians in Canada. Toronto, Canada: DAA;1997 [cited 2016 April 20]. Available from: [https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-\(1.aspx](https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-(1.aspx)
21. European Federation of the Association of Dietitians. European Dietetic Competences and their Performance Indicators. Emmerich, Germany: EFAD;2009
22. MacLellan D & Berenbaum S. Canadian dietitians' understanding of the client-centered approach to nutrition counseling. *J Am Diet Assoc*. 2007;107(8):1414–17.
23. Vaillancourt H, Legare F, Lapointe A et al. Assessing patients' involvement in decision making during the nutritional consultation with a dietitian. *Health Expect*. 2014; 17(4): 545–554.
24. Jackson JA, Kinn S & Dalgarno P. Patient-centred outcomes in dietary research. *J Hum Nutr Diet*. 2005;18(2): 83–92.
25. Whittemore R & Knafk K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546–553.

26. Whittmore R. Combining evidence in nursing research: methods and implications. *Nurs Res.* 2005;54(1):56–62.
27. Cooke A, Smith D & Booth A. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qual Health Res.* 2012; 22(10):1435–1443.
28. Gooding JS, Cooper LG, Blaine AI et al. Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. *Semin Perinatol.* 2011;35(1): 20–28.
29. Pluye P. Critical appraisal tools for assessing the methodological quality of qualitative, quantitative and mixed methods studies included in systematic mixed studies reviews. *J Eval Clin Pract.* 2013;19(4):722.
30. Pace R, Pluye P, Bartlett G et al. Testing the reliability and efficiency of the pilot Mixed Methods Appraisal Tool (MMAT) for systematic mixed studies review. *Int J Nurs Stud.* 2012;49(1):47–53.
31. Cant R & Aroni R. Eleven process evaluation strategies for education of individual clients in dietetic practice. *Nutr Diet.* 2009;66(2):87–93.
32. Desroches S, Lapointe A, Deschenes SM et al. Exploring dietitians' salient beliefs about shared decision-making behaviours. *Implement Sci.* 2011;6(1): 57.
33. Hancock REE, Bonner G, Hollingdale R et al. 'If you listen to me properly, I feel good': a qualitative examination of patient experiences of dietetic consultations. *J Hum Nutr Diet.* 2012;25(3):275–284.
34. Hardcastle S & Hagger MS. 'You Can't Do It on Your Own'. Experiences of a motivational interviewing intervention on physical activity and dietary behaviour. *Psychol Sport Exerc.* 2011;12(3):314–323.
35. Jones N, Furlanetto DL, Jackson JA et al. An investigation of obese adults' views of the outcomes of dietary treatment. *J Hum Nutr Diet.* 2007;20(5):486–494.
36. McMahon AT, Tay PC, Tapsell L et al. Building bridges in dietary counselling: an exploratory study examining the usefulness of wellness and wellbeing concepts. *J Hum Nutr Diet.* 2016;29(1):75–85.
37. Brody RA, Byham-Gray L, Touger-Decker R et al. What clinical activities do advanced-practice registered dietitian nutritionists perform? Results of a delphi study. *J Acad Nutr Diet.* 2014;114(5):718–733.
38. Desroches S, Lapointe A, Deschenes SM et al. Dietitians' perspectives on interventions to enhance adherence to dietary advice for chronic diseases in adults. *Can J Diet Pract Res.* 2015; 76(3):103–108.

39. Maclellan DL & Berenbaum S. Dietitians' opinions and experiences of client-centred nutrition counselling. *Can J Diet Pract Res.* 2006;67(3):119–124.
40. Parkin T, de Looy A & Farrand P. Greater professional empathy leads to higher agreement about decisions made in the consultation. *Patient Educ Couns.* 2014;96(2):144–150.
41. Prince AC, Moosa A, Lomer MCE et al. Variable access to quality nutrition information regarding inflammatory bowel disease: a survey of patients and health professionals and objective examination of written information. *Health Expect.* 2015;18(6):2501–2512.
42. Deschenes SM, Gagnon MP, Legare F et al. Psychosocial factors of dietitians' intentions to adopt shared decision making behaviours: a cross-sectional survey. *PLoS ONE.* 2013;8(5):E64523.
43. Vaillancourt H, Legare F, Gagnon MP et al. Exploration of shared decision-making processes among dietitians and patients during a consultation for the nutritional treatment of dyslipidaemia. *Health Expect.* 2015;18(6):2764–2775.
44. Whitehead K, Langley-Evans SC, Tischler V et al. Communication skills for behaviour change in dietetic consultations. *J Hum Nutr Diet.* 2009;22(6):493–500.
45. Williamson AR, Hunt AE, Pope JF et al. Recommendations of dietitians for overcoming barriers to dietary adherence in individuals with diabetes. *Diabetes Educ.* 2000;26(2):272–279.
46. Cant R & Aroni RA. Validation of performance criteria for Australian dietitians' competence in education of individual clients. *Nutr Diet.* 2009;66(1),47–53.
47. Cant RP & Aroni RA. Exploring dietitians' verbal and nonverbal communication skills for effective dietitian– patient communication. *J Hum Nutr Diet.* 2008;21(5):502–511.
48. Almeida LB, Segurado AC, Duran ACF et al. Impact of a nutritional counseling program on prevention of HAART-related metabolic and morphologic abnormalities. *AIDS Care.* 2011;23(6):755–763.
49. Bowen D, Ehret C, Pedersen M et al. Results of an adjunct dietary intervention program in the Women's Health Initiative. *J Am Diet Assoc.* 2002;102(11):1631–1637.
50. Locher JL, Vickers KS, Buys DR, Ellis A, Lawrence JC, Newton LE, Roth DL, Ritchie CS, Bales CW. A randomized controlled trial of a theoretically-based behavioral nutrition intervention for community elders: lessons learned from the Behavioral

- Nutrition Intervention for Community Elders Study. *J Acad Nutr Diet*. 2013;113(12):1675-82.
51. Everett ST, Wolf R, Contento I et al. Short-term patient-centered nutrition counseling impacts weight and nutrient intake in patients with systemic lupus erythematosus. *Lupus*. 2015;24(12):1321–1326.
 52. van den Berg MG, Rasmussen-Conrad EL, Wei KH et al. Comparison of the effect of individual dietary counselling and of standard nutritional care on weight loss in patients with head and neck cancer undergoing radiotherapy. *Br J Nutr*. 2010;104(6):872–877.
 53. Cant R. Constructions of competence within dietetics: trust, professionalism and communications with individual clients. *Nutr Diet*. 2009;66(2):113–118.
 54. Ball L, Davmor R, Leveritt M et al. The nutrition care needs of patients newly diagnosed with type 2 diabetes: informing dietetic practice. *J Hum Nutr Diet*. 2016;29(4):487–494.
 55. Endevelt R & Gesser-Edelsburg A. A qualitative study of adherence to nutritional treatment: perspectives of patients and dietitians. *Patient Prefer Adherence*. 2014;8:147–154.
 56. Barry MJ & Edgman-Levitan S. Shared decision making – pinnacle of patient-centered care. *N Engl J Med*. 2012;366(9):780–781.
 57. Cotugno JD, Ferguson M, Harden H et al. “I wish they could be in my shoes”: patients’ insights into tertiary health care for type 2 diabetes mellitus. *Patient Prefer Adherence*. 2015;9:1647–1655.
 58. Ferguson LM, Ward H, Card S et al. Putting the ‘patient’ back into patient-centred care: an education perspective. *Nurse Educ Pract*. 2013;13(4):283–287.
 59. Windover K, Boissy A, Rice T et al. The REDE model of healthcare communication: optimizing relationship as a therapeutic agent. *J Patient Exp*. 2014; 1(1): 8–13
 60. Sumsion T & Lencucha R. Balancing challenges and facilitating factors when implementing client-centred collaboration in a mental health setting. *Br J Occup Ther*. 2007; 70(12):513-20
 61. Street RL Jr, Makoul G, Arora NK et al. How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns*. 2009;74(3):295–301.

62. Hall AM, Ferreira PH, Maher CG et al. The influence of the therapist-patient relationship on treatment outcome in physical rehabilitation: a systematic review. *Phys Ther.* 2010;90(8):1099–1110.
63. King A & Hoppe RB. ‘Best practice’ for patient-centered communication: a narrative review. *J Grad Med Educ.* 2013;5(3):385–393.
64. Little P, Everitt H, Williamson I et al. Preferences of patients for patient centred approach to consultation in primary care: observational study. *Brit Med J.* 2001;322(7284):468–472.

4.6 Evidence update

An updated search was conducted to capture any articles published between February 2017 and January 2019. To replicate the previous search strategy, databases searched included Medline, CINAHL and Scopus; Boolean connectors AND, OR and NOT were used to combine search terms, which were consistent with the original search strategy. Additional articles were also sought using manual searching and reference lists. Search results were imported into EndNote prior to screening. To reiterate the inclusion/exclusion criteria, studies were included if they related to one or more dimensions of PCC; involved qualified dietitians and/or patients participating in individual consultations where nutrition care was delivered by a dietitian; were described in full-text articles published in English; and were empirical studies of adult participants. Studies were excluded if they involved group-based PCC interventions, student dietitians, or multidisciplinary studies where data specifically relating to dietetics were unable to be extracted.

Forty-five records were identified (including two through sources other than database searching)^{115, 116}. Following a title and abstract screen of all records, 12 were retrieved for full-text review. Subsequently, five texts were excluded for the following reasons: unrelated to qualified dietitians and/or patients participating in individual consultations with dietitians or unable to extract data specifically relevant to dietitians (n=3); unrelated to PCC (n=1); and described Phase II of this PhD research (n=1) (reported in the next chapter). A study by Levey and colleagues¹¹⁶ was not identified in the database search (the manuscript was still under review at the time of writing), but was conducted by the PhD candidate's research team, and was included here due to the important contribution it makes to evidence about the barriers and enablers to delivering PCC.

Table 4.2 describes the seven recent studies that met the inclusion criteria. The articles represent a variety of methodological designs, including qualitative (n=4), cross-sectional (n=1) and pre-post surveys (n=1) and one randomised controlled trial. Studies were conducted in Australia (n=4), UK (n=2) and Portugal (n=1).

Table 4.2: Description of included studies in order of methodological design (evidence update)

Author (year); Country	Design	Participants / Sample size	Aim	Findings related to PCC
Camolas et al., 2017 ¹¹⁷ Portugal	Two-arms randomised controlled single-site study	n=147 initially enrolled, after dropout: IG (n=45); CG (n=49)	To evaluate the effect of INDIVIDUO on weight and metabolic control and the impact of INDIVIDUO on psychosocial variables associated with successful weight control	Patients in the IG lost an excess 9.68% body weight compared to 0.51% for CG. Adjusting for age and baseline BMI, allocation group remained an independent predictor of %EWL (Adjusted $r^2= 0.14$; $\beta= 8.43$, 95% CI: 2.79–14.06, $P = 0.01$) IG had a six-fold higher probability (OR: 6.35, 95% CI: 1.28–31.56, $p=0.02$) of having adequate/controlled fasting glycemia
Hazzard et al., 2017 ¹¹⁸ Australia	Cross-sectional survey and semi-structured interviews	Survey: n=56 Interviews: n=10 Patients who had been seen by a dietitian for malnutrition assessment	To identify quality indicators of dietetic services from the perspectives of older malnourished patients to inform evidence-based PC dietetic care	Eleven patient-centred quality indicators were identified, embedded within three domains: <i>Structure indicators:</i> continuity of care through regular contact and post-discharge follow up – patients perceived that this was limited and that the interaction with the dietitian was “fleeting”; high quality hospital food service and; interdisciplinary coordination and collaboration – patients valued dietitians coordinating

and working collaboratively with other healthcare professionals to provide holistic care

Process indicators: addressing the primary medical concern of the patient – tailoring nutritional advice and care to the primary medical concern of patients, providing clear and simple information, and utilising interpersonal communication skills – such as active listening and empathy

Outcome indicators: improvement in health status, improvement in and maintenance of independence, and weight gain

Notaras et al., 2018 ¹¹⁵	Pre- and post-written surveys to evaluate an education program	n=50 Dietitians working across 6 acute care hospitals and community health services, NSW Australia	To evaluate the effect of a workplace education program on the self-reported communication and nutrition counselling skills of dietitians	The perceived importance of this program to their practice was rated highly by 92% of the dietitians. There was a statistically significant increase in the dietitians' self-ratings of their skills (median = 3 versus 4, Z = 4.562, P < 0.001) with a large effect size (r = 0.65) following the program. An increase rating in skills was found mostly for dietitians who rated their pre-program skills as average or below. Most (70%) dietitians rated the benefit of the program to their practice highly
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				<p>The main barriers to implementing communication and nutrition counselling skills were reported as lack of time (79%), lack of knowledge (15%) and lack of mentoring programs within the workplace to support this (15%). Dietitians reported the following facilitating factors: regular education sessions on communication and nutrition counselling (67%), allocated time to practice skills (36%), having a designated leader or champion in the workplace for implementation (36%), management support (18%) and the skills being required by the professional dietetic association (15%)</p>
<p>Morris et al., 2017¹⁹ UK</p>	<p>Qualitative phenomenology study, semi-structured interviews</p>	<p>n=20 adult renal service users who had engaged with renal dietitians to receive dietary advice</p>	<p>To explore patients' engagement experiences with renal dietitians</p>	<p>Two main themes emerged from consultation experiences: helpful and unhelpful engagement styles <i>Helpful engagement style:</i> dietitians who were perceived as having a helpful engagement style were described as honest, genuine, caring, compassionate, non-judgemental, understanding and empathetic. Participants felt they were able to be candid about their emotions regarding their disease, that their thoughts and feelings would not be criticised, and that they had a "good working relationship with the dietitian"</p>

				<p><i>Unhelpful engagement style:</i> dietitians who were perceived as having an unhelpful engagement style were seen to be unable to comprehend the patient's experience of the disease, and as a result, patients perceived a sense of personal judgement from the dietitian. Patients also felt that the advice-giving, directive communication style/approach as unhelpful</p>
Levey et al. 2018 ¹¹⁶	Qualitative interviews	n=12 accredited practising dietitians	To explore primary care dietitians' perspectives of the barriers and enablers to delivering PCC	<p>Seven themes were identified regarding dietitians' perspectives of the barriers and enablers to delivering PCC:</p> <p><i>Valuing patient-centred care:</i> dietitians' comments suggested they viewed PCC as important</p> <p><i>Challenges in defining patient-centred care:</i> dietitians' descriptions and definitions of PCC varied; some had never heard of PCC while others believed it was a vague concept and that its meaning requires clarification</p> <p><i>Enacting patient-centred care:</i> Some dietitians believed that not all patients desired a patient-centred approach and that different patients' attitudes, personalities and expectations influenced dietitians' approach to care</p>

Requiring additional education in patient-centred care: dietitians perceived that PCC education was insufficient in the dietetic profession and that greater availability of resources and courses were needed

Evaluating one's own practice: dietitians described the value of tools for enabling self-evaluation of their practice, and feedback from patients regarding the care they provide

Workplace pressures and constraints: dietitians felt time and financial limitations hindered their ability to deliver PCC

Keeping up with expectations: dietitians explained that the expectations from other health professionals and the pressure they place on themselves could be barriers to delivering PCC

Heslehurst et al., 2017 ¹²⁰ UK	Qualitative, in-depth interviews	n=15 pregnant women with a BMI $\geq 30\text{kg/m}^2$ attending	To understand the lived experiences and views of being referred to an antenatal dietetic service from the perspective of pregnant women with obesity	Four themes were identified; those relating to PCC in the context of dietetic care were: <i>Women's overall experience of the service:</i> participants felt that dietitians were interested in their baby's health <i>Delivery of the service:</i> participants wanted more frequent contact with the dietitian to build relationships;
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		an obesity-specific antenatal dietetic service		felt that resource limitations and dietitians' workload would make it difficult for a service to meet patients' needs; advice that was not tailored to participants' needs was perceived as a barrier to change; having choice and control over changes was also important and; women wanted more personalised advice.
Stevenson et al., 2018 ¹²¹	Qualitative, semi-structured interviews	n=42 Haemodialysis clinicians: (n=15), nephrologists and nephrology trainees (n=15) and nurses (n=12)	To describe the perspectives of healthcare providers on the nutritional management of patients on haemodialysis, which may inform strategies for improving patient-centred nutritional care	<p><i>Adapting guidelines:</i> Dietitians felt that guidelines were too restrictive and chose to deviate from guidelines to make advice more realistic</p> <p><i>Integrating patient circumstances:</i> Some dietitians were flexible, allowing patients to enjoy food particularly in consideration of patients' priorities, cultural needs and circumstances</p> <p><i>Access and affordability:</i> Dietitians raised concerns regarding the impact of financial insecurity on patients' ability to select appropriate, healthy foods</p> <p><i>Developing self-efficacy through engagement:</i> Dietitians aimed to give actionable and realistic advice</p> <p><i>Pivotal role of dietary expertise:</i> dietitians reported using individualised dietary plans and shopping guides to build patients' self-management skills</p>

Empathy for confronting life changes and fostering non-judgemental relationships: dietitians were empathetic to the difficulty of sustaining long-term motivation and were aware of changes in patients' self-identity, lifestyle and financial circumstances and social roles

Organisational and staffing barriers: some dietitians felt there was inadequate time for professional development and that they were under-resourced with inadequate time to effectively educate and support patients

Conflicting advice and patient confusion: dietitians perceived that conflicting advice from different health professionals resulted in patient confusion

BMI = body mass index; CG = control group; %EWL = percentage of excess weight loss; IG = intervention group; INDIVIDUO = a Portuguese-derived acronym for “lifestyle-focused nutritional intervention in individuals with obesity”; PCC = patient-centred care

Summary of findings

Findings from these seven recent studies provide further evidence that patients and dietitians value PCC. These studies refer to dimensions of PCC including individualised care, patient–dietitian communication and patient–dietitian relationships. For example, individualised care was identified as an important indicator of PCC among malnourished, hospitalised patients¹¹⁸, and non-individualised care was seen as a barrier to meaningful change for pregnant women attending an obesity-specific antenatal dietetic service¹²⁰. Findings from a qualitative study involving adult renal patients emphasised the value of good patient–dietitian relationships¹¹⁹; while dietitians being honest, empathetic and non-judgemental was considered a helpful engagement style, a directive, judgemental approach was perceived as unhelpful. This was consistent with findings from a qualitative study involving dietitians consulting with haemodialysis patients; dietitians emphasised the importance of empathy and establishing non-judgemental relationships with patients¹²¹. The study by Hazzard and colleagues also provided further evidence to support the value of good communication skills; participants described wanting clear, simple and actionable information and appreciated dietitians’ employing effective communication skills, including active listening and empathy¹¹⁸. Overall, these findings support the themes arising from the integrative review. These papers also provide further evidence of the barriers and enablers to delivering PCC in dietetic practice. Key barriers identified were time and resource limitations^{115, 120}, inadequate training and education relevant to PCC in undergraduate education and mentoring programs^{115, 116}, the lack of conceptual clarity regarding PCC, the perception that not all patients desire PCC, and the lack of available tools to evaluate practice in terms of PCC¹¹⁶. On the other hand, regular education and training, having a designated leader or champion in the workplace for implementation and management support, and skills being a requirement by the dietetic professional association were seen as facilitators^{115, 116}. In conclusion, these studies provide recent evidence that supports the findings from the integrative review. They also indicate there is increasing interest in this topic, particularly in Australia. Most authors adopted a qualitative study design (n=4). These studies have generated rich, in-depth findings relevant to PCC. However, there is still a lack of clarity regarding the conceptualisation of PCC and evidence regarding the extent of PCC practised by dietitians more broadly. These key research gaps are addressed in this thesis.

Chapter 5 Phase 2

Paper 2 - Patients' perceptions and experiences of patient-centred care in dietetic consultations

Reader's Note: This chapter consists of the following co-authored paper. The bibliographic details of the co-authored paper, including all authors, are:

Sladdin I, Chaboyer W, Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet.* 2018;31(2):188-96

The candidate's contribution to this publication involved leading:

- study conception,
- study design,
- data collection,
- data analysis,
- interpretation of the data, and
- writing of the manuscript.

5.1 Abstract

Background Patient-centred care (PCC) is essential to quality healthcare. However, there is a paucity of research on PCC in dietetics, particularly regarding patients' experiences and perspectives of PCC. We aimed to enhance our understanding of PCC in dietetics by exploring patients' perceptions and experiences of PCC in individual dietetic consultations.

Methods The present study used qualitative methods, situated in a constructivist–interpretivist paradigm. Maximum variation purposive sampling was used to recruit English speaking adult participants who had participated in ≥ 1 dietetic consultations for nutrition care. Individual semi-structured interviews explored participants' perceptions and experiences of PCC in dietetic consultations. Data were analysed thematically.

Results Eleven patients were interviewed between September and November 2016. Four overarching themes emerged: (i) fostering and maintaining caring relationships; (ii) delivering individualised care; (iii) enabling patient involvement; and (iv) taking control of one's own health.

Conclusions PCC is important to patients. Thus, there is opportunity for dietitians to enhance the care they provide by adopting patient-centred practices. As the first study of its kind, these findings can inform future dietetic practice, education and research by contributing patients' perspectives of PCC. By understanding patients' unique needs and preferences, dietitians can better align their practice with a patient-centred approach. Furthermore, these findings are useful for informing future dietetic research and education.'

5.2 Introduction

Patient-centred care (PCC) is an essential component of safe and quality health care ¹. The UK Health Foundation describes PCC as care that affords people dignity, respect and compassion, and offers coordinated, personalised and enabling care². A similar definition has been presented by the Institute of Medicine³. PCC dimensions include exploring patients' biopsychosocial context, having positive clinician–patient relationships, practising patient-centred communication, involving patients in decision-making, and

individualising care to meet patients' unique needs and preferences^{4,5}. However, there is an opportunity to enhance understanding of PCC by including patients' perspectives^{6,7}.

The many important benefits of PCC provide a strong rationale for health professionals to adopt patient-centred approaches to practice. For patients, PCC practises are associated with increased satisfaction with^{8,9} and engagement in care¹⁰, increased quality of life, competence and autonomy¹¹, reduced symptom burden, improved functional capacity¹², improved clinical outcomes¹¹⁻¹⁵ and reduced length of stay in hospital¹⁴. Benefits to healthcare systems and organisations include reduced healthcare costs^{14,15} and increased healthcare effectiveness².

A patient-centred approach has been advocated for by various governments^{1,16} and international health organisations^{3,17,18}. However, evidence suggests there are numerous barriers to adopting PCC. These barriers include poor attitudes and beliefs of health professionals^{19,20}, absence of a universally accepted definition of PCC⁶, methodological challenges with measuring PCC and its value in practice⁶ and limited understanding of patients' perspectives of PCC¹⁹. Efforts of scholars, clinicians and policy writers need to focus on identifying strategies to overcome these barriers before widespread adoption of PCC can occur.

Dietitians are health professionals trained in medical nutrition therapy, which includes supporting patients to modify their dietary behaviour^{21,22}. Dietitians play an important role in assisting patients to reduce their risk of poor health and achieve improved health outcomes including improved quality of life²². PCC is recognised as an important component of dietetic practice, with professional standards for dietitians containing numerous references to PCC^{21,23-25}. However, a recent integrative review found a paucity of research on PCC in dietetics²⁶. Clearly, a better understanding of what PCC involves in the context of dietetic practice is required to inform future dietetic research, practice and policy^{6,7}. Although various stakeholders will have differing ideas about PCC, it is important to understand patients' preferences in this regard. A recent study explored malnourished patients' views of dietetic hospital care²⁷; however, no study has explored patients' perspectives of PCC in the dietetic primary care setting²⁶. Thus, the present study aimed to explore patients' experiences and perspectives of PCC in individual dietetic consultations.

5.3 Methods

Study design

The present study was situated in a constructivist–interpretivist paradigm using a qualitative methodology to explore patients’ perceptions and experiences of PCC²⁸. This approach was most appropriate because constructivist researchers consider that meaning is discovered through exploration of a phenomenon within its context and through the researchers’ interaction with the data²⁹. The study was approved by the organisation’s Human Research Ethics Committee (Ref No: 2016/641).

Study setting and sample

The study was conducted in the primary healthcare setting. Participants were sought from dietitian-specific primary healthcare clinics across Queensland, Australia. Participants were recruited according to the predetermined inclusion criteria: having participated in ≥ 1 dietetic consultations; receiving nutrition care for the management of ≥ 1 medical conditions; English speaking; and ≥ 18 years of age. A dietetic consultation was defined as at least one meeting between a dietitian and patient to support an individual to modify their dietary behaviours, and could include any or all components of the nutrition care process: assessment, goal setting, nutrition education and nutrition counselling. Maximum variation purposive sampling was used³⁰. Participants were sought to fulfil a variety of characteristics, including different medical conditions (such as cardiovascular disease, diabetes, being overweight and obesity), geographical distribution (including urban, rural, regional and remote), age groups and sex. Participants’ demographic characteristics were recorded and referred to throughout data collection.

Recruitment

Using the patient database of a large dietetic primary healthcare service, an e-mail was sent to all potential participants and an information notice was sent out via social media (Facebook) encouraging potential participants to contact the research team for further information. Those who contacted the research team were then sent a participant information sheet. Potential participants were also provided with study details and a participant information sheet directly by their dietitian during a consultation. Participants who expressed interest were contacted via telephone to gain verbal consent and schedule an interview. All personal identifiers were removed so participants are unable to be identified.

Data collection

Participants completed individual semi-structured audiotaped telephone interviews lasting between 22 to 55 min. The semi-structured interview guide developed by the research team was informed by the existing conceptual and theoretical literature on PCC^{4,5,31}. The interview guide was piloted prior to data collection, with participants' feedback resulting in minor changes to wording. Interviews explored participants' perceptions of PCC and its dimensions, as well as previous experience of individual dietetic care. Examples of interview questions include: Can you tell me what the term 'patient-centred care' means to you? What opportunities to discuss alternative dietary options and plans arose? And, based on what you think patient-centred care is, give me one example of how it might look to you. The same researcher (IS) conducted all interviews.

Data analysis and rigour

Data were analysed using six phases of thematic analysis³²: (i) familiarising with the data; (ii) generating initial codes; (iii) searching for themes; (iv) reviewing themes; (v) defining and naming themes; and (vi) producing the report. Thematic analysis is a systematic and iterative approach to understanding the meaning of a phenomenon within a specific context³². Preliminary analysis commenced at the beginning of data collection. The researchers developed early thoughts regarding themes by reflecting on the interview transcript and further exploring ideas through subsequent interviews³². This enabled identification of data saturation³³. Researchers played an active role in the discovery of themes through analysis and interpretation of the data³³. Thus, it is imperative that the researchers acknowledge their role in qualitative research³³. Three researchers were involved in the analysis: two dietitians and a nurse researcher who has expertise in PCC. A number of methods were undertaken to increase methodological rigour of the study. Contact summary sheets were completed after each interview, which compiled salient issues and unanswered questions to assist with the planning of subsequent interviews, enable ease of recollection when returning to the transcript and begin the analytic process³⁴. The researchers wrote memos throughout data collection and analysis to reflect on and document potential biases and preconceptions³⁴. Memos were also used to label and combine data and document analytical decisions made³⁴. This ensured auditability;

researchers' findings could be followed clearly to understand the process of questioning and interpretation of raw data. Direct quotes from participants are provided to enable an audit trail. Research team meetings were conducted during all phases of data analysis to ensure agreement was reached on codes, subthemes and themes, and to ensure that interpretation was reflective of the data.

5.4 Results

Eleven patients participated in semi-structured interviews between September and November 2016. More than half the participants were females (n = 7; 64%) and the mean (SD) age was 56.5 (13.8) years (range 27–73 years). Participants had a variety of medical conditions (Table 5.1).

Table 5.1: Participant characteristics

Demographic characteristics	N (%)
Sex	
Female	7 (63.6)
Male	4 (36.4)
Medical diagnosis	
Diabetes (T1DM, T2DM)	5 (45.5)
Overweight / obesity	3 (27.3)
Cardiovascular disease	2 (18.2)
IBD	1 (9.0)
Existing co-morbidities	4 (36.9)
Age (mean ± SD)	56.5(13.8)
Geographical location	
Rural	8 (72.7)
Urban	3 (27.3)

IBD=Inflammatory Bowel Disease; T1DM=Type I Diabetes Mellitus;

T2DM=Type II Diabetes Mellitus

Participants views of patient-centred care

Participants provided numerous descriptions of their understanding of PCC, including 'working with them [the client] . . . to develop suitable outcomes' (P2); 'listening to what the patient is saying . . . incorporating the patient goals . . . into the care plan' (P6); 'tailor care to each individual circumstance' (P8); 'address the needs of the patient . . . placing

more importance on the person' (P1); and; the patient 'directing the visit . . . feeding back rather than being spoken down to' (P3). Collectively, this suggests participants' view PCC as encouraging patients input through collaborative goal setting, individualising care to patients' unique circumstances and establishing two-way communication.

Thematic analysis

Four themes and 12 subthemes were identified regarding participants' perceptions of PCC (Table 5.2).

Table 5.2: Themes and sub-themes emerging from thematic analysis

Themes	Sub-themes
Fostering and maintaining caring relationships	Developing a holistic understanding of the patient Investing in the patient's wellbeing Being supportive, respectful and empathetic
Delivering individualised care	Adapting care to the patient's individual circumstances Practising good communication Providing generic care
Enabling patient involvement	Acknowledging the patient's role and contribution Ensuring patient involvement in decision-making Controlling the encounter
Taking control of one's own health	Having a sense of responsibility Accepting support from the dietitian Being cognisant of the consequences

Fostering and maintaining caring relationships

The first theme illustrated the importance of dietitians fostering and maintaining caring relationships with patients, which involved: developing a holistic understanding of the patient; being invested in patients' wellbeing; and dietitians possessing caring qualities. Most participants stated that they wanted dietitians to understand their background and history, including the underlying factors influencing their health and lifestyle choices. In some instances, participants described issues such as depression, alcoholism, financial

stress, domestic violence and unemployment impacting upon their choices. Participants' trust was increased when dietitians acknowledged and understood their circumstances and responded with respect, empathy and nonjudgement. One participant explained 'you need to have good relationships with the people you're dealing with . . . you just want somebody that's interested, that's going to be a part of what your journey' (P9).

Participants expressed a desire for dietitians to be invested and genuinely care about their wellbeing and healthcare progress. This demonstrated to participants that the dietitian was supportive and trustworthy, which increased patients' motivation for dietary behaviour change. Participants who experienced caring relationships with their dietitian described positive experiences and suggested a desire to continue the relationship with their dietitian. However, not all participants perceived that the dietitian genuinely cared about them. One participant explained that the dietitian would have been more helpful and effective had they shown genuine interest in the patient. Another participant stated 'it was like they didn't care, I think for them [the dietitian] it was just a job' (P6). Participants also described qualities some dietitians possessed that were valuable to the dietitian-patient relationship and participants' progress, including being positive, enthusiastic, supportive, respectful and trustworthy.

Some participants described their relationship with their dietitian as being instrumental to their healthcare progress. One participant said 'I see it as a partnership for me to get the best results I can' (P2). Participants' comments suggested the approach and attitude of these dietitians had great influence over their care experience. Therefore, it was important that participants were comfortable and understood by their dietitian.

Delivering individualised care

The second theme related to the importance of dietitians individualising care to meet patients' unique needs and preferences. When information resources, advice and strategies were individualised, participants described their care experience as more positive, helpful and realistic. Individualising care required dietitians to possess good communication skills. Non-individualised care was perceived as generic and unrealistic. Dietitians needed to adapt advice and strategies to patients' unique circumstances. Participants identified that dietitians needed to explore patients' background and history to identify factors influencing their health and illness. Participants discussed the importance of dietitians considering participants' budget, living situation and level of support available to ensure that strategies were appropriate. One participant said 'the

advice I was given was quite specific and individualised and helpful . . . and took into account what I wanted.’ This theme closely relates to the first theme, which involved developing a holistic understanding of the patient. Good communication skills were needed to collect this information. Dietitians needed to listen carefully, ask questions and encourage participants to explain their personal situation comprehensively.

When care was not individualised, participants described dietitians as ‘dictating’ and approaching the consultation with a ‘predetermined’ plan. Similarly, when dietary advice and strategies were not tailored to the individual they were viewed as ‘generic’ (P8), structured ‘by the book’ (P4), unrealistic and unhelpful. For example, when patients’ socio-economic circumstances were not discussed, it was challenging for participants to adopt dietitians’ suggestions. When this viewpoint was expressed, participants perceived their experience with the dietitian as unnecessary because it did not support participants to improve their dietary behaviours. One participant explained ‘some are tailored more towards me specifically and then others are just general for anyone . . . they probably should look at, like not a one size fits all’.

Enabling patient involvement

The third theme emphasised the importance of involving patients in care. Patient involvement was facilitated by dietitians acknowledging the patient’s role and contribution and ensuring patients’ involvement in decision-making. However, some patients perceived that dietitians controlled the encounter, viewing this as a barrier to patient involvement. Several participants discussed their ability to offer unique knowledge and insights into the dietetic consultation as a result of their personal experience with health and illness. Participants emphasised the importance of dietitians listening to and acknowledging the potential contribution this novel expertise could make to the consultation. One participant stated ‘I know when something’s happening and when something’s not right . . . I just think it’s very important that you have people that just listen’ (P9). Because some participants recognised their unique expertise, they expressed a desire to have input, control and a sense of ownership over decisions made. Participants described wanting to have a voice, explore options and collaboratively make decisions with the dietitian: ‘For me to take ownership I had to have a certain amount of input and control of the direction we were heading in’ (P2). Others perceived that dietitians precluded patients’ involvement by having a controlling, directive approach during the encounter. Some dietitians were described as ‘dictatorial’, making decisions for rather

than with participants. As a result, dietary plans were not always reflective of participants' needs and preferences. One participant said 'the dietitian had set her mind on a particular path and that's the path we went down . . . then there was less room for me to explore what that meant, rather I was just given the answer of this is what we're going to do now' (P1). Some participants considered that dietitians had a 'pre-set agenda', impeding participants' sense of control and ability to explore options and find solutions.

Taking control of one's own health

The fourth theme related to patients taking control of their own health. This control was facilitated by patients having a sense of responsibility and intrinsic motivation, acknowledging the consequences of not taking control of their health and accepting support from the dietitian. One participant explained 'it was probably my understanding that I'm responsible for my health, other people aren't there to fix me up, all they can do is to provide the tools and the advice regarding that, and um then I am responsible for my actions in supporting that' (P2).

Several participants described feeling responsible, motivated and capable as a result of past life experiences. One participant explained 'I've sort of realised that if I don't change, I'm going to end up worse, so if I want to live longer and have a better quality life, I have to do these things to make my life better' (P7). Another participant discussed being capable of 'doing something about it [diabetes]' (P5). These participants explained that decisions regarding their health were ultimately theirs to make and the role of the dietitian was to provide support, tools and advice to aid their decision-making process.

Participants also identified the importance of dietitians in providing emotional and practical support. Participants particularly emphasised the significance of dietitians' support when they had good dietitian–patient relationships. Communication was integral; patients not only wanted to be listened to, but also emphasised the importance of listening themselves. Participants viewed ongoing support with the same dietitian as essential for reassurance, autonomy and motivation.

Several participants described their awareness of the long-term implications of their medical condition. This was the result of open and honest dialogue between the participant and dietitian, which increased participants' motivation to take control over their health. Participants viewed honesty as being important. This meant being truthful with themselves, and receiving honest dialogue from the dietitian. They discussed being willing to listen and learn about their condition and draw on this knowledge in daily

planning and decision-making. This desire for honesty and knowledge seemed important to participants' self-management practices. Again, dietitians support in delivering knowledge honestly was important to facilitate awareness and choices in decision-making.

5.5 Discussion

The present study provides novel findings in that it is the first study to explore patients' perceptions and experiences of PCC in the dietetic primary care setting. These data reveal that participants wanted to foster and maintain caring relationships with dietitians, receive care that is individualised, be involved in their care processes and take control of their own health. These findings are important because they describe aspects of PCC that are meaningful and valuable to patients in the dietetic setting. Participants' overall views of PCC are consistent with existing definitions and dimensions^{4,5,26} suggesting that patients have an understanding of PCC.

Caring dietitian–patient relationships were clearly important to participants. Both patients and dietitians have previously discussed the importance of positive dietitian–patient relationships^{35–37}. This was also expressed by patients in studies conducted in nursing³⁸ and medicine^{39,40}. Furthermore, dietetic professional standards advocate for collaborative client–professional partnerships based on mutual respect and trust^{21,23,24}. Therefore, it is important that dietitians are able to foster caring relationships because this can greatly affect patients' experiences and promote PCC practices.

Participants reported that caring relationships were achieved when dietitians gained a holistic understanding of the patient, were invested in the patient's wellbeing and possessed caring qualities. These views were also demonstrated in two qualitative studies conducted in medicine that explored patients' experience of healthcare^{39,40}. Overall, the first theme and related subthemes illustrates an integrated approach to foster caring dietitian–patient relationships.

The second theme suggested that dietitians need to tailor care to ensure advice is individualised. This was particularly important when patients had personal factors influencing their ability to adopt strategies. Patients perceived care as unrealistic when their circumstances were not considered. There was a strong inter-relationship between the first and second theme; to individualise care, it was important for dietitians to gain a holistic understanding of patients' unique circumstances. Although individualised care was clearly important to patients in the present study, evidence suggests dietitians face

challenges in achieving this^{26,41,42}. The findings from a UK study involving 100 dietitians and 72 patients assessing the type and quality of nutrition information available to patients with inflammatory bowel disease suggested that personalised information was highly important to patients⁴². However, only 11% of dietitians considered patients' individual needs⁴². Patients' experience of receiving PCC in individual dietetic consultations may be improved if dietitians use tactics to tailor dietary advice to patients' individual circumstances.

The third theme revealed that participants were cognisant of the unique expertise they offer resulting from their personal experiences with health and illness. Although patients have previously expressed awareness of their unique expertise, health professionals have not always acknowledged this capital⁴³⁻⁴⁵. For example, a Delphi study conducted in Canada revealed that dietitians (n = 65) did not always recognise patients as experts when it came to their own nutrition care⁴⁴. In a qualitative study involving 25 dietitians in Canada, some dietitians considered that they were the expert, and not the patient⁴⁵. If patients' contribution is not acknowledged, this may result in feelings of alienation and frustration. Therefore, it is essential that dietitians acknowledge and use patients' expertise to facilitate individualised care for patients.

Participants wanted to feel involved in decision-making and goal setting. Some participants experienced frustration when dietitians controlled the encounter. This concept of health professionals controlling the encounter or having a directive and authoritative approach has been demonstrated in several studies exploring patients' perceptions of their care experience^{35,43}. These studies also discovered that this approach can result in patients feeling frustrated and overwhelmed^{35,43}. It is therefore important that dietitians and other health professionals actively relinquish control during consultations to facilitate improved relationships.

The findings from the present study, as well as the existing literature^{44,45}, suggest that there may be deeper attitudinal barriers impeding the implementation of PCC. This is not unique to dietetic practice, with studies in nursing³⁸ and medicine⁴³ also highlighting this barrier. Participants in the present study perceived that some dietitians adopted a dictatorial approach, which prevented patient involvement. Additionally, two Canadian observational studies have shown that dietitians practice low levels of shared decision-making^{46,47}. Interestingly, two previous studies indicated that dietitians preferred to adopt a counselling approach using two-way communication rather than information giving or instruction^{48,49}. These findings, in combination with results from the present study,

suggest that both dietitians and patients prefer a nondirective, counselling approach. However, work is still needed to improve dietitians' adoption of PCC, particularly regarding patient involvement.

The present study suggest that some participants want to take control of their health. This fourth theme demonstrates the importance of dietitians providing self-management support for patients. This support could involve tools (e.g. dietary advice, referrals), exploring patients' problems, and adopting shared decision-making and collaborative goal setting⁵⁰. The World Health Organization emphasises the importance of PCC in empowering patients regarding self-management of their chronic disease⁵¹. Enhancing patients' self-management skills has the potential to improve patients' self-care decisions and maintain health-related behaviours (e.g. healthy dietary choices). It is important that dietitians initiate honest dialogue with patients regarding their health and can identify when patients are empowered to take control of their health.

The findings from the present study suggest that PCC may result in increased patient engagement and autonomy. Patients who had caring relationships with dietitians, were involved in care and received individualised care appeared to be more engaged and empowered. When care was not tailored to patients' individual circumstances, patients were not encouraged to improve their dietary behaviour. Furthermore, PCC has been associated with improved self-care practices by patients¹⁰. Therefore, these findings may be particularly useful for dietitians assisting patients with chronic disease; a patient population for which engagement, autonomy and good self-care practices are critical^{50,52}. Dietitians are likely to facilitate patients in self-care behaviours by practicing PCC.

Participants' perspectives uncovered in the present study can enhance existing models of PCC by highlighting aspects that are meaningful and valuable to patients. Thus, these novel findings can inform future dietetic practice, education and research. First, dietitians can refer to these findings to align care with patients' needs and preferences. Adapting practice in this way will facilitate patients to have a positive and engaging care experience. Second, it is important to incorporate these advances in PCC understanding into dietetic education. For example, these findings can be highlighted in university curricula through workshops and lectures and also inform the development and implementation of resources for use in accredited university dietetic education and continued professional development; in addition, these aspects of PCC can be further integrated into dietetic assessment tools and graduate competencies.

Finally, the enhanced model can contribute to future research by guiding the development of instruments for measuring PCC and informing planning of patient-centred interventions in the dietetic setting. Scholars emphasise the importance of including patients' perspectives when designing instruments to measure and implement PCC⁶. Therefore, it would be helpful for dietetic researchers to include these perspectives when developing instruments or designing interventions so that they are reflective of what patients perceive to be important. This contribution to future research is particularly important; despite patients' preferences for PCC, there is a lack of empirical evidence in dietetics to support the claim that PCC can lead to outcomes such as modified dietary behaviour, quality of life and satisfaction with care. Therefore, this topic requires further investigation.

There are both strengths and limitations to the present study. Semi-structured interviews generated rich data relating to PCC in dietetics, which is a phenomenon that has not previously been investigated from patients' perspectives. Although qualitative research has inherent limitations that need to be acknowledged, a number of methods were undertaken to increase methodological rigour. First, the interview guide was piloted prior to data collection to confirm it had a clear and logical flow. Because qualitative methods typically use small sample sizes⁵³, these findings cannot be generalised to a larger population. However, qualitative research aims to enhance conceptual understandings, which the present study has achieved. Furthermore, to obtain perspectives from a variety of demographic populations, maximum variation purposive sampling was used. Although telephone interview limit observations of nonverbal cues, this approach enabled a broader range of participants from different geographical locations to be reached. A number of other techniques were used to ensure rigour and have been previously highlighted.

Conclusion

All participants discussed the value of PCC. Thus, supporting dietitians' ability to adopt a patient-centred approach during individual dietetic consultations is clearly important to patients. In particular, patients want to have caring relationships with dietitians, receive individualised care and be involved in care. Additionally, some patients expressed a sense of responsibility over their health and dietitians can use this as a tool to empower patients regarding the self-management of their condition. As the first study aiming to provide patients' perspectives of PCC in individual dietetic consultations, these findings can inform future dietetic practice, education and research, particularly in primary health care.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate and transparent account of the study being reported. The lead author affirms that no important aspects of the study have been omitted and that any discrepancies from the study as planned have been explained.

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Conflict of interest, source of funding, authorship

The authors declare that they have no conflicts of interest. This work was completed as a component of doctoral research for the first author (IS) and was supported by an Australian Postgraduate Award. IS, LB and WC contributed to the design of the qualitative study. IS conducted all interviews and transcribed audio recordings. IS, LB and WB contributed to data analysis, as well as the drafting of the paper, and all authors approved the final version of the manuscript submitted for publication.

References

1. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, NSW: ACSQHC; 2012. [cited 2017 February 16]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2011/09/NSQHS-Standards-Sept-2012.pdf>
2. Harding E, Wait S & Scrutton J. The state of play in person-centred care: A pragmatic review of how personcentred care is defined, applied and measured, featuring selected key contributors and case studies across the field. London, UK: The Health Foundation;2015, [cited 2017 February 16]. Available from: <http://www.healthpolicypartnership.com/wp-content/uploads/State-of-play-in-person-centred-care-full-report-Dec-11-2015.pdf>
3. Institute of Medicine. Crossing the quality chasm: A new health system for the 21st century. USA: National Academies Press; 2001.

4. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one*. 2014;9(9):e107828.
5. Sidani S, Fox M. Patient-centered care: clarification of its specific elements to facilitate interprofessional care. *J Interprof Care*. 2014;28(2):134-141.
6. Epstein RM, Street RL, Jr. The values and value of patient-centered care. *Ann Fam Med*. 2011;9(2):100-103.
7. Little P, Everitt H, Williamson I, et al. Preferences of patients for patient centred approach to consultation in primary care: observational study. *Brit Med J*. 2001;322(7284):468-472.
8. Wolf DM, Lehman L, Quinlin R, Zullo T, Hoffman L. Effect of patient-centered care on patient satisfaction and quality of care. *J Nurs Care Qual*. 2008;23(5):316-321.
9. Egan M, Kessler D, Laporte L, Metcalfe V, Carter M. A pilot randomized controlled trial of community-based occupational therapy in late stroke rehabilitation. *Top Stroke Rehabil*. 2007;14(5):37-45.
10. Williams GC, Lynch M, Glasgow RE. Computer-assisted intervention improves patient-centered diabetes care by increasing autonomy support. *Health Psychol*. 2007;26(6):728-734.
11. Kane PM, Murtagh FE, Ryan K, et al. The gap between policy and practice: a systematic review of patient-centred care interventions in chronic heart failure. *Heart Fail Rev*. 2015;20(6):673-687.
12. Olsson LE, Jakobsson Ung E, Swedberg K, Ekman I. Efficacy of person-centred care as an intervention in controlled trials - a systematic review. *J Clin Nurs*. 2013;22(3-4):456-465.
13. Holmstrom I, Roing M. The relation between patient-centeredness and patient empowerment: a discussion on concepts. *Patient Educ Couns*. 2010;79(2):167-172.
14. Olsson LE, Hansson E, Ekman I, Karlsson J. A cost-effectiveness study of a patient-centred integrated care pathway. *J Adv Nurs*. 2009;65(8):1626-1635.
15. Sahlen KG, Boman K, Brannstrom M. A cost-effectiveness study of person-centered integrated heart failure and palliative home care: Based on a randomized controlled trial. *Palliat Med*. 2016;30(3):296-302.
16. Australian Health Ministers' Advisory Council. National Strategic Framework for Chronic Conditions. Canberra, Australia: Australian Government; 2017. [cited 2017 February 16]. Available from: <https://www.health.gov.au/internet/main/publishing.nsf/Content/A0F1B6D61796CF3D>

[CA257E4D001AD4C4/\\$File/National%20Strategic%20Framework%20for%20Chronic%20Conditions.pdf](CA257E4D001AD4C4/$File/National%20Strategic%20Framework%20for%20Chronic%20Conditions.pdf)

17. International Alliance of Patients' Organizations. What is Patient-Centred Healthcare? A Review of Definitions and Principles. London, UK: IAPO; 2007. [cited 2017 February 16]. Available from: <http://iapo.org.uk/sites/default/files/files/IAPO%20Patient-Centred%20Healthcare%20Review%202nd%20edition.pdf>
18. World Health Organization. People-Centred and Integrated Health Services: An Overview of the Evidence. Services Deliver and Safety. Geneva, Switzerland: WHO;2015 [cited 2016 April 20]. Available from: https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf?sequence=1&isAllowed=y
19. Gillespie R, Florin D, Gillam S. How is patient-centred care understood by the clinical, managerial and lay stakeholders responsible for promoting this agenda? Health Expect. 2004;7(2):142-148.
20. Luxford K, Safran DG, Delbanco T. Promoting patient-centered care: a qualitative study of facilitators and barriers in healthcare organizations with a reputation for improving the patient experience. Int J Qual Health Care. 2011;23(5):510-515.
21. Dietitians Association of Australia. National Competency Standards for Dietitians in Australia. ACT, Australia: DAA;2015 [cited 2017 February 16]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/NCS-Dietitians-Australia-with-guide-1.0.pdf>
22. Dietitians Association of Australia. Chronic Disease Prevention and Management in Primary Health Care. ACT, Australia: DAA; 2015 [cited 2017 February 16]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/Inquiry-into-Chronic-Disease-Prevention-and-Management-in-Primary-Health-Care.pdf>
23. Dietitians of Canada and College of Dietitians of Ontario. Professional standards for dietitians in Canada. Toronto, Canada: College of Dietitians of Ontario; 1997 [cited 2017 February 16]. Available from: [https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-\(1.aspx\)](https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-(1.aspx)).
24. European Federation of the Association of Dietitians. European Dietetic Competences and their Performance Indicators. Brussels, Belgium: EFAD; 2009.

25. Kieselhorst KJ, Skates J, Pritchett E. American Dietetic Association: standards of practice in nutrition care and updated standards of professional performance. *J Am Diet Assoc.* 2005;105(4):641-645.
26. Sladdin I, Ball L, Bull C, Chaboyer W. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet.* 2017;30(4):453-470
27. Hazzard E, Barone L, Mason M, Lambert K, McMahon A. Patient-centred dietetic care from the perspectives of older malnourished patients. *J Hum Nutr Diet.* 2017. 30(5):574-587
28. Drew N, Dahlberg K. Challenging a reductionist paradigm as a foundation for nursing. *J Holist Nurs.* 1995;13(4):332-345.
29. Ponterotto J. Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *J Couns Psychol.* 2005;52(2):126.
30. Harris JE, Gleason PM, Sheean PM, Boushey C, Beto JA, Bruemmer B. An introduction to qualitative research for food and nutrition professionals. *J Am Diet Assoc.* 2009;109(1):80-90.
31. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med.* 2000;51(7):1087-1110.
32. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77-101.
33. Tufford L, Newman P. Bracketing in Qualitative Research. *Qual Soc Work.* 2010;11(1):80-96.
34. Miles B, Huberman M. *Qualitative Data Analysis: An Expanded Sourcebook.* California, US: Sage; 1994.
35. Ball L, Davmor R, Leveritt M, Desbrow B, Ehrlich C, Chaboyer W. The nutrition care needs of patients newly diagnosed with type 2 diabetes: informing dietetic practice. *J Hum Nutr Diet.* 2016; 29(4):487-94
36. Cant R. Constructions of competence within dietetics: Trust, professionalism and communications with individual clients. *Nutr Diet.* 2009;66(2):113-118.
37. Hancock REE, Bonner G, Hollingdale R, Madden AM. 'If you listen to me properly, I feel good': a qualitative examination of patient experiences of dietetic consultations. *J Hum Nutr Diet.* 2012;25(3):275-284 210p.
38. Kvåle K, Bondevik M. What is important for patient centred care? A qualitative study about the perceptions of patients with cancer. *Scand J Caring Sci.* 2008; 22(4): 582-9

39. Raja S, Hasnain M, Vadakumchery T, Hamad J, Shah R, Hoersch M. Identifying elements of patient-centered care in underserved populations: a qualitative study of patient perspectives. *PloS one*. 2015;10(5):e0126708.
40. Buszewicz M, Pistrang N, Barker C, Cape J, Martin J. Patients' experiences of GP consultations for psychological problems: a qualitative study. *Br J Gen Pract*. 2006;56(528):496-503.
41. McMahon AT, Tay PC, Tapsell L, Williams P. Building bridges in dietary counselling: an exploratory study examining the usefulness of wellness and wellbeing concepts. *J Hum Nutr Diet*. 2016;29(1):75-85.
42. Prince AC, Moosa A, Lomer MCE, Reidlinger DP, Whelan K. Variable access to quality nutrition information regarding inflammatory bowel disease: A survey of patients and health professionals and objective examination of written information. *Health Expect*. 2015;18(6):2501-2512.
43. Frosch DL, May SG, Rendle KA, Tietbohl C, Elwyn G. Authoritarian physicians and patients' fear of being labeled 'difficult' among key obstacles to shared decision making. *Health Aff (Millwood)*. 2012;31(5):1030-1038.
44. MacLellan D, Berenbaum S. Canadian dietitians' understanding of the client-centered approach to nutrition counseling. *J Am Diet Assoc*. 2007;107(8):1414-1417.
45. Maclellan DL, Berenbaum S. Dietitians' opinions and experiences of client-centred nutrition counselling. *Can J Diet Pract Res*. 2006;67(3):119-124.
46. Vaillancourt H, Légaré F, Gagnon MP, Lapointe A, Deschênes SM, Desroches S. Exploration of shared decision-making processes among dieticians and patients during a consultation for the nutritional treatment of dyslipidaemia. *Health Expect*. 2015;18(6):2764-2775.
47. Vaillancourt H, Légaré F, Lapointe A, Deschênes S-M, Desroches S. Assessing patients' involvement in decision making during the nutritional consultation with a dietitian. *Health Expect*. 2014;17(4):545-554.
48. Cant R, Aroni RA. Validation of performance criteria for Australian dietitians' competence in education of individual clients. *Nutr Diet*. 2009;66(1):47-53.
49. Cant RP, Aroni RA. Exploring dietitians' verbal and nonverbal communication skills for effective dietitian-patient communication. *J Hum Nutr Diet*. 2008;21(5):502-511.
50. Lawn S, McMillan J, Pulvirenti M. Chronic condition self-management: expectations of responsibility. *Patient Educ Couns*. 2011;84(2):e5-8.

51. World Health Organization. Innovative care for chronic conditions: building blocks for action: World Health Organization. Geneva, Switzerland: WHO; 2002 [cited 2017 February 16]. Available from:
<https://www.who.int/chp/knowledge/publications/icccglobalreport.pdf>
52. Zolnierek BHK, DiMatteo RM. Physician Communication and Patient Adherence to Treatment: A Meta-analysis. *Med Care*. 2009;47(8):826-834.
53. Jeanfreau SG, Jack L, Jr. Appraising qualitative research in health education: guidelines for public health educators. *Health Promotion Practice*. 2010;11(5):612-617.

Chapter 6 Phase 3

This chapter includes the following three co-authored papers. The bibliographic details of the co-authored papers, including all authors, are:

Sladdin I, Gillespie B, Ball L, Chaboyer W. Development and psychometric testing of an inventory to measure patient-centred care in dietetic practice: dietitian version. *J Hum Nutr Diet.* 2019.

Sladdin I, Chaboyer W, Ball L, Gillespie B. Development and psychometric testing of a patient-reported inventory to measure patient-centred care in dietetic practice. *Aust J Prim Health* (under review, submitted March 8, 2019).

Sladdin I, Ball L, Gillespie BM, Chaboyer W. A comparison of patients' and dietitians' perceptions of patient-centred care: A cross-sectional survey. *Health Expect.* 2019. doi: 10.1111/hex.12868 [Epub ahead of print].

The candidate's contribution to these publications involved leading the:

- study conception,
- study design,
- data collection,
- data analysis,
- interpretation of the data, and
- writing of the manuscript.

Paper 3 - Development and psychometric testing of an inventory to measure patient-centred care in dietetic practice: dietitian version

6.1 Abstract

Background: The lack of a valid instrument to measure patient-centred care (PCC) in dietetic practice makes it challenging to evaluate how patient-centred dietitians are. The present study aimed to develop and psychometrically test a dietitian-reported inventory to measure PCC in dietetic practice.

Methods: The inventory was compiled based on a literature review of existing validated scales that measured the dimensions of PCC. Next, the inventory was distributed as a cross-sectional survey to 180 Australian Accredited Practising Dietitians who worked in primary care. Exploratory factor analysis was performed using principal component analysis with Promax rotation. Cronbach's alpha (criteria ≥ 0.80), inter-item correlations and corrected item-total correlations (criteria 0.30–0.70) were computed to evaluate the internal consistency of each scale.

Results: Five factors were extracted accounting for 56.9% of the variance. Most variables had strong loadings on only one factor. Factors were labelled as: shared decision-making; holistic and individualised care; patient–dietitian communication; knowing the patient; and caring patient–dietitian relationships. Cronbach's alpha was 0.94 for the total inventory and ranged from 0.73 to 0.91 for the individual factors. Inter-item correlations and corrected item-total correlations mostly fell in the desired range.

Conclusions: The present study offers a preliminary, conceptually grounded dietitian-reported inventory, which is the first instrument developed and tested to measure PCC in dietetic practice. These findings illustrate the underlying factor structure of the inventory and support the reliability of the scales. With further testing, this inventory may provide useful to clinicians and researchers working to better understand and improve dietetic practice.

6.2 Introduction

Patient-centred care (PCC) is globally recognised as an important component of high-quality care^{1–3}. The clear ethical and clinical justifications for PCC have resulted in strong advocacy by governments and health organisations across the world^{2–4}. Internationally,

PCC has been advocated for by the US Institute of Medicine⁵; the Picker Institute⁶; the International Alliance of Patients' Organisations³; the UK Health Foundation²; and the Australian Commission on Safety and Quality in Healthcare¹, to name a few. Clearly, the importance of PCC is well understood by key stakeholders in healthcare systems.

Dietitians play an important role in assisting patients in the prevention and management of chronic disease particularly in the primary care setting⁷. Patients want to have positive relationships with their dietitians, be involved in decision-making, and receive care that is tailored to their unique needs and preferences⁸⁻¹³. It is therefore important that dietitians are competent in patient-centred practices¹⁴.

There has been no instrument developed or validated to measure PCC in the dietetic setting. Consequently, PCC has not been measured in dietetics, which makes it challenging to evaluate how patient-centred dietitians are⁸. Patient-centred care is an experiential concept, and self-administered measurement tools have the benefit of obtaining the views of individuals specifically involved in the care experience (i.e. healthcare professionals and patients). Therefore, the present study aimed to compile and test an inventory to capture dietitians' views of PCC in their own practice. The resulting instrument has the potential to facilitate dietitians' evaluations of their patient-centred practices and assist dietitians to focus on areas where they can enhance/optimize their practice.

6.3 Materials and methods

Overview

The study aimed to develop and test a dietitian-reported inventory to measure PCC in dietetic practice. The study involved two stages: (i) the first stage involved compiling the inventory based on a literature review of existing validated scales that measure dimensions of PCC, and mapping them to a conceptual model of PCC in dietetic practice. Next, cognitive interviews were undertaken with a sample of dietitians (n = 10) to check respondents' interpretation of items and item response options¹⁵. (ii) In the second stage, the inventory was distributed as a cross-sectional survey to Accredited Practising Dietitians (APDs) who worked in primary care, and the construct validity and internal consistency of the inventory were evaluated. Approval was obtained from the institution's Human Research Ethics Committee (REF: 2017/730). Participation was voluntary and only non-identifiable data were collected. No incentive was provided.

The conceptual model

The conceptual model of PCC in dietetics (Figure 6.1) was developed based on literature from other healthcare contexts¹⁶⁻¹⁸; an integrative review of the literature relating to PCC in the dietetic setting⁸; and evidence from a qualitative study that explored patients' experiences and perspectives of PCC in dietetic consultations⁹. The model has five dimensions, as illustrated in Fig. 1: (i) effective patient–dietitian communication; (ii) establishing positive patient–dietitian relationships; (iii) providing holistic care that accounts for the patient as a whole person; (iv) individualising care to patients' unique needs and circumstances; and (v) engaging patients in shared decision-making. This work is the first to comprehensively describe PCC and its comprising dimensions specifically in the dietetic setting.

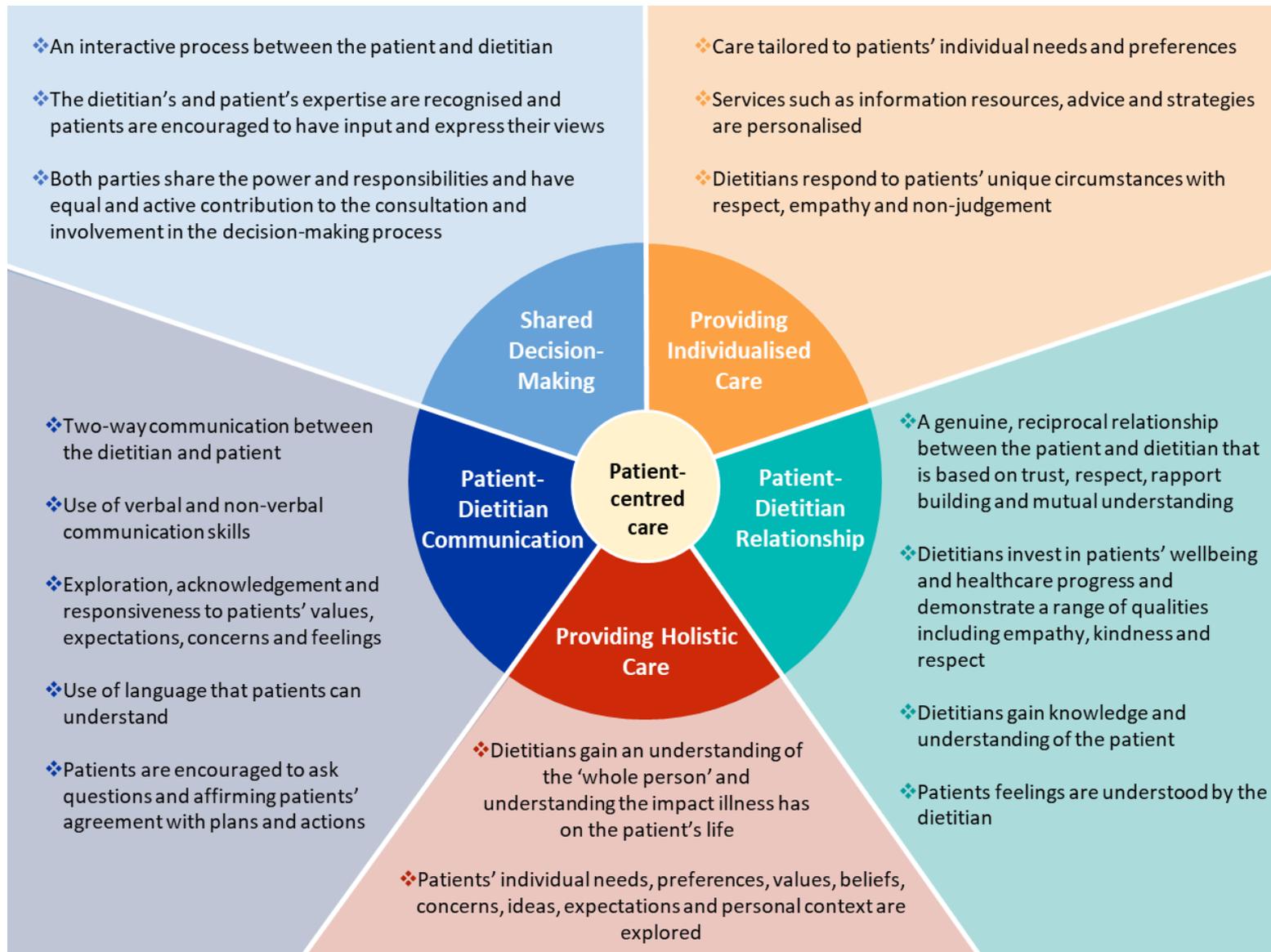


Figure 6.1: Conceptual model of patient-centred care in dietetic practice

Development of the inventory

A literature search was conducted and identified existing scales developed to measure dimensions of PCC. Scales were considered for inclusion in the inventory if they: (i) were a self-administered questionnaire designed for use by health professionals and/or patients; (ii) designed to measure one of the five dimensions of PCC identified in the conceptual model; (iii) provided a clear description of the theoretical/conceptual basis of the instrument; and (iv) psychometric results were available to support the construct validity and reliability of the instrument. After in-depth analysis and discussion, the research team identified five scales that best met these criteria. Details regarding previous literature that informed the development of the conceptual model, the five scales selected to reflect each dimension and the corresponding conceptual definitions are shown in Table 6.1.

Table 6.1: Previous research that informed the development of the conceptual model of patient-centred care (PCC) and scales chosen to reflect these dimensions

PCC dimension	Related terms/phrases[‡]	Scale*	Conceptual definition
Patient-dietitian communication	Using effective communication ⁸ Practicing good communication skills ⁹ Clinician-patient communication ¹⁷	Communication Assessment Tool ¹⁹	Comprises a set of skills, including understanding the patient's perspective; rapport building, eliciting the patient's concerns; exploring the impact on the patient's life; demonstrating empathy; delivering diagnostic information and; involving patients in making decisions ¹⁹
Patient-dietitian relationship	Positive patient-dietitian relationship ⁸ Displaying humanistic behaviors ⁸ Fostering and maintaining caring relationships ⁹ Essential characteristics of the clinician ¹⁷ Clinician-patient relationship ¹⁷ Therapeutic relationship ¹⁸	Patient-doctor Depth of Relationship Scale ²³	Based on four elements of patient-doctor depth of relationship previously identified, including patients' knowledge of the doctor, and doctors' knowledge and understanding of the patient; trust, whereby doctors are open and honest and take patients seriously; loyalty and; regard,

			whereby the doctor demonstrates care and respect for the patient ²³
Providing holistic care	Biopsychosocial perspective ¹⁷ Patient as unique person ¹⁷ Holistic care ¹⁸	PCPI-s 'Providing Holistic Care' sub-scale ²⁴	"The provision of treatment and care that pays attention to the whole person through the integration of physiological, psychological, sociocultural, developmental and spiritual dimensions of persons" ²⁴ p.4
Shared decision-making	Redistributing power to the patient ⁸ Enabling patient involvement ⁹ Patient involvement in care ¹⁷ Collaborative care ¹⁸	9-item Shared Decision-Making Questionnaire (physician version) ^{25,26}	"An interactive process in which both parties (patient and physician/health professional) are equally and actively involved and share information in order to reach an agreement for which they are jointly responsible" ²⁶ p.94
Providing individualised care	Individualising and adapting care ⁸ Delivering individualised care ⁹ Patient as a unique person ¹⁷ Biopsychosocial perspective ¹⁷ Patient information ¹⁷	SPNCS 'Seeing the Individual Patient' sub-scale ^{27,28}	"Taking a personal approach toward the care of the patient and remaining focused on the patient when providing care" ²⁷ p.69

PCC, patient-centred care; PCPI-s, Person-Centred Practice Inventory – staff version; SPNCS, Schmidt Perception of Nursing Care Scale. *Scale chosen to reflect corresponding dimension of PCC. †Related terms/descriptions of dimensions of PCC based on previous research.

Measures

Five scales were included in the inventory: The 14-item Communication Assessment Tool (CAT)¹⁹⁻²²; the eight-item Patient–Doctor Depth of Relationship Scale (PDDRS)²³; the three-item ‘Providing Holistic Care’ sub-scale from the Patient-Centred Practice Inventory – Staff (PCPI-S)²⁴; the nine-item Shared Decision- Making Questionnaire (physician version) (SDM-Q-Doc)^{25,26}; and the five-item ‘Seeing the Individual Patient’ sub-scale from the Schmidt Perception of Nursing Care Scale (SPNCS)^{27,28}. Further details of these instruments are displayed in Table 6.2.

Table 6.2: Characteristics of the five scales included in the inventory

Instrument	Description of instrument	Items and responses	Target audience / sample	Author, year	Test setting	Test sample	Validity	Reliability
Communication Assessment Tool	Measure of physician-patient communication scale	14-items; 5-point response scale	Patient reported	Makoul, et al, 2007 ¹⁹	Practices within Colorado Permanente Medical Group, US	N=600 patients with range of conditions	EFA: One factor identified (accounting for 78.8% of the variance)	Cronbach's α : 0.96
				Ferranti, et al, 2010 ²⁰	Hospital medicine, academic medical centre, US	N=700 patients	EFA: One factor identified (% of variance not reported)	Cronbach's α : 0.97
				Stausmire, et al, 2015 ²¹	Outpatient surgical office, US	N= 448 surgical patients	-	Cronbach's α : 0.98

				Cubaka, et al, 2018 ²²	Outpatient department, health centres, Rwanda	N=11 providers N=280 patients	CFA: fit indices suggested 1-factor, 2-factor and 3-factor models were a good fit with the data.	Test re-test ranged 'substantial' to 'almost perfect': mean quadratic weighted Kappa = 0.81 (range: 0.69–0.89, N = 57).
Patient-Doctor Depth of Relationship Scale	Measure of patient-doctor depth of relationship	8-items; 5-point response scale	Patient reported	Ridd, et al, 2011 ²³	General practices, England	N=490 patients	EFA: One factor identified (accounting for 92.0% of the variance)	Cronbach's α : 0.93 Good test-retest reliability: intraclass correlation coefficient: 0.87; 95% CI, 0.53-0.97
Providing Holistic Care Sub-scale	Measure of 'holistic care' that accounts for the whole person	3-item; 5-point response scale	Nursing staff reported	Slater, et al, 2017 ²⁴	Hospitals, UK	N=703 nursing staff	CFA: fit indices suggested model was a good fit with the data.	-

9-item Shared Decision-Making Questionnaire (physician version)	Measure of	9 items, 6-	Physician	Scholl, et al,	Outpatient	N=29	CFA: fit indices	Cronbach's α : 0.88
	SDM process	point scale	reported	2012 ²⁵	clinic, Germany	physicians N=324 patients	suggested model was a good fit with the data	Corrected item total correlations: 0.357- 0.76 Inter-item correlations: 0.131- 0.744
				Rodenburg- vandenbussch et al, 2015 ²⁹	Outpatient medical centres, Netherlands	N=23 specialist N= 20 general practitioners N=182 patients	CFA: fit indices suggested model was a good fit with the data when items 1 and 9 were excluded Convergent validity with CPSpost: r = 0.48 (p< 0.001).	Cronbach's α : 0.87 Corrected item-total correlations: 0.43– 0.79 (Item 9 = 0.26). Inter-item correlations: 0.08- 0.70

				Calderon, et al, 2017 ³⁰	Hospitals, Spain	N=32 medical oncologists N=520 Spanish patients with non-metastatic cancer	EFA: Two-factor structure deemed acceptable CFA: fit indices suggest two-factor model was a good fit with the data	Omega coefficients: 0.88.
Seeing-individual patient sub-scale	Measure of individualised /personalised care	5-items; 5-point response scale	Patient reported (Nurse reported version unpublished)*	Schmidt, 2001 ²⁷	Hospitals, US	N=652 patients	CFA: fit indices suggested model was a good fit with the data	Cronbach's α : 0.92 Inter-item correlations: 0.61-0.76
				Suhonen, et al, 2007 ²⁸	Hospitals, Finland	N=861 patients	Convergent validity with ICS-A: $r = 0.68$ and; ICS-B: $r = 0.71$	Cronbach's α : 0.82

CFA, Confirmatory Factor Analysis; CPSpost, Control Preference Scale; EFA, Exploratory Factor Analysis; ICS-A, Individualised Care Scale – A; ICS-B, Individualised Care Scale – B; US, United States

* To access the unpublished version of the nurse-reported version of the inventory, obtain permission from Copyright © 2007 by Gregory Makoul - All rights reserved.

Sample and setting

For both stages of the study, participants were APDs in Australia who self-reported previous or current experience working as a dietitian in a primary care setting (i.e. working in private practice; providing one-on-one consultations). A variety of recommendations regarding the necessary sample size for factor analysis have been suggested^{29,30}. The proposed ratio of five participants per item on the scale was used; thus, for the 39-item inventory we aimed to obtain a sample of 195 participants³⁰.

Cognitive interviews

Cognitive interviews were undertaken between October and November 2017 to determine whether potential respondents interpreted the items and item response options as intended¹⁵. A convenience sample of both practicing and academic dietitians (n = 10) was recruited via the institution's Nutrition and Dietetics alumni Facebook page. All interviews were conducted by the first investigator (IS). Participants cognitive processes were checked as they completed the questionnaire using the 'think aloud' technique, whereby participants verbalise their thoughts when completing the survey¹⁵. 'Verbal probing' was also used; participants were asked specific questions to elicit feedback, for example, regarding the clarity of survey instructions; ease of reading and answering items; items that appeared ambiguous; and items that did not appear relevant¹⁵. Small changes were made to the survey in accordance with participants' comments.

Adaptations were made to ensure the survey was applicable to the dietetic setting. In particular, scales that were originally designed for use by patients were adapted to be suitable for use by dietitians. The scales and their response options were kept as consistent as possible with the original versions. All adaptations were recorded to clarify how the adapted version differed from the original (see Supporting information).

Data collection

For the main study, a cross-sectional survey was undertaken between November 2017 and May 2018. The online survey was developed using LimeSurvey (Hamburg, Germany) and initially distributed anonymously to all APDs who were members of the Dietitians Association of Australia (DAA) via the DAA weekly member e-mail (>6800 members)³¹. To obtain a homogenous sample for the purpose of factor analysis, only dietitians with experience working in primary care were sampled. That is, we expected that there would be differences between the primary-and secondary care settings that

would likely influence the results (i.e. correlations and factor structure)³⁰. Three reminder invitations were sent out via the DAA weekly member e-mail. Subsequent strategies employed to enhance response rate included an invitation via the Dietitian Connection weekly e-newsletters, for which three reminders were also distributed, dietitian specific social media sites (Facebook) and a paper-based survey distributed at a national dietitian seminar.

Statistical analysis

First, data were exported to SPSS, version 25 (IBM Corp., Armonk, NY, USA) and subjected to data cleaning. Next, the appropriateness of the correlation matrix for factor analysis was examined using the Kaiser–Meyer–Olkin index (criteria: ≥ 0.80) and Bartlett’s test of sphericity (criteria: $P < 0.05$)³⁰. Exploratory factor analysis was performed to identify the factor structure of the 39-item inventory using principal component analysis. We adopted the *a priori* criterion to determine the number of factors to retain³⁰. That is, once the desired number of factors had been extracted (i.e. five), the computer was instructed to stop the analysis³⁰. The *a priori* criterion is considered appropriate when the researcher has an idea about the number of factors to extract based on theory or another researcher’s work³⁰. Thus, this method was chosen because the inventory was based on our conceptual model of PCC represented by five unidimensional scales^{19,23–25,27}. To enhance rigour, this method was also compared with additional methods of factor extraction, the latent root criterion and parallel analysis^{30,32}. Regarding the latent root criterion, only factors with eigenvalues ≥ 1 are considered significant³⁰. With parallel analysis, factors are retained when actual eigenvalues are larger as compared to random ordered eigenvalues³².

The five-factor solution was subjected to Promax rotation; this method of rotation was considered most appropriate as correlation between factors was expected³⁰. The rotated factor matrix was interpreted based on certain criteria: factor loadings ≥ 0.45 were considered acceptable (based on our sample size) and loadings ≥ 0.70 suggested a well-defined structure³⁰. Items that failed to load significantly on any factor (i.e. < 0.45) and had low communalities (i.e. < 0.50), or items that had loadings ≥ 0.45 on more than one factor (i.e. cross loading items) were reviewed by the research team, with consideration of the overall theoretical contribution of an item³⁰. Once the final factor structure was determined, the factors were named. Descriptive labels were developed by (i) referring to

the original conceptual model and (ii) examining the items on each factor, particularly those with the highest loadings, to identifying common elements³⁰.

To evaluate the internal consistency of each scale, Cronbach's alpha (criteria ≥ 0.80), inter-item correlations and corrected item-total correlations (criteria > 0.30 , with > 0.70 indicating possible redundancy) were computed³³⁻³⁶. For sample characteristics, counts (number and percentage) were reported for categorical variables and median and interquartile range (IQR) were reported for continuous variables because these data were not normally distributed.

6.4 Results

Demographic characteristics

One hundred and eighty Australian APDs working in primary care completed the survey. An exact response rate was not possible to determine because the survey was distributed anonymously to all DAA members and the precise number of dietitians working in primary care is unknown. Participants were mainly female ($n = 178$; 98.9%), with a median age of 34 (27-46) years. Participants reported working a median of 27.5 (15-38) hours in dietetic-related work each week and had a median of 8 (2-20) years of experience as a dietitian. Almost half ($n = 82$; 46.6%) of the participants reported that they had undergone additional training, such as postgraduate certificates/diplomas (e.g. paediatric nutrition, health education and promotion, sports nutrition); short training courses or workshops (e.g. counselling, motivational interviewing, eating disorders); Master's degrees; and doctoral degrees.

Exploratory factor analysis

The factor analysis revealed a Kaiser–Meyer–Olkin value of 0.921, exceeding the recommended value of 0.80, and Bartlett's test of sphericity was statistically significant confirming the factorability of the correlation matrix³⁰. Five factors were extracted based on the *a priori* criterion, accounting for a total of 56.9% of the variance. Results of parallel analysis also indicated that five factors should be extracted/retained. Although eight factors were extracted based on the latent root criterion, the sixth and eighth factors accounted for only 8% of the variance, and it is not uncommon for this method to overestimate the number of factors³⁰. Following Promax rotation, the rotated factor solution was examined; factor loadings in their corresponding factors are shown in Table 6.3.

Table 6.3: Rotated factor matrix for principal component analysis of the 39-item inventory (Promax rotation) (n=180)

Item	Factor loadings				
	1	2	3	4	5
SDM-Q-Doc 6 ^a I ask my patients which treatment option he/she prefers	.871	.034	-.111	-.056	.065
SDM-Q-Doc 4 I precisely explain the advantages and disadvantages of different options to my patients	.819	-.104	-.037	.046	.025
SDM-Q-Doc 7 My patients and I thoroughly evaluate the different treatment options	.805	.032	-.123	.160	-.054
SDM-Q-Doc 3 I tell my patients that there are different options for his/her nutrition care	.779	.014	-.086	.066	-.060
SDM-Q-Doc 5 I help my patients understand all the information	.732	-.079	.144	-.040	.082
SDM-Q-Doc 9 My patients and I reach an agreement on how to proceed	.714	.154	-.088	-.119	.246
SDM-Q-Doc 8 My patients and I select a treatment option together	.699	.166	-.205	.048	.134
SDM-Q-Doc 2 I want to know exactly from my patients how he/she wants to be involved in making decisions	.620	-.147	.201	.052	-.029
CAT 8 ^b I talk in terms my patients can understand	.470	-.059	.297	-.039	.039
CAT 7 I give my patients' as much information as they want	.463	-.050	.312	.037	-.167
CAT 6 I let my patients talk without interruptions	.386	.124	.374	-.107	-.170
CAT 12 I discuss next steps	.371	.205	.149	-.045	.169

Item		Factor loadings				
		1	2	3	4	5
SDM-Q-Doc 1	I make clear to my patients that decisions need to be made regarding their nutritional goals	.332	-.020	.246	.083	-.264
PCPI-s 2 ^c	I assess the needs of the person, taking account of all aspects of their lives	-.073	.977	-.068	.119	-.195
PCPI-s 1	I strive to gain a sense of every patient as a whole person	-.076	.949	-.085	.002	-.005
PCPI-s 3	I deliver care that takes account of the whole person	-.090	.933	-.031	.111	-.020
SPNCS 3 ^d	I take time to find out more about each patient as a person	.122	.765	-.094	.020	.031
SPNCS 2	I tailor dietetic care to each patients' specific needs	.186	.628	-.011	-.161	.094
SPNCS 4	When I provide care, my patients are at the centre of my attention	-.072	.609	.147	.134	-.024
SPNCS 1	I treat every patient as a unique person	.137	.548	.187	-.227	.042
SPNCS 5	I am warm in my interactions with my patients	-.058	.360	.136	.298	.205
CAT 11	I involve my patients in decisions as much as they want	.284	.320	.174	.069	-.056
CAT 2	I treat my patients with respect	-.132	-.207	.877	-.109	.236
CAT 3	I show interest in my patients' ideas about their health	.053	.054	.745	-.048	-.102
CAT 10	I encourage my patients to ask questions	.074	-.175	.689	.109	-.042

Item		Factor loadings				
		1	2	3	4	5
CAT 1	I greet my patients in a way that makes my patients feel comfortable	-.196	.192	.661	-.209	.207
CAT 5	I pay attention to my patients (look at them, listen)	.028	.187	.647	.051	-.192
CAT 13	I show care and concern for my patients	-.205	.311	.541	.054	.240
CAT 4	I understand my patients' main health concerns	.173	.000	.520	.125	.044
CAT 9	I check to be sure my patients understand everything	.236	.070	.425	.122	-.104
CAT 14	I spend the right amount of time with patients	.199	.157	.212	.188	.014
PDDRS 3 ^e	I really know how my patients feel	-.028	.027	-.093	.856	.118
PDDRS 2	I know every patient as a person	-.034	.227	-.019	.762	-.047
PDDRS 1	I know my patients well	.122	-.011	.041	.712	-.032
PDDRS 4	My patients know what to expect with me	.351	-.206	-.032	.553	.179
PDDRS 8	My patients feel at ease with me	-.017	.143	.060	.390	.382
PDDRS 6	I take my patients seriously	.059	-.027	-.033	.088	.785
PDDRS 5	I really care about my patients	-.118	-.225	.111	.377	.698
PDDRS 7	I accept my patients the way they are	.243	.192	-.031	-.233	.637

Note: Factor extraction used the *a priori* criterion. Promax rotation was used for factor rotation. Loadings $\geq .45$ are bolded. Variables are sorted by highest loading on each factor. Rotation converged in 7 iterations.

CAT= Communication Assessment Tool; PCPI-s= Person-Centred Practice Inventory – staff version (3-item Providing Holistic Care sub-scale); PDDRS= Patient-Doctor Depth of Relationship Scale; SDM-Q-Doc= 9-item Shared Decision-Making Questionnaire (physician version); SPNCS= Schmidt Perception of Nursing Care Survey (5-item Seeing the Individual Patient sub-scale)

^a **SDM-Q-Doc** items 1-9 from Kriston L, et al, 2010²⁶ and Scholl, et al, 2012²⁵ adapted and reproduced with permission from Copyright owner.

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<http://creativecommons.org/licenses/by-nc-nd/4.0/legalcode>; ^b **CAT** items 1-14 adapted and reproduced with permission from Copyright © 2007

by Gregory Makoul - All rights reserved; ^c **PCPI-s Providing Holistic Care sub-scale** items 1-3 adapted from Slater, et al, 2017²⁴; ^d **SPNCS**

Seeing the Individual Patient sub-scale items 1-5 Adapted and reproduced with permission from Copyright © 2001 by Lee Schmidt -All rights

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permission from Patient-Doctor Depth-of-Relationship Scale: Development and Validation, 2011, Vol 9, No 6, Annals of Family Medicine

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The rotated solution revealed that most variables loaded strongly on only one factor. However, inspection of the five-factor solution illustrated some differences between the *a priori* hypothesised factor structure and results from the factor analysis. Some items, particularly from the CAT and PDDRS, did not load on their original factors.

Items 2 to 9 of the SDM-Q-Doc had acceptable to strong loadings on the first factor. Item 1 did not load on any factor (i.e. loadings were <0.45 on each factor) and had a low communality (0.226)³⁰. Items 1 to 4 of the SPNCS ‘Seeing the Individual Patient’ subscale and all three items from the PCPI-S ‘Providing Holistic Care’ subscale loaded on the second factor, suggesting high correlation between these constructs. Although the loading for Item 5 of the SPNCS ‘Seeing the Individual Patient’ sub-scale on the second factor was marginally below the minimally acceptable threshold (0.360), its communality was 0.525³⁰.

Half of the items from the CAT had acceptable to strong loadings on the third factor (items 1 to 5, 10 and 13). Two CAT items loaded on the first factor (item 7 and 8), whereas five (items 6, 9, 12, 11 and 14) did not load on any factor and had low communalities (range 0.358–0.480). Four of the PDDRS items had acceptable to strong loadings on the fourth factor (items 1 to 4) and three items on the fifth factor (items 5 to 7). PDDRS item 8 did not have a minimally acceptable loading on any factor but its communality was 0.533.

Defining and labelling the factors

The following labels were chosen to represent the five factors. Factor 1 has been labelled ‘shared decision-making’. The items making up this factor include items 2 to 9 from the SDM-Q-Doc, and CAT items 7 and 8. For this factor, we have retained the definition referred to by the original authors²⁶. Although items from the CAT also loaded significantly on this factor, we consider that these items share similarities with the conceptual definition of shared decision-making.

Factor 2 has been labelled ‘holistic and individualised care’ and relates to providing personalised care that considers the patient as a whole person and tailors care to patients’ individual needs. This label was considered appropriate because this factor is made up of items from the ‘Seeing the Individual Patient’ and ‘Providing Holistic Care’ sub-scales.

Factor 3 can be labelled ‘patient–dietitian communication’ and is made up of half the CAT items. Thus, this factor reflects two-way communication between the dietitian and patient that is based on respect and understanding. The fourth factor is labelled ‘knowing

the patient' and can be described as really knowing each patient as a unique person. The fifth factor related to being caring and respectful and making patients feel comfortable. Therefore, this factor has been labelled 'caring patient–dietitian relationships'.

Internal consistency

Cronbach's alpha was 0.95 for the total inventory. Results for each of the five factors are displayed in Table 6.4. Interitem correlations mostly fell in the desired range (0.30– 0.70) and, for each factor, corrected item-total correlations were >0.30 for all but two items (PDDRS item 7 and SDM-Q-Doc item 1). The characteristics of the respecified 33-item inventory, including reasons for deletion of specific items, are also shown in Table 6.4.

Table 6.4: Characteristics of the respecified 33-item inventory/model

Label	Scale(s) included	No. items included	Cronbach's alpha	Scale items deleted	Reasons for deletion
Shared decision-making	<ul style="list-style-type: none"> • SDM-Q-Doc (items 2 -9) • CAT (items 7 and 8) 	10	0.91	<ul style="list-style-type: none"> • SDM-Q-DOC item 1 	<ul style="list-style-type: none"> • Loading <0.45 and communality <0.50
Holistic and individualised care	<ul style="list-style-type: none"> • SPNCS (items 1- 3) • PCPI-s (items 1 - 5) 	8	0.90	-	-
Dietitian-patient communication	<ul style="list-style-type: none"> • CAT (items 1 - 5, 10, and 13) 	7	0.84	<ul style="list-style-type: none"> • CAT item 6, 9, 11, 12 and 14 • 	<ul style="list-style-type: none"> • Items loadings <0.45 on all components and all communalities <0.50
Knowing the patient	<ul style="list-style-type: none"> • PDDRS (items 1- 4 and 8) 	5	0.84	-	-
Caring dietitian-patient relationships	<ul style="list-style-type: none"> • PDDRS (items 5-7) 	3	0.73	-	-

CAT, Communication Assessment Tool; PCPI-s, Person-Centred Practice Inventory - Staff (3-item Providing Holistic Care sub-scale); PDDRS, Patient-Doctor Depth of Relationship Scale; SDM-Q-Doc, 9-item Shared Decision-Making Questionnaire (physician version); SPNCS, Schmidt Perception of Nursing Care Scale (5-item Seeing the Individual Patient sub-scale)

6.5 Discussion

The present study is the first to propose and test a conceptual model of PCC in dietetic practice using a self-evaluation inventory. An understanding of how PCC can be defined and operationalised in the dietetic context is lacking because PCC has not been the focal point of dietetic research⁸. By developing and psychometrically testing this dietitian-reported inventory of PCC based on theory and prior research, the present study has clarified dimensions of PCC relevant to individual dietetic consultations. Furthermore, the resulting inventory offers an instrument to measure PCC from the viewpoint of dietitians.

By contrast to the findings from the original studies, both the PDDRS and CAT represented multidimensional constructs in our sample, as indicated by strong loadings on two factors^{19,20,23}. This may be attributed to several factors. Two main factors were (i) the characteristic of the samples, with participants in the original studies being patients, and (ii) the different settings, with the original studies being conducted in the general practice setting in England²³ and medical practices and outpatient clinics (e.g. surgical) in the USA¹⁹⁻²¹.

Continuity of care differs for primary care dietetics and the general practice setting. The authors of the PDDRS explained that ongoing visits with the same doctor influenced the depth of relationship between the general practitioner and patient²³. Because patients typically see their doctor more regularly than the dietitian^{37,38}, this may have influenced dietitians' interpretation of the items relating to 'knowing the patient'. Comparatively, items that loaded on the fifth factor referred to caring about patients, taking patients seriously and making patients feel at ease. These items may have been interpreted as more general aspects of care that are achievable regardless of how often the dietitian interacts with the patient.

Two of the CAT items loaded on the 'shared decision-making' factor. This finding may be explained by similarities in the wording of the items. For example, comparisons can be drawn between CAT items 7 and 8, which relate to 'giving patients as much information as they want' and 'talking in terms patients can understand' and some SDM-Q-Doc items, such as item 5, which refers to 'helping patients understand all the information'. Furthermore, this finding is supported by seminal texts, which emphasise that good communication skills are foundational to shared decision-making^{39,40}. Interestingly, the multidimensional nature of the CAT was also demonstrated in a sample

of patients in Rwanda; confirmatory factor analysis revealed fit indices were acceptable for the hypothesised one-, two- and three-factor models²².

Five of the CAT items did not demonstrate acceptable loadings (i.e. ≥ 0.45) on any factor (items 6, 9, 11, 12 and 14). Interestingly, these items were also identified as problematic items during the pilot interviews. For example, dietitians perceived that it was difficult to judge whether they had ‘spent the right amount of time with patients’, and that it was not always appropriate to ‘let patients talk without interruptions’. Some of these behaviours may not always be perceived as practical, achievable and/or necessary by dietitians. By contrast, items relating to treating patients with respect (CAT item 2) and paying attention to patients (CAT item 5), which had high loadings on the third factor, may be more socially desirable and are also highlighted in dietetic competency standards^{41,42}. Therefore, we recommend that these items be excluded from the inventory for reasons outlined in Table 6.4.

Items from the SPNCS ‘Seeing the Individual Patient’ and PCPI-S ‘Providing Holistic Care’ sub-scales were highly correlated. This also may be explained by similarities in the wording of these items. For example, ‘I treat every patient as a unique person’ and ‘I tailor care specifically to my patients’ needs’ from the ‘Seeing the Individual Patient’ sub-scale can be compared to ‘I deliver care that accounts for the whole person’ and ‘I assess the needs of the person, taking account of all aspects of their lives’ from the ‘Providing Holistic Care’ sub-scale. Clear comparisons can also be seen in the conceptual definitions of these two dimensions (see Supporting information).

Item 1 of the SDM-Q-Doc did not demonstrate minimally acceptable loadings and low communalities compared to the other eight items. This is comparable to findings from previous studies using the SDM-Q-Doc^{25,43,44}. For example, one study conducted among a sample of physicians in a German outpatient clinic found that factor loadings for items 1 and 2 were less than 0.40²⁵. Furthermore, a study involving Dutch specialists and general practitioners in the primary care setting found that the best model fit was established when items 1 and 9 were removed⁴³. Therefore, based on results from previous studies, and the findings from the present study, we recommend excluding item 1 when using this inventory in the dietetic setting.

The findings from the present study illustrate the interdependent nature of the factors comprising PCC. It is well established that the dimensions are co-dependent, meaning that one is needed to practice the other^{8,9,16,17}. The complex nature of PCC makes it challenging to categorise these dimensions into neat, individual constructs for measuring.

This may explain why the five factors identified in the present study differed somewhat from the hypothesised factor structure. Although published results found that the individual scales were mostly unidimensional^{19,23–25,27}, combining items from the five scales in a single exploratory factor analysis allowed similarities across constructs to be explored. Given the interrelationship between PCC dimensions, it makes sense that some items did not load on their original factor and some items were cross-loaders.

The present study has addressed an important research gap. However, what is also needed is a better understanding of patients' perspectives/assessment of PCC in dietetic practice. Therefore, work is currently underway aiming to develop and test a comparable patient-reported inventory. This will allow dietitians' and patients' perspectives to be compared, which will further enhance understandings of PCC in this setting.

Strengths and limitations

Patient-centred care is a complex phenomenon. Therefore, the present study was carefully designed to ensure the inventory captured the concept of PCC in dietetic practice as accurately as possible. We aimed to achieve this by first adopting an iterative and thorough approach to developing the conceptual model, which was informed by theory and prior research. Then, valid scales were sought to represent the conceptual model via a rigorous search process involving ongoing consultation with all members of the research team. Finally, the inventory was piloted among a sample drawn from the relevant population to ensure its interpretability and relevance.

Multiple techniques were employed to explore the number of factors to extract/retain. The results were consistent for both parallel analysis and the *a priori* criterion. As previously noted, although eight factors were retained based on the latent root criterion, it is not uncommon for the latent root criterion to overestimate the number of factors to extract/retain³⁰. Moreover, parallel analysis is considered a particularly accurate method of factor extraction³². Finally, forcing the solution to retain five factors based on our conceptual model of PCC (i.e. *a priori* criterion) produced the most interpretable solution that is conceptually/theoretically supported.

We achieved a sample size just below the minimum recommended ratio of participants to variables (5:1)³⁰. That is, we aimed for a minimum response rate of 195 and achieved a response rate of 180. Therefore, these results should be interpreted with caution³⁰. A larger sample size would have been desirable, although the sample was drawn from a relatively small population and it was not feasible to extend the data collection period

beyond 6 months. Numerous strategies were employed to enhance the response rate. As previously described, a variety of mediums were used to distribute the survey, and several reminders were provided over the data collection period.

Although e-surveys have been shown to result in low response rates in certain populations, we considered this approach to be appropriate for our sample because dietitians generally have Internet access and receive a number of important communications via e-mail (e.g. via DAA weekly member e-mail and Dietitian Connection). As with any study employing survey methods, there is always the potential for response bias. In particular, although the anonymous, self-administered nature of the survey was designed to reduce, for example, the social desirability effect, we cannot say that this did not occur.

Although alpha values for 'knowing the patient' and 'caring relationships' were below the cut-off criteria (≥ 0.80), a Cronbach's alpha of 0.70 is considered to be acceptable for a developing scale³⁰ and the PDDRS has not previously been tested as two different scales. Furthermore, Cronbach's alpha values can be influenced by the number of items³⁶ and the analysis of items of the PDDRS as two factors reduced the number of items to 3 and 5, respectively.

Conclusions

The findings from the present study offer a preliminary inventory to measure PCC from the viewpoint of dietitians in primary care. No instrument had previously been developed and/or tested to measure PCC in dietetic practice. Therefore, we have addressed an important gap in dietetic research. Further work is needed to test the exploratively obtained factor structure with confirmatory factor analysis.

Implications for further research

There is potential for this instrument to be used in practice, research and education. However, the inventory should first undergo further work, and dietitians' perceptions should be compared with patients' perceptions. The inventory may be useful as an evaluation tool for practice to guide dietitians' self-reflection and goal setting. There is potential for further testing of the inventory in other dietetic settings, such as in the hospital setting, and internationally.

This inventory could also be adapted and tested for use in undergraduate education; for example, as an observational assessment tool for objective structured clinical

examinations among undergraduate nutrition and dietetic students. There is also scope for the inventory to be used in future research; for example, as an outcome measure in interventions designed to educate and train dietitians in PCC.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate and transparent account of the study being reported. The reporting of this work is compliant with STROBE guidelines. The lead author affirms that no important aspects of the study have been omitted and that any discrepancies from the study as planned have been explained.

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Conflict of interests, source of funding and authorship

The authors declare that they have no conflicts of interest. This work was completed as a component of doctoral research for the first author (IS) and was supported by an Australian Postgraduate Award. IS, BG, LB and WC contributed to the design of the study. IS collected the data. IS, BG, LB and WB contributed to the data analysis and the drafting of the paper. All authors approved the final version of the manuscript submitted for publication.

References

1. Australian Commission on Safety and Quality in Health Care. Patient-Centred Care: Improving Quality and Safety by Focusing Care on Patients and Consumers. Sydney, Australia: ACSQHC; 2010 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/01/PCCC-DiscussPaper.pdf>
2. Harding E, Wait S & Scrutton J. The State of Play in Person-Centred Care: A Pragmatic Review of How Person-Centred Care is Defined, Applied and Measured, Featuring Selected Key Contributors and Case Studies Across the Field. London, UK: The Health Foundation; 2015 [cited 2018 May 25]. Available from: Available from:

<http://www.healthpolicypartnership.com/wp-content/uploads/State-of-play-in-person-centred-care-full-report-Dec-11-2015.pdf>

3. International Alliance of Patients' Organizations. What is Patient-Centred Healthcare? A Review of Definitions and Principles. 2007 [cited 2018 May 25]. Available from: <http://iapo.org.uk/sites/default/files/files/IAPO%20Patient-Centred%20Healthcare%20Review%202nd%20edition.pdf>
4. World Health Organization. Regional Office for the Western Pacific, People-centred health care: A policy framework. Geneva, Switzerland: WHO Regional Office for the Western Pacific; 2007 [cited 2018 May 25]. Available from: https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf?sequence=1&isAllowed=y
5. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press; 2001.
6. The Picker Institute. Picker principles of person centred care. 2018 [cited 2018 May 25]. Available from: <https://www.picker.org/about-us/picker-principles-of-person-centred-care/>
7. Slawson DL, Fitzgerald N & Morgan KT. Position of the Academy of Nutrition and Dietetics: the role of nutrition in health promotion and chronic disease prevention. *J Acad Nutr Diet.* 2013;113(7):972–979.
8. Sladdin I, Ball L, Bull C et al. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet.* 2017;30(4):453–470.
9. Sladdin I, Chaboyer W & Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet.* 2017;31(2):188–196.
10. Hancock RE, Bonner G, Hollingdale R et al. 'If you listen to me properly, I feel good': a qualitative examination of patient experiences of dietetic consultations. *J Hum Nutr Diet.* 2012;25(3):275–284.
11. Ball L, Davmor R, Leveritt M et al. The nutrition care needs of patients newly diagnosed with type 2 diabetes: informing dietetic practice. *J Hum Nutr Diet.* 2016;29(4):487–494.
12. Hazzard E, Barone L, Mason M et al. Patient-centred dietetic care from the perspectives of older malnourished patients. *J Hum Nutr Diet.* 2017;30(5):574–587.
13. Morris A, Herrmann T, Liles C et al. A qualitative examination of patients experiences of dietitians 'consultation engagement styles within nephrology. *J Hum Nutr Diet.* 2018;31(1):12–22.

14. Swan WI, Vivanti A, Hakel-Smith NA et al. Nutrition care process and model update: toward realizing people-centered care and outcomes management. *J Acad Nutr Diet*. 2017;117(12):2003–2014.
15. Artino AR Jr, La Rochelle JS, Dezee KJ et al. Developing questionnaires for educational research: AMEE Guide No. 87. *Med Teach*. 2014;36(6):463–474.
16. Kitson A, Marshall A, Bassett K et al. What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *J Adv Nurs*. 2013;69(1):4–15.
17. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one*. 2014;9(9):e107828.
18. Sidani S & Fox M. Patient-centered care: clarification of its specific elements to facilitate interprofessional care. *J Interprof Care*. 2014;28(2):134–141.
19. Makoul G, Krupat E & Chang CH. Measuring patient views of physician communication skills: development and testing of the Communication Assessment Tool. *Patient Educ Couns*. 2007;67(3):333–342.
20. Ferranti DE, Makoul G, Forth VE et al. Assessing patient perceptions of hospitalist communication skills using the Communication Assessment Tool (CAT). *J Hosp Med*. 2010;5(9):522–527.
21. Stausmire JM, Cashen CP, Myerholtz L et al. Measuring general surgery residents' communication skills from the patient's perspective using the Communication Assessment Tool (CAT). *J Surg Educ*. 2015;72(1):108–116.
22. Cubaka VK, Schriver M, Vedsted P et al. Measuring patient-provider communication skills in Rwanda: Selection, adaptation and assessment of psychometric properties of the Communication Assessment Tool. *Patient Educ Couns*. 2018;101(9):1601–1610.
23. Ridd MJ, Lewis G, Peters TJ et al. Patient-doctor depth-of-relationship scale: development and validation. *Ann Fam Med*. 2011;9(6):538–545.
24. Slater P, McCance T & McCormack B. The development and testing of the Person-centred Practice Inventory - Staff (PCPI-S). *Int J Qual Health Care*. 2017;29(4):541–547.
25. Scholl I, Kriston L, Dirmaier J et al. Development and psychometric properties of the Shared Decision Making Questionnaire–physician version (SDM-Q-Doc). *Patient Educ Couns*. 2012;88(2):284–290.

26. Kriston L, Scholl I, H€olzel L et al. The 9-item Shared Decision Making Questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. *Patient Educ Couns*. 2010;80(1):94–99.
27. Schmidt L. *The Development and Testing of a Measure of Patient Satisfaction Within Nursing Care*. Maimi, Florida: University of Maimi; 2001
28. Suhonen R, Schmidt LA & Radwin L. Measuring individualized nursing care: assessment of reliability and validity of three scales. *J Adv Nurs*. 2007;59(1):77–85.
29. MacCallum RC, Widaman KF, Zhang S et al. Sample size in factor analysis. *Psychol Methods*. 1999;4(1):84–99.
30. Hair JF, BlackWC, Babin BJ et al. Factor analysis. In: *Multivariate data analysis*, 6th edn. pp. 101–161. Upper Saddle River, NJ: Pearson Prentice Hall; 2006.
31. Dietitians Association of Australia. *Dietitians Association of Australia Annual Report 2017-2018*. Canberra, Australia: DAA; 2018 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2018/10/Annual-Report-2017-June-2018.pdf>
32. Hayton JC, Allen DG, Scarpello V. Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational research methods*. 2004;7(2):191-205.
33. Streiner DL. Starting at the beginning: an introduction to coefficient alpha and internal consistency. *J Pers Assess*. 2003;80(1):99–103.
34. McCrae RR, Kurtz JE, Yamagata S et al. Internal consistency, retest reliability, and their implications for personality scale validity. *Pers Soc Psycho Rev*. 2011;15(1):28–50.
35. Ferketich S. Focus on psychometrics. Internal consistency estimates of reliability. *Res Nurs Health*. 1990;13(3):437–440.
36. Tavakol M & Dennick R. Making sense of Cronbach’s alpha. *Int J Med Educ*. 2011;2:53–55.
37. Cant RP & Foster MM. Investing in big ideas: utilisation and cost of Medicare Allied Health services in Australia under the chronic disease management initiative in primary care. *Aust Health Rev*. 2011;35(4):468–474.
38. Australian Institute of Health and Welfare. *Australia’s health 2016 - in brief*. Canberra, Australia: AIHW; 2016 [cited 2018 May 25]. Available from: <https://www.aihw.gov.au/reports/australias-health/australias-health-2016-in-brief/contents/aboutaustralia-s-health-2016-in-brief>

39. Elwyn G, Edwards A & Kinnersley P. Shared decision-making in primary care: the neglected second half of the consultation. *Br J Gen Pract*. 1999;49(443):477–482.
40. Elwyn G, Edwards A, Wensing M et al. Shared decision making: developing the OPTION scale for measuring patient involvement. *Qual Saf Health Care*. 2003;12(2):93–99.
41. Dietitians Association of Australia. National Competency Standards for Dietitians in Australia. ACT, Australia: DAA;2015 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/NCS-Dietitians-Australia-with-guide-1.0.pdf>
42. Dietitians of Canada and College of Dietitians of Ontario. Professional standards for dietitians in Canada. Toronto, Canada: DAA;1997. [cited 2018 May 25]. Available from: [https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-\(1.aspx](https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-(1.aspx)
43. Rodenburg-Vandenbussche S, Pieterse AH, Kroonenberg PM et al. Dutch translation and psychometric testing of the 9-Item Shared Decision Making Questionnaire (SDM-Q-9) and Shared Decision Making Questionnaire-Physician Version (SDM-Q-Doc) in primary and secondary care. *PLoS ONE*. 2015;10(7):e0132158.
44. Calderon C, Ferrando PJ, Carmona-Bayonas A et al. Validation of SDM-Q-Doc Questionnaire to measure shared decision-making physician's perspective in oncology practice. *Clin Transl Oncol*. 2017;19(11):1312–1319.

Supporting information - Comparison between items from original scales /sub-scales and adapted items tested among dietitians

Item ^a	Adapted item used in dietitian-reported inventory	Item from original scale/sub-scale
9-item Shared Decision-Making Questionnaire (physician version) ^a		
SDM-Q-Doc 1	I make clear to my patients that decisions need to be made regarding their nutritional goals	I made clear to my patient that a decision needs to be made
SDM-Q-Doc 2	I want to know exactly from my patients how he/she wants to be involved in making decisions	I wanted to know exactly from my patient how he/she wants to be involved in making the decision
SDM-Q-Doc 3	I tell my patients that there are different options regarding his/her nutrition care	I told my patient that there are different options for treating his/her medical condition
SDM-Q-Doc 4	I precisely explain the advantages and disadvantages of different options to my patients	I precisely explained the advantages and disadvantages of the treatment options to my patients
SDM-Q-Doc 5	I help my patients understand all the information	I helped my patient understand all the information
SDM-Q-Doc 6	I ask my patients which treatment option he/she prefers	I asked my patient which treatment option he/she prefers
SDM-Q-Doc 7	My patients and I thoroughly evaluate the different treatment options	My patient and I thoroughly weighed the different treatment options
SDM-Q-Doc 8	My patients and I select a treatment option together	My patient and I selected a treatment option together
SDM-Q-Doc 9	My patients and I reach an agreement on how to proceed	My patient and I reached an agreement on how to proceed

Communication Assessment Tool ^b

CAT 1	I greet my patients in a way that makes my patients feel comfortable	(The doctor) Greeted me in a way that made me feel comfortable
CAT 2	I treat my patients with respect	Treated me with respect
CAT 3	I show interest in my patients' ideas about their health	Showed interest in my ideas about my health
CAT 4	I understand my patients' main health concerns	Understood my main health concerns
CAT 5	I pay attention to my patients (look at them, listen)	Paid attention to me (looked at me, listened carefully)
CAT 6	I let my patients talk without interruptions	Let me talk without interruptions
CAT 7	I give my patients' as much information as they want	Gave me as much information as I wanted
CAT 8	I talk in terms my patients can understand	Talked in terms I could understand
CAT 9	I check to be sure my patients understand everything	Checked to be sure I understood everything
CAT 10	I encourage my patients to ask questions	Encouraged me to ask questions
CAT 11	I involve my patients in decisions as much as they want	Involved me in decisions as much as I wanted
CAT 12	I discuss next steps	Discussed next steps, including any follow-up plans
CAT 13	I show care and concern for my patients	Showed care and concern
CAT 14	I spend the right amount of time with patients	Spent the right amount of time with me

PCPI-s Providing Holistic Care sub-scale ^c

PCPI-s 1	I strive to gain a sense of every patient as a whole person	I strive to gain a sense of the whole person
PCPI-s 2	I assess the needs of the person, taking account of all aspects of their lives	I assess the needs of the person, taking account of all aspects of their lives
PCPI-s 3	I deliver care that takes account of the whole person	I deliver care that takes account of the whole person

SPNCS Seeing the Individual Patient sub-scale ^d

SPNCS 1	I treat every patient as a unique person	I treated my patients like each was a special person
SPNCS 2	I tailor dietetic care to each patients' specific needs	I tailored my nursing care to each patients' specific needs
SPNCS 3	I take time to find out more about each patient as a person	I took the time to find out more about my patients as a person
SPNCS 4	When I provide care, my patients are at the centre of my attention	When I was providing care to my patients, they were at the centre of my attention
SPNCS 5	I am warm in my interactions with my patients	I was warm in my interactions with my patients

Patient-Doctor Depth of Relationship Scale ^e

PDDRS 1	I know my patients very well	I know this doctor very well
PDDRS 2	I know every patient as a person	This doctor knows me as a person

PDDRS 3	I really know how my patients feel	This doctor really knows how I feel about things
PDDRS 4	My patients know what to expect with me	I know what to expect with this doctor
PDDRS 5	I really care about my patients	This doctor really cares for me
PDDRS 6	I take my patients seriously	This doctor takes me seriously
PDDRS 7	I accept my patients the way they are	This doctor accepts me the way I am
PDDRS 8	My patients feel at ease with me	I feel totally relaxed with this doctor

CAT, Communication Assessment Tool; PCPI-s, Person-Centred Practice Inventory – staff version (Providing Holistic Care sub-scale); PDDRS, Patient-Doctor Depth of Relationship Scale; SDM-Q-Doc, Shared Decision-Making Questionnaire (physician version); SPNCS, Schmidt Perception of Nursing Care Survey (Seeing the Individual Patient sub-scale)

^a SDM-Q-Doc items 1-9 from Kriston L, et al, 2010¹ and Scholl, et al, 2012² adapted and reproduced with permission from Copyright owner.

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^b CAT items 1-14 adapted and reproduced with permission from Copyright © 2007 by Gregory Makoul - All rights reserved.

^c PCPI-s Providing Holistic Care sub-scale items 1-3 adapted from Slater, et al, 2017³

^d SPNCS Seeing the Individual Patient sub-scale items 1-5 adapted and reproduced with permission from Copyright © 2001 by Lee Schmidt -All rights reserved. Further reproduction prohibited without the express written permission from copyright owner.

^e PDDRS items 1-8 Adapted with permission from Patient-Doctor Depth-of-Relationship Scale: Development and Validation, 2011, Vol 9, No 6, Annals of Family Medicine Copyright © 2011 American Academy of Family Physicians, All Rights Reserved. References

References

1. Kriston L, Scholl I, Hölzel L, Simon D, Loh A, Härter M. The 9-item Shared Decision Making Questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. *Patient Educ Couns*. 2010;80(1):94-9.
2. Scholl I, Kriston L, Dirmaier J, Buchholz A, Härter M. Development and psychometric properties of the Shared Decision Making Questionnaire--physician version (SDM-Q-Doc). *Patient Educ Couns*. 2012;88:284-90.
3. Slater P, McCance T, McCormack B. The development and testing of the Person-centred Practice Inventory - Staff (PCPI-S). *Int J Qual Health Care*. 2017(4):1-7.

Paper 4 - Development and psychometric testing of a patient-reported inventory to measure patient-centred care in dietetic practice

6.6 Abstract

Objective This study aimed to develop and psychometrically test a patient-reported inventory to measure patient-centred care (PCC) in dietetic practice.

Methods A cross-sectional survey of patients attending individual consultations with Accredited Practising Dietitians working in primary care was undertaken. To evaluate the factor structure of the inventory, exploratory factor analysis was performed using principal component analysis. Cronbach's alpha, inter-item and corrected-item total correlations were computed to test the internal consistency reliability.

Results A total of 133 patients completed the survey. Five factors were extracted accounting for 78.4% of the variance. All items demonstrated significant loadings (i.e. ≥ 0.45) and most items loading on only one factor. High Cronbach's alpha values (ranging 0.87-0.97), inter-item correlations (0.46-0.89) and corrected item-total correlations (0.61-0.90) indicated good internal consistency of the inventory, but also indicate potential item redundancy.

Conclusion Findings from this study suggest the inventory is a valid and reliable patient-reported measure of PCC in dietetic practice. There is potential for this inventory to be used as an evaluation tool in practice whereby patients can provide valuable feedback to dietitians.

6.7 Introduction

Patient-centred care (PCC) is widely recognised as integral to providing effective, high quality care¹. Despite varying definitions of PCC, central to descriptions of this phenomenon is the provision of respectful care that considers patients' individual needs and preferences. PCC has been associated with significant benefits for patients across different healthcare settings²⁻⁴. For example, studies reporting on outcomes associated with PCC have identified: improved quality of life and reduced symptom burden among patients with chronic heart failure²; increased satisfaction with care in patients from neurological rehabilitation units³; and reduced glycosylated haemoglobin (HbA1c) and triglycerides for patients with diabetes⁴. Clearly, PCC has the potential to improve patients' health and wellbeing, particularly those with chronic disease.

Dietitians play an important role in educating patients regarding nutrition for the prevention and management of chronic disease⁵. For dietitians to assist patients to self-manage complex, chronic diseases, it is important that dietitians are able to communicate well, build caring relationships with patients, and engage patients in their care processes. These qualities and skills are key aspects of PCC^{6,7}. Therefore, it is important that dietitians adopt a patient-centred approach, particularly when supporting patients with chronic disease.

A conceptual model of PCC in dietetic practice was recently proposed⁸. This model was developed based on findings from an integrative review of PCC in dietetic practice⁷ as well as qualitative interviews exploring patients' perspectives and experiences of PCC⁹. While conceptual models such as this can guide practice, they need to be empirically tested to ensure their validity. This requires the operationalisation and measurement of model dimensions (e.g. in the form of a measurement instrument). Thus, the aforementioned conceptual model of PCC in dietetic practice guided the development of an inventory, which was recently tested among a sample of dietitians⁸. There is also a need to develop and test a patient-reported version of the inventory and test this model among *patients* in the primary care dietetic setting.

It is important to explore patients' views and experiences of care¹⁰. Understanding the extent to which patients perceive care to be patient-centred can assist dietitians to focus on areas that will optimise their practice. Instruments have been developed and tested to evaluate patients' experience of PCC across different healthcare settings¹¹. However, existing instruments have demonstrated variation in the aspect(s) of PCC they purport to measure; many have failed to describe any underlying theoretical/conceptual PCC framework; and most have been developed for the acute care setting¹¹. Further, to the best of our knowledge, no patient-reported instrument has been developed or validated to measure PCC in the dietetic setting. Therefore, the aim of this study was to develop and psychometrically test a theoretically grounded patient-reported inventory of previously validated scales to measure dietitians' delivery of PCC.

6.8 Methods

This study developed and psychometrically tested a patient-reported inventory to measure PCC in dietetic practice. Approval was obtained from the institution's Human Research Ethics Committee (REF: 2017/730).

Development of the inventory

Full details regarding the development of the inventory have been published elsewhere⁸. However, briefly, scales identified in the literature were considered for inclusion in the inventory if they: measured one of the five dimensions of PCC identified in the conceptual model ⁸, that is: (i) patient-dietitian communication; (ii) shared decision-making; (iii) providing holistic care; (iv) providing individualised care; and (v) patient-dietitian relationship; provided a clear description of the concept/theory underpinning the scale; were a self-administered questionnaire designed for use by health professionals and/or patients; and psychometric results were available to support construct validity and reliability of the scale. Considering these criteria, in-depth analysis and discussion among the research team guided the selection of five scales, outlined below.

Measures

Five scales were included in the inventory and are described briefly in Table 6.5.

Table 6.5: Characteristics of the five scales included in the inventory

Scale	Dimension of PCC	Items and responses	Target audience / sample	Author(s), year	Test setting(s)	Validity	Reliability
Communication Assessment Tool	Health professional-patient communication	14-items; 5-point response scale	Patient reported	Makoul, Krupat ¹² , Stausmire, Cashen ¹³ , Cubaka, Schriver ¹⁴ , Ferranti, Makoul ¹⁵	US hospitals	Construct validity demonstrated with EFA and CFA	Internal consistency reliability and test-retest reliability demonstrated
Patient-Doctor Depth of Relationship Scale	Health professional-patient relationship	8-items; 5-point response scale	Patient reported	Ridd, Lewis ¹⁶	UK general practices	Construct validity demonstrated with EFA	Internal consistency reliability and test-retest reliability demonstrated
Providing Holistic Care Sub-scale	Holistic care	3-item; 5-point response scale	Physician reported	Slater, McCance ¹⁷	UK hospitals	Construct validity demonstrated CFA	Not assessed
9-item Shared Decision-Making Questionnaire	Shared decision-making	9 items, 6-point scale	Patient reported	Kriston, Scholl ¹⁸ , Rodenburg-Vandenbussche,	German primary care centres ¹⁸ ; General practices/medical	Construct validity demonstrated	Internal consistency reliability demonstrated

				Pieterse ¹⁹ , Ballesteros, Moral ²⁰	centres, Netherlands ¹⁹ Spanish multiple sclerosis unites ²⁰	with EFA and CFA	
Seeing-individual patient sub-scale	Individualised care	5-items; 5- point response scale	Patient reported	Schmidt ²¹	US hospitals	Construct validity demonstrated with CFA	Internal consistency reliability demonstrated

CFA, confirmatory factor analysis; EFA, exploratory factor analysis; PCC, Patient-centred care

Sample and setting

Participants were patients who had attended ≥ 1 individual consultation with an Accredited Practising Dietitian in the Australian primary care setting; were English speaking; and ≥ 18 years of age.

Recommendations regarding the necessary sample size for factor analysis vary^{22, 23}. For the purpose of this study, we adopted the minimum recommended ratio of 5 participants per item on the scale, therefore we aimed to achieve a sample size of 195 for the 39-item inventory²³.

Cognitive interviews

Before undertaking the cross-sectional survey, individual cognitive interviews were conducted with a convenience sample of nine patients between October and November 2017. The purpose of these interviews were to check respondents' interpretation of items and item response options²⁴. Respondents were prompted to verbalise their thought processes while completing the survey using the 'think aloud' technique²⁴ and provide feedback regarding specific aspects of the survey (e.g. clarity and salience of items, items that appeared irrelevant). The inventory was adapted slightly based on participants' feedback. Details regarding any adaptations are illustrated in supplementary material (Data S1) to clarify how the adapted versions differed to the original items.

Data collection

Surveys were distributed to patients attending an individual dietetic consultation between November 2017 and May 2018. At the end of each consultation, dietitians briefly explained the study to patients (based on the description provided by the research team), and those willing to participate were provided with the survey, participant information sheet and a reply-paid envelope. Participants were instructed to take the survey away and return it to the research team via the postage mailed envelope. The anonymous, self-administered nature of the survey was designed to maximise honesty in responses.

Data analysis

All data were entered in to Statistical Package for the Social Sciences (SPSS) Version 24 (IBM, Chicago, IL, USA) by the first author (IS) and subjected to data cleaning and a 10% data check for accuracy. No data entry errors were identified and there were minimal missing data. Missing data were excluded from analysis using 'listwise' deletion as the proportion of missing data was $< 5\%$ (ranging 0.7% to 3.8% across items)²³.

The Kaiser-Meyer-Olkin (KMO) index (criteria: $\geq .80$) and Barlett's Test of Sphericity (criteria: $p < 0.05$) were examined to determine the appropriateness of the correlation matrix for factor analysis²³. To evaluate the factor structure of the inventory, exploratory factor analysis was performed using principal component analysis. Because the inventory was based on a conceptual model of PCC, comprising five unidimensional scales^{12, 16-18, 21}, the *a priori* criterion of 5 factors was initially used to determine the number of factors to retain (i.e. the computer was instructed to stop the analysis once five factors had been extracted²³. This criterion is a suitable method when the researcher has an idea about the number of factors to extract based on previous work and/or theory. The more commonly used latent root criterion was also employed to check the number of factors to extract; only factors with eigenvalues ≥ 1 are extracted/retained²³.

Promax rotation was used to enhance the interpretability of the factor matrix. Promax rotation is an oblique rotation method, which was considered appropriate as correlation among factors was expected²³. The following criteria were used to interpret the rotated pattern matrix: factor loadings ≥ 0.45 were considered minimally acceptable and loadings ≥ 0.70 suggested a well-defined structure²³. Items that failed to load significantly on any factor (i.e. < 0.45) and had low communalities (i.e. < 0.50), or items that had loadings ≥ 0.45 on more than one factor (i.e. cross-loading items) were reviewed by the research team as potential candidates for deletion²³. Once the final factor structure was determined and the model respecified, the factors were named. Descriptive labels were developed with consideration of common themes among items on the factor, and with reference to the conceptual model²³.

To evaluate the internal consistency of each scale, Cronbach's alpha (criteria $\geq .80$) inter-item correlations and corrected item-total correlations (criteria $> .30$, with $> .70$ indicating possible redundancy) were computed^{25, 26}. For sample characteristics, counts (number and percentage) were reported for categorical variables and median with interquartile range (IQR) for continuous variables, as these data were not normally distributed.

6.9 Results

Demographic characteristics

Approximately 440 surveys were distributed from eight dietetic practices across Queensland (n=5), New South Wales (n=2) and Victoria (n=1). In total, 133 patients completed and returned the survey, representing a response rate of 30%. Participants' demographic characteristics are displayed in Table 6.6.

Table 6.6: Participants' demographic characteristics (n=133)

Characteristic*	Median (IQR)
Age	61 (23)
Number of dietetic consultations attended [‡]	2 (4)
	N (%)
Regular dietitian	
Yes	86 (67.2)
No	41 (32.0)
Sex*	
Male	51 (38.6)
Female	80 (60.6)
Other	1 (0.8)
Number of dietitians seen [‡]	
1	82 (62.6)
2-3	45 (34.4)
4-5	4 (3.1)
Highest level of education	
Primary School	7 (5.4)
Secondary School	49 (38.0)
Vocational	30 (23.3)
Tertiary (University)	35 (27.1)
Postgraduate (PhD, Masters)	8 (6.2)

Four most frequently reported reasons for visit with the dietitian

Weight loss or management	46 (37.4)
GIT issues (IBS, gastric sleeve, constipation, reflux)	17 (13.8)
High cholesterol	11 (8.9)
General healthy eating advice/plan	9 (7.3)

Country of birth

Australia	112 (85.5)
UK	10 (7.6)
Europe	5 (3.8)
Other ^β	5 (4.0)

GIT, Gastrointestinal; IBS, irritable bowel syndrome; PhD, Doctor of Philosophy; UK, United Kingdom.

*Between 1 and 10 missing responses across demographic questions; [¥]In the past 2 years; ^β One respondent each from USA, China, Africa, New Zealand and Canada.

Exploratory factor analysis

Kaiser-Meyer-Olkin (KMO) value of 0.93 and Barlett's Test of Sphericity was statistically significant, confirming the factorability of the correlation matrix²³. Five factors were extracted based on the *a priori* criterion and latent root criterion, accounting for a total of 78.4% of the variance. Factor loadings in their corresponding factors are displayed in Table 6.7.

Table 6.7: Rotated factor matrix for principal component analysis of the 39-item inventory (Promax rotation) (n=133)

Item		Factor loadings				
		1	2	3	4	5
CAT 8 ^a	Talked in terms I could understand	.937	-.298	-.023	-.098	.239
CAT 7	Gave me as much information as I wanted	.932	-.029	-.120	-.121	.172
CAT 6	Let me talk without interruptions	.922	.121	-.093	.027	-.078
CAT 4	Understood my main reason for the visit	.841	.061	.013	.018	-.103
CAT 9	Checked to be sure I understood everything	.835	.041	-.026	-.036	.061
CAT 2	Treated me with respect	.826	-.165	.160	.050	.042
CAT 12	Discussed next steps (regarding my nutrition care)	.823	.268	-.205	-.069	.085
CAT 13	Showed care and concern	.814	-.088	.203	.058	-.039
CAT 3	Showed interest in my ideas about my health	.764	.161	.046	.143	-.288
CAT 14	Spent the right amount of time with me	.757	-.079	.144	.016	.121
CAT 5	Paid attention to me (looked at me, listened)	.749	-.032	.188	.034	.002
CAT 10	Encouraged me to ask questions	.728	.160	.065	.047	-.106
CAT 11	Involved me in decisions as much as I wanted	.618	.346	.108	.030	-.158

Item		Factor loadings				
		1	2	3	4	5
CAT 1	Greeted me in a way that made me feel comfortable	.506	-.143	.388	-.077	.236
SDM-Q-9 7 ^b	My dietitian and I thoroughly considered the different options	-.096	.972	.075	-.055	-.014
SDM-Q-9 4	My dietitian Cleary explained the advantages and disadvantages of different options	-.015	.927	-.092	-.022	.076
SDM-Q-9 6	My dietitian asked me which nutrition option I prefer	-.139	.922	.091	-.162	.169
SDM-Q-9 8	My dietitian and I selected a nutrition related option together	-.129	.916	.132	-.017	.014
SDM-Q-9 3	My dietitian told me that there are different options to address my nutrition care	.063	.899	-.063	.058	-.106
SDM-Q-9 9	My dietitian and I reached an agreement on how to proceed with my goals/plans	.096	.865	.009	-.112	.063
SDM-Q-9 2	My dietitian wanted to know exactly how I wanted to be involved in making decisions	-.027	.632	.234	.009	.131
SDM-Q-9 1	My dietitian made clear that decisions need to be made regarding my nutrition care	.246	.610	-.150	.122	.060
SDM-Q-9 5	My dietitian helped me understand all the information relevant to my nutrition care	.180	.579	-.108	-.046	.393
SPNCS 5 ^c	The dietitian was warm in their interaction with me	.185	-.079	.870	-.191	.094
SPNCS 3	The dietitian took time to find out more about me as a person	-.077	-.066	.859	.175	.016
SPNCS 4	When the dietitian was providing my care, I was at the centre of their attention	-.012	-.012	.850	.011	.013

Item		Factor loadings				
		1	2	3	4	5
SPNCS 2	I knew my dietetic care was specifically tailored to my needs	.057	.232	.765	-.244	.049
PCPI-s 2 ^d	My dietitian assesses my needs, taking account of all aspects of my life	.046	.053	.749	.209	-.098
PCPI-s 3	The dietitian took time to find out more about me as a person	.047	.198	.719	.109	-.084
SPNCS 1	The dietitian treated me like a special person	.110	.054	.698	-.085	.092
PDDRS 8 ^e	I feel relaxed around the dietitian	.150	-.106	.639	-.078	.368
PCPI-s 1	My dietitian strives to gain a sense of me as a whole person	.124	.099	.606	.276	-.141
PDDRS 1	I know this dietitian well	-.036	-.120	-.073	.969	.160
PDDRS 2	This dietitian knows me as a person	-.015	-.111	.096	.896	.088
PDDRS 3	This dietitian really knows how I feel	.106	.231	.007	.478	.271
PDDRS 6	This dietitian takes me seriously	.042	.173	.070	.082	.735
PDDRS 7	This dietitian accepts me the way I am	.066	.149	.037	.217	.582
PDDRS 4	I know what to expect with this dietitian	-.046	.109	-.097	.500	.560
PDDRS 5	This dietitian really cares for me	-.068	.174	.206	.273	.491

Note: Factor extraction used the *a priori* criterion. Promax rotation was used for factor rotation. Rotation converged in 7 iterations.

Loadings $\geq .45$ are bolded. Variables are sorted by highest loading on each factor.

CAT, Communication assessment tool; PDDRS, Patient-doctor depth of relationship scale; PCPI-s, Person-Centred Practice Inventory – Staff (Providing Holistic Care sub-scale) SDM-Q-9, 9-item shared decision-making questionnaire; SPNCS, Schmidt Perception of Nursing Care Scale (Seeing the Individual Patient sub-scale)

^a **CAT** items 1-14 adapted and reproduced with permission from Copyright © 2007 by Gregory Makoul - All rights reserved; ^b **SDM-Q-9** items 1-9¹⁸ adapted and reproduced with permission from Copyright owner. Licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, <http://creativecommons.org/licenses/by-nc-nd/4.0/legalcode>; ^c **SPNCS Seeing the Individual Patient sub-scale** items 1-5 Adapted and reproduced with permission from Copyright © 2001 by Lee Schmidt -All rights reserved. Further reproduction prohibited without the express written permission from copyright owner; ^d **PCPI-s Providing Holistic Care sub-scale** items 1-3 adapted from Slater et al ¹⁷; ^e **PDDRS** items 1-8 Adapted with permission from Patient-Doctor Depth-of-Relationship Scale: Development and Validation, 2011, Vol 9, No 6, Annals of Family Medicine Copyright © 2011 American Academy of Family Physicians, All Rights Reserved.

The rotated solution revealed a relatively simple factor-structure²³. All but one item (PDDRS item 4) loaded significantly on only factor and all communalities were greater than 0.50, with an average of 0.78. The resulting 5-factor solution demonstrated some variations from the hypothesised factor structure. In particular, items from both the ‘Seeing the Individual Patient’ and ‘Providing Holistic Care’ sub-scales loaded strongly on a single factor and the PDDRS appeared multidimensional.

Items 1 through 14 of the CAT loaded significantly on factor one. Items 1 through 9 of the SDM-Q-9 loaded significantly on the second factor. Items 1 through 5 of the ‘Seeing the Individual Patient’ sub-scale, items 1 through 3 of the ‘Providing Holistic Care’ sub-scale, and item 8 of the PDDRS loaded significantly on the third factor. PDDRS items 1 through 3 loaded significantly on the fourth factor, and PDDRS items 4 through 7 loaded significantly on the fifth factor, with item 4 having a significant cross-loading on factor 4.

Defining and labelling the factors

Factor 1 includes all 14 items of the CAT, and therefore has been labelled ‘patient-dietitian communication’. Factor 1 refers to establishing two-way communication between the dietitian and patient by utilising specific skills/behaviours (e.g. understanding the patient’s perspective; rapport building; demonstrating empathy; delivering information)¹².

Factor 2 comprises all 9 items from the SDM-Q-9, has been labelled ‘shared decision-making’. In keeping with the conceptual definition provided by the original authors, this factor refers to “an interactive process in which both parties are equally and actively involved and share information in order to reach an agreement for which they are jointly responsible”¹⁸ p.94.

Factor 3 consists of all items from the ‘Providing Holistic Care’ and ‘Seeing the Individual Patient’ sub-scales, as well as PDDRS item 8. Thus, factor 3 can be labelled ‘holistic and individualised care’. This factor relates to dietitians developing an understanding of the ‘whole person’ and individualising care accordingly.

Factor 4, comprises items 1 through 3 of the PDDRS, relates to the patient knowing the dietitian, and feeling as though the dietitian understands the patient; therefore, this factor has been labelled ‘knowing the patient/dietitian’. Finally, factor 5, which includes items 5 through 7 of the PDDRS, has been labelled ‘caring patient-dietitian relationships’ and refers to the dietitian taking patients seriously, being non-judgemental, and showing care for patients.

Internal consistency reliability

Cronbach's alpha was a 0.98 for the respecified 38-item inventory. Results for each of the five factors are displayed in Table 6.8. Inter-item correlations and corrected item-total correlations were all >0.30 , but some were >0.80 . While these results demonstrate good internal consistency of the inventory, they also indicate potential item redundancy^{25, 26}. The characteristics of the respecified model are detailed in Table 6.8

Table 6.8: Characteristics of the respecified inventory/model

Label	Scale(s) included	No. items included	Cronbach's alpha	Inter-item correlations range	Corrected item-total correlations	Scale items deleted	Reasons for deletion
Dietitian-patient communication	<ul style="list-style-type: none"> CAT (items 1-14) 	14	0.97	0.47-0.85 (average=0.70)	0.75-0.90 (average=0.82)	-	-
Shared decision-making in dietetics	<ul style="list-style-type: none"> SDM-Q-9 (items 1-9) 	9	0.96	0.57-0.88 (average=0.72)	0.71-0.90 (average=0.83)	-	-
Holistic and individualised dietetic care	<ul style="list-style-type: none"> Seeing the Individual Patient sub-scale (items 1-5) Providing Holistic Care sub-scale (items 1-3) PDDRS (item 8) 	9	0.95	0.57-0.89 (average=0.70)	0.77-0.89 (average=0.82)	-	-
Knowing the dietitian	<ul style="list-style-type: none"> PDDRS (items 1-3) 	3	0.87	0.55-0.86 (average=0.68)	0.61-0.86 (average=0.75)	-	-
Caring dietitian-patient relationships	<ul style="list-style-type: none"> PDDRS (items 5-7) 	3	0.91	0.70-0.82 (average =0.78)	0.79-0.88 (average=0.82)	<ul style="list-style-type: none"> PDDRS Item 4 	<ul style="list-style-type: none"> Cross-loading on factor 4

CAT, Communication Assessment Tool; PDDRS, Patient-Doctor Depth of Relationship Scale; SDM-Q-9, 9-item Shared Decision-Making Questionnaire

6.10 Discussion

This is the first study to develop and psychometrically test a patient-reported inventory to measure PCC in individual dietetic consultations, addressing an important research gap. There is potential for this inventory to be used as an evaluation tool in practice whereby patients can provide valuable feedback to dietitians. Further, this inventory, in addition to the dietitian-version⁸, provides researchers with an instrument that can be used in future research and education.

The resulting 38-item inventory comprises five factors that represent five dimensions of PCC in dietetic practice. The key differences between the *a priori* hypothesised model and the resulting factor structure were the multidimensional nature of the PDDRS, and correlation between the 'Providing Holistic Care' and 'Seeing the Individual Patient' subscales, with items from both loading on a single factor. Overall, the inventory performed well in our sample. However, the initial factor structure identified here should be further tested among a larger sample. Confirmatory factor analysis (CFA) would provide further evidence of structural validity by enabling researchers to specify which items are expected to load on which factors, and thus determine the adequacy of the model fit to the data²³.

All 14 items of the CAT loaded significantly on a single factor and item communalities were high. Thus, in this sample, items of the CAT represent a unidimensional construct. This is consistent with previous studies reporting on the CAT among hospitalised patients in the US¹². However, the CAT did not appear to be unidimensional when tested among a sample of dietitians⁸. The CAT was originally designed for use by patients, and this may in part explain why it performed better in the patient sample; dietitians may have interpreted some items differently. It is important to note that the very high Cronbach's alpha value (0.97), and high inter-item correlations suggests some item redundancy (i.e. the scale could be shortened), and this was also noted by previous authors¹²⁻¹⁵.

The SDM-Q-9 performed well in this sample of patients. All 9 items had strong loadings on a single factor. This is consistent with the findings from previous studies^{19,20} as well as the dietitian version of the inventory (except item 1)⁸. Overall, the SDM-Q-9 (and physician version) is a well-developed and extensively tested scale with a clear conceptual/theoretical foundation, and it has consistently demonstrated strong psychometric properties¹⁸⁻²⁰. The 9-item inventory demonstrated good internal

consistency reliability, with a high Cronbach's alpha and inter-item correlations. This also suggests there may be some item redundancy.

While the PDDRS was expected to be unidimensional¹⁶, items loaded on three different factors in our sample. The multidimensional nature of the PDDRS is comparable to psychometrics of the dietitian-version of the inventory⁸. This finding suggests both patients and dietitians drawn distinctions between items relating to 'knowing' and items relating to 'caring', 'accepting' and 'taking patients seriously'. Interestingly, the original authors generated the items to reflect what they considered to be four elements of doctor-patient depth of relationship: knowledge, trust, loyalty and regard¹⁶, thus they commented that subscales could potentially emerge.

The 'Seeing the Individual Patient' and 'Providing Holistic Care' subscales represent a single factor in our sample. This is also consistent with findings from the dietitian version of the inventory⁸. When reflecting on the wording of these items, it makes theoretical/conceptual sense that there is high correlation between these factors. Further, these two factors share similar conceptual descriptions/definitions across the literature^{6,7}. This work has been influenced by the move toward developing patient-reported experience measures (PREMS)²⁷. Broadly, PREMS are designed to enable patients to provide feedback on care to inform practice/service improvements²⁸. Measures can be designed to evaluate patients' experiences of the health professional-patient interaction and relationship (e.g. provision of information, involvement in decisions, and coordination of care)²⁸. While this inventory captures important aspects of patients' healthcare experiences relating to PCC, instruments capturing other aspects of dietetic care may need to be developed.

Developing sound measures of PCC is an important step in aligning care with patients' needs. However, it is also important to understand patients' actual preferences *for* aspects of PCC. For example, patients may desire different levels of involvement in decision-making and have different preferences regarding dietitians' communication styles (e.g. directive vs. counselling), which can be influenced by a wide range of factors. Thus, it is also important to explore patients' preferences for PCC.

Strengths and limitations

Despite employing several strategies to enhance the response rate, we failed to achieve a sample size in line with the minimum recommended ratio of participants to variables (5:1), which is a limitation of this study. It is important to note however, that there are no

strict rules regarding the specific sample size needed for factor analysis. Even a sample size based on two participants per item on the scale has shown to be sufficient in some studies²². Scholars argue that sample size requirements depend on the properties of the data and model. That is, a small sample size (e.g. 100) can obtain good estimates if communalities are high (an average of ≥ 0.70) and at least three variables load strongly on each factor^{22, 29}. In the present study, communalities ranged 0.63 to 0.89 (Average = 0.78), 5 factors explained 78.76% of the variance, loadings were mostly high, most items loaded significantly on only one factor and all factors were made up of at least three strong loading items. Therefore, the small sample size may be less of a concern^{22, 29}.

While the response rate was less than desired, returned surveys had minimal missing data. This suggests good acceptability of the inventory, which may be attributed to the careful design and pilot testing of the inventory. Response bias is a characteristic limitation of survey research³⁰, but the anonymous, self-administered nature of the survey, and provision of reply-paid envelopes was intended to minimise the likelihood of such bias.

Conclusions

Findings from this study offer a patient-reported inventory to measure PCC in dietetic practice in the primary care setting. There were both similarities and differences between hypothesised model and resulting 38-item inventory. Cronbach's alpha values, inter-item correlations, and corrected item total correlations were high for all scales, demonstrating good internal consistency reliability. These results also indicate potential item redundancy, suggesting some items could be excluded to provide a more parsimonious inventory. However, a larger sample should be obtained to support the repeatability / generalisability of these findings and conduct confirmatory factor analysis to confirm the factor structure and model fit.

Author contribution: IS, BG, LB and WC contributed to the design of the study. IS collected the data. IS, BG, LB and WB contributed to data analysis, drafting of the paper, and all agreed to the final version of the manuscript.

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References

1. Australian Commission on Safety and Quality in Healthcare. Patient-centred care: Improving quality and safety by focusing care on patients and consumers. Canberra, ACT: ACSQHC; 2010 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/01/PCCC-DiscussPaper.pdf>
2. Brännström M, Boman K. Effects of person-centred and integrated chronic heart failure and palliative home care. PREFER: a randomized controlled study. *Eur J Heart Fail.* 2014;16(10):1142-51.
3. Holliday RC, Cano S, Freeman JA, Playford ED. Should patients participate in clinical decision making? An optimised balance block design controlled study of goal setting in a rehabilitation unit. *J Neurol Neurosurg Psychiatry.* 2007;78(6):576-80.
4. Hörnsten Å, Lundman B, Stenlund H, Sandström H. Metabolic improvement after intervention focusing on personal understanding in type 2 diabetes. *Diabetes Res Clin Pract.* 2005;68(1):65-74.
5. Slawson DL, Fitzgerald N, Morgan KT. Position of the Academy of Nutrition and Dietetics: the role of nutrition in health promotion and chronic disease prevention. *J Acad Nutr Diet.* 2013;113(7): 972-979.
6. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one.* 2014;9(9):e107828.
7. Sladdin I, Ball L, Bull C, Chaboyer W. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet.* 2017;30(4):453-70.
8. Sladdin I, Chaboyer W, Ball L, Gillespie B. Development and psychometric testing of an inventory to measure patient-centred care in dietetic practice: dietitian version. *J Hum Nutr Diet.* 2019.
9. Sladdin I, Chaboyer W, Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet.* 2018;31(2):188-98.
10. Stewart M. Towards a global definition of patient centred care: the patient should be the judge of patient centred care. *Brit Med J.* 2001;322(7284):444.
11. de Silva D. Helping measure person-centred care: A review of evidence about commonly used approaches and tools used to help measure person-centred care. London, UK: The Health Foundation; 2014 [cited 2018 May 25]. Available from: <https://www.health.org.uk/sites/default/files/HelpingMeasurePersonCentredCare.pdf>

12. Makoul G, Krupat E, Chang C-H. Measuring patient views of physician communication skills: development and testing of the Communication Assessment Tool. *Patient Educ Couns*. 2007;67(3):333-42.
13. Stausmire JM, Cashen CP, Myerholtz L, Buderer N. Measuring general surgery residents' communication skills from the patient's perspective using the Communication Assessment Tool (CAT). *J Surg Educ*. 2015;72(1):108-16.
14. Cubaka VK, Schriver M, Vedsted P, Makoul G, Kallestrup P. Measuring patient-provider communication skills in Rwanda: Selection, adaptation and assessment of psychometric properties of the Communication Assessment Tool. *Patient Educ Couns*. 2018; 101(9):1601-10.
15. Ferranti DE, Makoul G, Forth VE, Rauworth J, Lee J, Williams MV. Assessing patient perceptions of hospitalist communication skills using the Communication Assessment Tool (CAT). *J Hosp Med*. 2010;5(9):522-7.
16. Ridd MJ, Lewis G, Peters TJ, Salisbury C. Patient-doctor depth-of-relationship scale: development and validation. *Ann Fam Med*. 2011;9(6):538-45.
17. Slater P, McCance T, McCormack B. The development and testing of the Person-centred Practice Inventory–Staff (PCPI-S). *Int J Qual Health Care*. 2017;29(4):541-7.
18. Kriston L, Scholl I, Holzel L, Simon D, Loh A, Harter M. The 9-item Shared Decision Making Questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. *Patient Educ Couns*. 2010;80(1):94-9.
19. Rodenburg-Vandenbussche S, Pieterse AH, Kroonenberg PM, Scholl I, van der Weijden T, Luyten GP, et al. Dutch translation and psychometric testing of the 9-item Shared Decision Making Questionnaire (SDM-Q-9) and Shared Decision Making Questionnaire-Physician version (SDM-Q-Doc) in primary and secondary care. *PloS one*. 2015;10(7):e0132158.
20. Ballesteros J, Moral E, Brieva L, Ruiz-Beato E, Prefasi D, Maurino J. Psychometric properties of the SDM-Q-9 questionnaire for shared decision-making in multiple sclerosis: item response theory modelling and confirmatory factor analysis. *Health Qual Life Outcomes*. 2017;15(1):79.
21. Schmidt L. The development and testing of a measure of patient satisfaction within nursing care. Florida: Univeresity of Maimi; 2001.
22. MacCallum RC, Widaman KF, Zhang S, Hong S. Sample size in factor analysis. *Psychol Methods*. 1999;4(1):84.

23. Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL. Multivariate data analysis. 6th ed. Upper Saddle River, N.J: Pearson Prentice Hall; 2006.
24. Artino AR, La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE Guide No. 87. *Med Teach*. 2014;36(6):463-74.
25. Ferketich S. Focus on psychometrics. Internal consistency estimates of reliability. *Res Nurs Health*. 1990;13(3):437-40.
26. Lance CE, Butts MM, Michels LC. The sources of four commonly reported cutoff criteria: What did they really say? *Organ Res Methods*. 2006;9(2):202-20.
27. Australian Commission on Safety and Quality in Healthcare. Review of patient experience and satisfaction surveys conducted within public and private hospitals in Australia. Canberra, Australia: ACSQHC; 2012 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/03/Review-of-Hospital-Patient-Experience-Surveys-conducted-by-Australian-Hospitals-30-March-2012-FINAL.pdf>
28. Kingsley C, Patel S. Patient-reported outcome measures and patient-reported experience measures. *BJA Education*. 2017;17(4):137-44.
29. Osborne JW, Costello AB, Kellow JT. Best practices in exploratory factor analysis. *Pract Assess Res Eval*. 2008;10:86-99.
30. De Vaus D, A. *Surveys in social research*. 5th ed. Crows Nest, Australia: Allen & Unwin; 2002.

Supplementary Material - Comparison between items from original scales /sub-scales and adapted items tested among dietitians

Item	Adapted item used in the patient-reported inventory	Item from original scale/sub-scale
Communication Assessment Tool ^a		
CAT 1	(The dietitian...) Greeted me in a way that made me feel comfortable	(The doctor) Greeted me in a way that made me feel comfortable
CAT 2	Treated me with respect	Treated me with respect
CAT 3	Showed interest in my ideas about my health	Showed interest in my ideas about my health
CAT 4	Understood my main reason for the visit	Understood my main health concerns
CAT 5	Paid attention to me (looked at me, listened)	Paid attention to me (looked at me, listened carefully)
CAT 6	Let me talk without interruptions	Let me talk without interruptions
CAT 7	Gave me as much information as I wanted	Gave me as much information as I wanted
CAT 8	Talked in terms I could understand	Talked in terms I could understand
CAT 9	Checked to be sure I understood everything	Checked to be sure I understood everything
CAT 10	Encouraged me to ask questions	Encouraged me to ask questions
CAT 11	Involved me in decisions as much as I wanted	Involved me in decisions as much as I wanted
CAT 12	Discussed next steps (regarding my nutrition care)	Discussed next steps, including any follow-up plans

CAT 13	Showed care and concern	Showed care and concern
CAT 14	Spent the right amount of time with me	Spent the right amount of time with me

9-item Shared Decision-Making Questionnaire ^b

SDM-Q-9 1	My dietitian made clear that decisions need to be made regarding my nutrition care	My doctor made clear that a decision needs to be made
SDM-Q-9 2	My dietitian wanted to know exactly how I wanted to be involved in making decisions	My doctor wanted to know exactly how I wanted to be involved in making the decision
SDM-Q-9 3	My dietitian told me that there are different options to address my nutrition care	My doctor told me that there are different options for treating my medical condition
SDM-Q-9 4	My dietitian clearly explained the advantages and disadvantages of different options	My doctor precisely explained the advantages and disadvantages of the treatment options
SDM-Q-9 5	My dietitian helped me understand all the information relevant to my nutrition care	My doctor helped me understand all the information
SDM-Q-9 6	My dietitian asked me which nutrition option I prefer	My doctor asked me which treatment option I prefer
SDM-Q-9 7 ^b	My dietitian and I thoroughly considered the different options	My doctor and I thoroughly weighed the different treatment options
SDM-Q-9 8	My dietitian and I selected a nutrition related option together	My doctor and I selected a treatment option together
SDM-Q-9 9	My dietitian and I reached an agreement on how to proceed with my goals/plans	My doctor and I reached an agreement on how to proceed

Schmidt Perception of Nursing Care - Seeing the Individual Patient sub-scale ^c

SPNCS 1	The dietitian treated me like a special person	The nursing staff treated me as a special person
SPNCS 2	I knew my dietetic care was specifically tailored to my needs	I knew my nursing care was specifically tailored to my needs
SPNCS 3	The dietitian took time to find out more about me as a person	The nursing staff took time to find out more about me as a person
SPNCS 4	When the dietitian was providing my care, I was at the centre of their attention	When the nursing staff was providing my care, I was at the centre of their attention
SPNCS 5 ^c	The dietitian was warm in their interaction with me	The nursing staff was warm in their interaction with me

Person-Centred Practice Inventory – Staff – Providing Holistic Care sub-scale

PCPI-s 1	My dietitian strives to gain a sense of me as a whole person	I strive to gain a sense of the whole person
PCPI-s 2 ^d	My dietitian assesses my needs, taking account of all aspects of my life	I assess the needs of the person, taking account of all aspects of their lives
PCPI-s 3	My dietitian delivers care that takes account of me as a whole person	I deliver care that takes account of the whole person

Patient-Doctor Depth of Relationship Scale

PDDRS 1	I know this dietitian well	I know this doctor very well
PDDRS 2	This dietitian knows me as a person	This doctor knows me as a person
PDDRS 3	This dietitian really knows how I feel	This doctor really knows how I feel about things
PDDRS 4	I know what to expect with this dietitian	I know what to expect with this doctor

PDDRS 5	This dietitian really cares for me	This doctor really cares for me
PDDRS 6	This dietitian takes me seriously	This doctor takes me seriously
PDDRS 7	This dietitian accepts me the way I am	This doctor accepts me the way I am
PDDRS 8 ^e	I feel relaxed around the dietitian	

CAT=Communication assessment tool; PDDRS=Patient-doctor depth of relationship scale; PCPI-s = Person-Centred Practice Inventory – Staff (Providing Holistic Care sub-scale) SDM-Q-9= 9-item shared decision-making questionnaire; SPNCS = Schmidt Perception of Nursing Care Scale (Seeing the Individual Patient sub-scale)

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References

1. Kriston L, Scholl I, Hölzel L, Simon D, Loh A, Härter M. The 9-item Shared Decision Making Questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. Patient Educ Couns. 2010;80(1):94-9.

2. Scholl I, Kriston L, Dirmaier J, Buchholz A, Härter M. Development and psychometric properties of the Shared Decision Making Questionnaire--physician version (SDM-Q-Doc). *Patient Educ Couns*. 2012;88:284-90.
3. Slater P, McCance T, McCormack B. The development and testing of the Person-centred Practice Inventory - Staff (PCPI-S). *Int J Qual Health Care*. 2017(4):1-7.

Paper 5 - A comparison of patients' and dietitians' perceptions of patient-centred care: A cross-sectional survey

6.11 Abstract

Aim The aim of this study was to compare patients' and dietitians' perceptions of patient-centred care (PCC) in dietetic practice.

Methods Participants were as follows: (a) adult patients who had attended ≥ 1 individual dietetic consultation with an Accredited Practising Dietitian (APD) working in primary care; and (b) APDs with experience working in primary care. A cross-sectional survey was undertaken using a patient-and dietitian-reported inventory to measure PCC in dietetic practice. The inventory comprised of five previously validated scales: The Communication Assessment Tool; the 9-item Shared Decision-Making Questionnaire; the Patient-Doctor Depth of Relationship Scale; the Schmidt Perception of Nursing Care Scale-Seeing the Individual Patient sub-scale; and the Person-Centred Practice Inventory—Staff -Providing Holistic Care sub-scale. Descriptive statistics were used to analyse participant characteristics and to compute total scores for the five scales. The Mann-Whitney *U* test was used to compare median scores between patients and dietitians.

Results One-hundred and thirty-three patients and 180 dietitians completed the survey. Patients reported significantly higher scores compared to dietitians for “shared decision-making” ($P = 0.004$), but significantly lower scores for “providing holistic and individualized care” ($P = 0.005$), “knowing the patient/dietitian” ($P = 0.001$) and “caring patient-dietitian relationships” ($P = 0.009$).

Conclusion This study highlighted potentially important differences between patients' and dietitians' perceptions of PCC and identified key aspects of dietetic care requiring practice improvements. Strategies are needed to bridge gaps between dietitians' and patients' perceptions and enhance PCC in dietetic practice. These findings suggest that dietitians should focus on individualizing nutrition care, gaining a holistic understanding of their patients and knowing/understanding each patient.

6.12 Introduction

The concept of patient-centred care (PCC) has been topical since the 1950s and is widely recognized as an essential component of health care^{1,2}. PCC refers to care that considers

patients' unique values, needs and preferences and is tailored accordingly^{3,4}. A number of dimensions of PCC have been described in the literature, including shared decision-making; clinician-patient relationship; personalized/individualized care; providing holistic care; and good clinician-patient communication⁵⁻⁷.

Patient-centred care has been associated with significant benefits for patients, particularly patients with chronic disease⁸⁻¹⁰. Benefits for patients include increased satisfaction, improved quality of life, enhanced engagement in care, improvements in biomedical markers of disease, reduced symptom burden (eg, reduced nausea, improvements in depression) and decreased healthcare utilization^{9,11-13}. Patients' desires for PCC have also been frequently documented¹⁴⁻¹⁷. Further, in the absence of PCC, patients have reported feeling disengaged, uncomfortable and uncertain about care plans, describe challenges with understanding the information provided and perceive care plans as unhelpful and unrealistic^{14,16,18}. Considering the benefits of and patients' desires for PCC, it is important that healthcare professionals adopt these practices. Dietitians are trained to support patients to achieve a healthy diet and lifestyle for the prevention and management of chronic disease¹⁹. However, findings from a systematic review of randomized controlled trials reported mixed evidence of dietitians being effective at helping patients decrease risk factors of chronic disease²⁰. The review suggested there is room for improvement regarding dietitians' practices. Since patient-centred practices by health professionals have been associated with significant benefits for patients in other contexts^{9,11-13} and are clearly valued by patients¹⁴⁻¹⁷ enhanced PCC in dietetics may contribute to dietitians' effectiveness in this area.

Gaining patients' feedback regarding their care experiences is essential to making meaningful improvements to health care^{1,21}. However, to effectively change practice, it is important to understand the perspectives of various stakeholders and any differences in their views²². Thus, the aim of this study was to compare patients' and dietitians' perceptions of PCC in dietetic consultations. This understanding will help identify any discrepancies between patients' and dietitians' perceptions, and aspects of care requiring improvements, to inform the development of strategies that align care with patients' needs and expectations, which is key to providing PCC.

A conceptual model of PCC in dietetic practice^{23,24} guided the selection of instruments to measure and compare patients' and dietitians' perceptions of PCC. The conceptual model comprises five dimensions: (a) patient-dietitian communication—comprising a set of skills including rapport building, understanding patients' perspectives and demonstrating

empathy, for example; (b) shared decision-making— an interactive process where both parties contribute equally to the consultation and patients are actively engaged in decision-making; (c) caring patient-dietitian relationships—genuine, reciprocal relationships based on trust, respect and understanding; (d) knowing the patient/dietitian—involves dietitians gaining knowledge and understanding of their patients and patients feeling understood by the dietitian; and (e) providing holistic and individualized care—dietitians gain a holistic understanding of the patient and individualize care to patients’ unique needs, values and preferences.

6.13 Methods

A cross-sectional survey was undertaken between November 2017 and May 2018. The approval was obtained from the institution’s Human Research Ethics Committee (REF: 2017/730).

Sample and setting

Participants were as follows: (a) patients who were ≥ 18 years, English speaking and had attended at least one individual dietetic consultation with an Accredited Practising Dietitians (APD) working in primary care in Australia and (b) Australian APDs who self-reported previous or current experience working as a dietitian in primary care.

Six dietetic practices across Queensland (n = 3), New South Wales (n = 2) and Victoria (n = 1) participated in the recruitment of patients to complete the survey. While some practices employed multiple dietitians, other practices comprised a single dietitian working independently.

Measures

The recently validated patient²³ and dietitian versions²⁴ of an inventory to measure PCC in dietetics were used in this study. The inventory was comprised of five previously validated scales, modified slightly to reflect the dietetic context (eg ‘doctor’ or ‘nursing staff’ replaced with ‘dietitian’).

The Communication Assessment Tool: A 14-item self-report measure of patients’ perceptions of their physicians’ communication skills with a five-point response scale ranging 1 (poor) to 5 (excellent)²⁵. Example items include the following: the dietitian

greeted me in a way that made me feel comfortable; treated me with respect; and showed interest in my ideas about my health.

The 9-item Shared Decision-Making Questionnaire (patient and physician version): A 9-item self-report measure of patients' and physicians' perceptions of shared decision-making, respectively, with a six-point response scale ranging 0 (completely disagree) to 5 (completely agree)^{26,27}. Example items include the following: my dietitian wanted to know exactly how I wanted to be involved in making decisions; told me that there are different options to address my nutrition care; and clearly explained the advantages and disadvantages of different options.

The Patient-Doctor Depth of Relationship Scale: An 8-item self-report measure of patients' perceptions of the physician-patient relationship with a five-point response scale ranging 0 (disagree) to 4 (totally agree)²⁸. Example items include the following: I know this dietitian well; this dietitian knows me as a person; and this dietitian really knows how I feel.

The Seeing the Individual Patient sub-scale (from the Schmidt Perception of Nursing Care Scale): A 5-item self-report measure of patients' perceptions of nursing staffs' provision of individualized care with a five-point response scale ranging 1 (strongly disagree) to 5 (strongly agree)²⁹. Example items include the following: the dietitian treated me like a special person; I knew my dietetic care was specifically tailored to my needs; and the dietitian took time to find out more about me as a person.

The Providing Holistic Care sub-scale (from the Person-Centred Practice Inventory-Staff): A 3-item self-report measure of nursing staffs' perceptions of holistic care with a five-point response scale ranging 1 (strongly disagree) to 5 (strongly agree)³⁰. Example items include the following: my dietitian strives to gain a sense of me as a whole person; assesses my needs, taking account of all aspects of my life; and took time to find out more about me as a person.

For this study, only items that had comparable results for both the patient and dietitian versions during psychometric testing^{23, 24} were included in analyses so that accurate comparisons could be made. For example, results from factor analysis revealed that Communication Assessment Tool (CAT) items 6, 11 and 14 loaded strongly on the

communication factor in the patient sample but failed to load strongly on any component in the dietitian sample. Therefore, these items were excluded for the purpose of this study. A total of 29 items were included from a potential total of 39 items (for details, refer to Table 6.9)

Table 6.9: Characteristics of the modified 29-item inventory used in this study

Label	Scale(s) included	No. of items	Factor loadings (range) ^a		Cronbach's α ^b		Inter-item correlations range ^c	
			Dietitian (n=180)	Patient (n=133)	Dietitian	Patient	Dietitian	Patient
Patient-dietitian communication	CAT (items 1-5, 10, 13)	7	.528 - .871	.594 - .954	0.84	0.94	0.34-0.61	0.55-0.84
Shared decision-making in dietetics	SDM-Q-9 (items 2-9)	8	.623 - .888	.553 - .984	0.91	0.96	0.44-0.73	0.61-0.88
Holistic, individualised dietetic care	SPNCS (items 1-5) and PCPI-s (items 1-3)	8	.586 - .967	.666 - .897	0.91	0.95	0.42-0.86	0.57-0.89
Knowing the patient/dietitian	PDDRS (items 1-3)	3	.737 - .828	.416 - .949	0.82	0.87	0.58-0.62	0.55-0.86
Caring patient-dietitian relationships	PDDRS (items 5-7)	3	.647 - .864	.633 - .892	0.73	0.91	0.33-0.56	0.70-0.82

CAT, Communication Assessment Tool; PCPI-s, Person-centred practice inventory- Staff (Providing Holistic Care sub-scale); PDDRS, Patient-Doctor Depth of Relationship Scale; SDM-Q-9, 9-item Shared Decision-Making Questionnaire; SPNCS, Schmidt Perception of Nursing Care Survey (Seeing the Individual Patient sub-scale).

Criteria: ^a Loadings ≥ 0.45 considered significant; ^b Cronbach's alpha ≥ 0.70 ; ^c Correlations ≥ 0.3 (with >0.70 indicating potential item redundancy)

Data collection

Dietitians briefly explained the study to consecutive, eligible patients, with a description provided by the research team. Patients who were willing to participate were provided with the research pack at the end of the consultation. The research pack included the inventory, demographic questions, participant information sheet and a reply-paid envelope. Participants were instructed to complete the survey at a convenient time and return the survey to the research team via the reply-paid envelope.

Several strategies were employed to distribute the survey to dietitians. The survey was distributed in the form of an e-survey via the Dietitians Association of Australia (DAA) weekly member email, the Dietitian Connection weekly e-newsletter and several dietetic specific social media sites. Three reminder emails were distributed via both the DAA member email and Dietitian Connection e-newsletter during the data collection period. A paper-based version was also distributed at an annual dietetic seminar (Dietitians Unite). For both patients and dietitians, completion of the survey implied consent.

Data analysis

Data were entered into Statistical Package for the Social Sciences (SPSS) version 24 (IBM, Chicago, IL, USA) and subject to data cleaning. There were no missing data for the dietitian survey, and very few missing data for the patient survey (ranging 0.7% -3.8% for each item on the inventory and 0.75% -4.5% for demographic data).

Exploratory factor analysis was performed to evaluate the factor structure of the modified 29-item inventory, and Cronbach's alpha (criteria ≥ 0.70) was computed to evaluate the internal consistency of each scale³¹.

Descriptive statistics were analysed using absolute (numbers) and relative (%) frequencies of the total scores for each of the five scales, and to evaluate the distribution of the data (ie, skewness and kurtosis). Using the Shapiro-Wilk test³² continuous variables (participants' age, years' practice experience, hours worked per week and scale scores) were non-normally distributed and therefore analysed using median and interquartile range (IQR).

Total scores were computed for each scale of the inventory. The Mann-Whitney *U* test was used to determine whether there were differences in the median scores between patients and dietitians (ie, whether one group had values higher than the other)³³. Differences between patients and dietitians were considered statistically significant at or below $P < 0.05$.

6.14 Results

Four hundred and forty surveys were distributed to patients and 133 completed and returned the survey, representing a response rate of 30.2%. One-hundred and eighty dietitians completed the survey. An exact response rate was not possible to determine for dietitians as the survey was distributed anonymously to all Australian APDs who were members of the DAA (>6800 members)³⁴. While the survey was not distributed exclusively to dietitians who worked in primary care, only those with experience working in primary care were asked to complete the survey.

Patients' and dietitians' median (IQR) age was 61 (23) and 34 (19) years, respectively. Eighty (60.6%) patients and 178 (98.9%) dietitians were female. Most patients reported being born in Australia (85.5%) and the UK (7.6%). Five participants reported being born in Europe (3.8%), and one each in the United States, Canada, China, Africa and New Zealand. Eighty-six (67.2%) patients reported having a regular dietitian. Dietitians reported a median (IQR) of 8 (18.0) years of experience working as a dietitian and worked a median (IQR) of 27.5 (23.0) hours per week as a dietitian. Eighty-two (46.6%) dietitians reported having additional training beyond graduation; open responses indicated additional training included a certificate or diploma (eg, paediatric nutrition, diabetes education, counselling, sports nutrition, business management); courses or workshops (eg, motivational interviewing, FODMAPs, non-diet approach, cognitive behavioural therapy); and/or an Honours, Masters or Doctorate degree.

Factor analysis supported the five-dimensional structure of the modified inventories and all scales demonstrated good reliability (Table 6.9)³¹. There were statistically significant differences between patients and dietitians on each scale in the inventory, except for "patient-dietitian communication" (Table 6.10). Patients reported significantly higher median scores compared to dietitians for "shared decision-making," but significantly lower scores for "providing holistic and individualized care," "knowing the patient/dietitian" and "caring patient-dietitian relationships" (Table 6.10). Despite these statistically significant differences, scores were relatively high across all scales for both groups.

Table 6.10: Results of Mann-Whitney *U* test comparing total scores for all 5 scales between patients (n=133) and dietitians (n=180)

Scale	No. Items	Possible range	Median (IQR) score		<i>U</i>	p (2-tailed)
			Patient (N=133)	Dietitian (N=180)		
Patient-dietitian communication	7	7 - 35	35.0 (5)	33.0 (4)	10480	.130
Shared decision-making in dietetics	8	0 - 40	33.0 (14)	32.0 (7)	9233	.004
Holistic and individualised dietetic care	8	8 - 40	36.0 (8)	38.5 (5)	9464	.005
Knowing the patient/dietitian	3	0 - 12	8.0 (5)	9.0 (2)	9189	.001
Caring patient-dietitian relationships	5	0 - 12	11.0 (3)	11.0 (2)	9923	.009

Significant *P*-values (<0.05) are bolded; IQR= Interquartile Range; *U*=Mann-Whitney *U* statistic

6.15 Discussion

To our knowledge, this study is the first to compare patients' and dietitians' perceptions of PCC in dietetic practice. We have gained an initial understanding of differences between patients' and dietitians' perceptions. These findings suggest that work is needed to address these discrepancies to ensure care is aligned with patients' needs and expectations.

It is important to note that the Mann-Whitney *U* test can detect differences in spread even when the differences in median values are small³⁵. This may have contributed to the significant differences observed between dietitians' and patients' median scores despite scores being relatively high overall. The spread of scores for patients was greater than for dietitians. Thus, patients may have been a less homogenous group compared to dietitians regarding their perceptions of PCC in dietetic consultations.

There are several factors that may have influenced the greater variability observed among patients' scores. For example, there may have been differences between dietetic practices relating to the model of care, dietitians' caseload and continuity of patient-dietitian assignment (eg, one-third of patients reported not having a regular dietitian). It is also possible that patients' characteristics (such as age, gender and reason for visiting the dietitian) influenced the variability in patients' responses, though we were unable to control for these factors in our analyses. Further, patients' preferences for and perceived relevance of specific aspects of PCC may have influenced their interpretation of items. It may be beneficial for future research to explore some of these factors further.

Patients' rated dietitians significantly lower for providing holistic and individualized care. Items on this scale relate to skills/ behaviours such as treating patients uniquely, tailoring care specifically to patients' needs and taking the time to find out more about the patient as a person. This finding shares similarities with a previous qualitative study conducted in Australia involving semi-structured interviews with 11 patients who had attended consultations with dietitians working in primary care³⁶. Participants emphasized the need for dietitians to explore and understand the unique factors influencing patients' health and illness (eg, living situation, budget) and some patients explained that non-individualized resources and strategies were unhelpful and unrealistic³⁶. Further, in a cross-sectional study conducted in the UK, only 11% of dietitians reported considering the extent to which written information accounted for patients' individual needs³⁷. Providing individualized care is important to patients and is also a key component in professional

standards for dietitians³⁸⁻⁴⁰. To provide a positive and helpful experience for patients, it is important to address differences in patients' and dietitians' perceptions of the provision of holistic and individualized care.

Both patients' and dietitians' scores were not particularly high for "knowing the patient/dietitian." Items on this scale related to patients and dietitians knowing one another, dietitians knowing each patient as a person, and understanding how their patients feel. It is possible that continuity of patient-dietitian assignments may have influenced the lower scores for this dimension of PCC; one-third of patients reported not having a regular dietitian, a factor that is likely to influence the extent to which patients and dietitians know and understand one another. The patient-health professional relationship is an integral component of PCC⁵. Further, the importance of positive patient-dietitian relationships has been emphasized by patients^{36,41} and referred to by international dietetic professional standards³⁸⁻⁴⁰. Clearly, it is important to consider strategies for dietitians to foster and maintain good relationships with patients, including considering strategies that might work when time is limited, and patients are unlikely to regularly visit the dietitian. If good relationships are developed, this may encourage patients to engage in on-going care with their dietitian.

Patients rated dietitians significantly higher regarding shared decision-making compared to dietitians' self-ratings. Aspects of shared decision-making captured by the 9-item Shared Decision-Making Questionnaire (SDM-Q-Doc/SDM-Q-9) include the following: dietitians and patients discussing the advantages and disadvantages of different nutrition care options; dietitians helping patients understand the information and eliciting patients' preferences for the different options; and dietitians and patients selecting nutrition care options together. This finding is unexpected given evidence from previous studies. For example, two previous observational studies found the level of shared decision-making in dietetic consultations to be quite low; shared decision-making was assessed with the OPTION scale (observing patient involvement in decision making), and the mean OPTION scores were 28%⁴² and 29%⁴³ out of a possible 100% (ie, 0% = no patient involvement in the decision; 100% = high patient involvement). Further, findings from a recent qualitative study indicate that patients sometimes perceive dietitians as being dictatorial and controlling the encounter, inhibiting patients' participation in decision-making³⁶. It is important to note that patients have traditionally been "passive" recipients of care, with healthcare professionals assuming the "expert" role⁴⁴. Therefore, if patients have limited experience with being actively involved in care, their expectations regarding

their level of involvement may be low⁴⁴ and this may partly explain patients' high overall ratings in this study. However, it is also possible that the group of dietitians whom patients were referring to were particularly skilled in shared decision-making practices, and/or that patients' subjective ratings of dietitians shared decision-making behaviours were more "generous" than observational data.

There are several factors that may influence dietitians' perceptions of their shared decision-making practices. In a qualitative study exploring dietitians' salient beliefs regarding shared decision-making, dietitians perceived that time constraints, disapproval from physicians and patient factors (eg, patients' personalities, motivation, level of understanding) were barriers to engaging patients shared decision-making⁴⁵. These barriers were also identified in an observational study using the OPTION scale; dietitians' likelihood of adopting shared decision-making was influenced by the patient's health condition, lifestyle habits and having insufficient time⁴². It is also possible that dietitians' attitudes towards shared decision-making influenced their responses; dietitians have previously described potential disadvantages of presenting options to patients, such as making patients feel less secure and increasing dietitians' feelings of incompetence⁴⁵. Further, dietitians do not always agree with the importance of recognizing patients' as experts in their own nutrition care⁴⁶.

It is possible that discrepancies between patients' and dietitians' perceptions were influenced by differences in the group of dietitians who responded to the survey, and the group of dietitians whom patients were evaluating. We recommend that future research sample dyads of patients and dietitians whereby they both complete the survey individually following the consultation. This would allow individual dietitians to better understand their own strengths and weaknesses regarding their PCC practices. It could also help dietitians to develop their own practice improvement goals and establish practical strategies, perhaps with input from mentors/peers, as to how they can advance their skills in specific areas. If this was performed across several sites/dietetic practices, it would also be possible to combine the results to highlight areas that are consistent "weaknesses" across different practices and signal opportunities for group education/quality improvement.

Strengths and limitations

A strength of this study is the use of valid and reliable patient-and dietitian-reported inventories. Further, the anonymous, self-administered nature of the survey was designed

to reduce response bias and maximize honesty, and both surveys were able to be completed at a time most convenient to participants, without the influence of others. To reduce the risk of dietitians distributing patient surveys selectively (eg, giving surveys to patients who would provide a desirable assessment), dietitians were instructed to invite consecutive patients, and it was clearly communicated to practices that individual dietitians would not be identifiable. However, we were unable to directly prevent or monitor this and therefore cannot say it did not occur.

These findings may not be generalizable to a larger population given the small sample size and response rate of only 30% for patients and low estimated response rate by dietitians; we were unable to determine an exact response rate for dietitians. Further, we do not know the characteristics of patients who did not complete the survey, nor their reason for not responding. Finally, there may be other factors that influenced patients and dietitians scores that we were unable to control for in the present study (eg, the patient's reason for attending the consultation and their health status, dietitians' recent experience prior to completing the survey, and their practice situation).

It is important to note that while patients were asked to rate the dietetic consultation in which they received the survey, dietitians rated their delivery of care in general and therefore may have been referring to any number of consultation experiences. This is not a direct comparison; patients may be referring to dietitians other than those who responded to the survey (ie, the sample of dietitians may or may not include the pool of dietitians whom recruited patients/ patients were reflecting on).

Finally, due to the violation of assumptions (eg, non-normality of continuous data, even after data transformation), we were unable to employ a robust method such as regression analysis to explore characteristics that might influence participants' scores. This may be an important gap for future research to address.

Practice / research implications

It is important that dietitians are made aware of these survey results along with suggestions on how to ensure patients' and dietitians' perceptions and experiences are aligned. Communicating these findings may stimulate dietitians' self-reflection and awareness regarding their PCC practices, providing an initial step to bridge any gaps between dietitians' and patients' perceptions. After all, a patient-centred healthcare professional should be self-reflective⁵. These findings could be incorporated into workshops and online webinars for continued professional development, including audio

or video learning tools; and in presentations/in services, particularly to those practices who participated in this study.

There is potential for the inventory to be used as a tool to stimulate dialogue between patients and dietitians regarding their perceptions of and preferences for PCC. For example, the inventory could be modified and used as a “checklist” of actions/behaviours. Dietitians and patients could then consider and discuss the importance of these actions/behaviours at the beginning of the consultation. This would provide dietitians and patients with a better understanding of one another’s needs and preferences.

Establishing a shared understanding at the beginning of the consultation may help foster positive relationships and collaboration between patients and dietitians. Further, providing patients with a tool that helps them articulate what is important to them gives patients an active role in ensuring their care is patient-centred, rather than dietitians being solely responsible for “fixing” or “improving” their practices. After all, PCC is about ensuring patients are actively engaged in their care.

While the inventory may have great practical value, additional research is needed. The validity of the inventory needs further evaluation. More work may also be needed to establish benchmarks/ minimally acceptable scores; what score signifies need for improvement; and the parameters for what is an acceptable score. Further, while the inventory allows patients and dietitians to report on the extent to which they experience PCC, it does not gauge how important these aspects of PCC are to respondents. Therefore, a valuable addition to the instrument may be inclusion of a section that allows respondents to describe or rate the importance of the different aspects. Understanding the value patients and dietitians place on PCC would give depth and context to these findings. Further, dietitians’ and patients’ perceptions regarding the effectiveness of the inventory as a learning and evaluation tool should be explored; while pilot interviews were conducted during the development phase^{23,24}. it may be necessary to evaluate the importance/usefulness of the inventory among a larger sample.

Conclusion

This study uncovered two key findings. Firstly, the results highlighted potentially important differences between patients’ and dietitians’ perceptions of PCC. Further, greater spread of scores for patients compared to dietitians may be indicative of patients varying preferences; it is important to check patients’ preferences and tailor care accordingly. Secondly, this study identified aspects of dietetic care that may require

practice improvements. In particular, patients' ratings were significantly lower compared to dietitians for "providing holistic and individualized care," "knowing the patient/dietitian" and "caring patient-dietitian relationships." Finally, these findings may promote self-reflection and awareness regarding PCC practices, and provide an initial step to bridge gaps between dietitians' and patients' perceptions.

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Conflict of interest

None.

Ethical approval

The approval was obtained from the institution's Human Research Ethics Committee (REF: 2017/730). Participation was voluntary and only non-identifiable data were collected. No incentive was provided.

References

1. Australian Commission on Safety and Quality in Healthcare. Patient-centred care: Improving quality and safety by focusing care on patients and consumers. Canberra, ACT: ACSQHC; 2010 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/01/PCCC-DiscussPaper.pdf>
2. World Health Organization. People-Centred Health Care: A Policy Framework. Geneva, Switzerland: WHO Regional Office for the Western Pacific; 2007 [cited 2018 May 25]. Available from: http://www.wpro.who.int/health_services/people_at_the_centre_of_care/documents/EN-G-PCIPolicyFramework.pdf
3. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press; 2001.
4. Harding E, Wait S & Scrutton J. The state of play in person-centred care: A pragmatic review of how personcentred care is defined, applied and measured, featuring

selected key contributors and case studies across the field. London, UK: The Health Foundation;2015 [cited 2018 May 25]. Available from:

<http://www.healthpolicypartnership.com/wp-content/uploads/State-of-play-in-person-centred-care-full-report-Dec-11-2015.pdf>

5. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one*. 2014;9(9):e107828.
6. Kitson A, Marshall A, Bassett K, Zeitz K. What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *J Adv Nurs*. 2013;69(1):4-15.
7. Sidani S, Fox M. Patient-centered care: clarification of its specific elements to facilitate interprofessional care. *J Interprof Care*. 2014;28(2):134-141.
8. Olsson LE, Jakobsson Ung E, Swedberg K, Ekman I. Efficacy of person-centred care as an intervention in controlled trials –a systematic review. *J Clin Nurs*. 2013;22(3-4):456-465.
9. McMillan SS, Kendall E, Sav A, et al. Patient-centered approaches to health care: a systematic review of randomized controlled trials. *Med Care Res Rev*. 2013;70(6):567-596.
10. Delaney C, Apostolidis B. Pilot testing of a multicomponent home care intervention for older adults with heart failure: an academic clinical partnership. *J Cardiovasc Nurs*. 2010;25(5):E27-E40.
11. Bertakis K, Azari R. Patient-centered care is associated with decreased health care utilization. *J Am Board Fam Med*. 2011;24(3):229-239.
12. Dwamena F, Holmes-Rovner M, Gauden M, et al. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database Syst Rev*. 2012;12:CD003267.
13. Kane P, Murtagh F, Ryan K, et al. The gap between policy and practice: a systematic review of patient-centred care interventions in chronic heart failure. *Heart Fail Rev*. 2015;20(6):673-687.
14. Raja S, Hasnain M, Vadakumchery T, Hamad J, Shah R, Hoersch M. Identifying elements of patient-centered care in underserved populations: a qualitative study of patient perspectives. *PLoS One*. 2015;10(5):e0126708.
15. Little P, Everitt H, Williamson I, et al. Preferences of patients for patient centred approach to consultation in primary care: observational study. *Br Med J*. 2001;322(7284):468.

16. Frosch DL, May SG, Rendle KA, Tietbohl C, Elwyn G. Authoritarian physicians and patients' fear of being labeled 'difficult' among key obstacles to shared decision making. *Health Aff.* 2012;31(5):1030-1038.
17. Kvåle K, Bondevik M. What is important for patient centred care? A qualitative study about the perceptions of patients with cancer. *Scand J Caring Sci.* 2008(4);22:582-589.
18. Esmaeili M, Cheraghi MA, Salsali M. Cardiac patients' perception of patient-centred care: a qualitative study. *Nurs Crit Care.* 2016;21(2):97-104.
19. Slawson DL, Fitzgerald N, Morgan KT. Position of the Academy of Nutrition and Dietetics: the role of nutrition in health promotion and chronic disease prevention. *J Acad Nutr Diet.* 2013;113(7):972-979.
20. Mitchell LJ, Ball LE, Ross LJ, Barnes KA, Williams LT. Effectiveness of dietetic consultations in primary health care: a systematic review of randomized controlled trials. *J Acad Nutr Diet.* 2017;117(12):1941-1962.
21. Foot C, Gilbert H, Dunn P, et al. *People in Control of their Own Health and Care: The State of Involvement.* London, UK: King's Fund; 2014 [cited 2018 May 25]. Available from:
https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/people-in-control-of-their-own-health-and-care-the-state-of-involvement-november-2014.pdf
22. Grol R, Bosch M, Hulscher M, Eccles M, Wensing M. Planning and studying improvement in patient care: the use of theoretical perspectives. *Milbank Q.* 2007;85(1):93-138.
23. Sladdin I, Chaboyer W, Ball L, Gillespie BM. Development and psychometric testing of a patient-reported inventory to measure patient-centred care in dietetic practice. 2019 (forthcoming).
24. Sladdin I, Gillespie BM, Ball L, Chaboyer W. Development and psychometric testing of an inventory to measure patient-centred care in dietetic practice: dietitian version. *J Hum Nutr Diet.* 2019.
25. Makoul G, Krupat E, Chang C-H. Measuring patient views of physician communication skills: development and testing of the Communication Assessment Tool. *Patient Educ Couns.* 2007;67(3):333-342.
26. Kriston L, Scholl I, Holzel L, Simon D, Loh A, Harter M. The 9-item Shared Decision Making Questionnaire (SDM-Q- 9). Development and psychometric properties in a primary care sample. *Patient Educ Couns.* 2010;80(1):94-99.

27. Scholl I, Kriston L, Dirmaier J, Buchholz A, Harter M. Development and psychometric properties of the Shared Decision Making Questionnaire–physician version (SDM-Q-Doc). *Patient Educ Couns.* 2012;88(2):284-290.
28. Ridd MJ, Lewis G, Peters TJ, Salisbury C. Patient-doctor depth-of- relationship scale: development and validation. *Ann Fam Med.* 2011;9(6):538-545.
29. Schmidt L. The development and testing of a measure of patient satisfaction within nursing care. Florida, University of Maimi; 2001.
30. Slater P, McCance T, McCormack B. The development and testing of the person-centred practice inventory-staff (PCPI-S). *Int J Qual Health Care.* 2017;29(4):541-547.
31. Hair JF, Black WC, Babin BJ, et al. Factor analysis. In *Multivariate Data Analysis*, 6th edn. Upper Saddle River, NJ: Pearson Prentice Hall; 2006:101-161.
32. Ghasemi A, Zahediasl S. Normality tests for statistical analysis: a guide for non-statisticians. *Int J Endocrinol Metab.* 2012;10(2):486-489.
33. Pallant J. *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*, 4th edn. Maidenhead, UK: Open University Press/McGraw-Hill;Crows Nest, NSW; 2010.
34. Dietitians Association of Australia. Dietitians Association of Australia annual report 2017-2018. 2018 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2018/10/Annual-Report-2017-June-2018.pdf>.
35. Hart A. Mann-Whitney test is not just a test of medians: differences in spread can be important. *Br Med J.* 2001;323(7309):391.
36. Sladdin I, Chaboyer W, Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet.* 2017;31(2):188-196.
37. Prince AC, Moosa A, Lomer MCE, Reidlinger DP, Whelan K. Variable access to quality nutrition information regarding inflammatory bowel disease: a survey of patients and health professionals and objective examination of written information. *Health Expect.* 2015;18(6):2501-2512.
38. Dietitians Association of Australia. National competency standards for dietitians in Australia. 2015 [cited 2018 May 25]. Available from: <https://daa.asn.au/maintaining-professional-standards/ncs/>
39. The British Dietetic Association. The British Dietetic Association Annual Report 2014-2015. Birmingham, UK: BDA; 2015 [cited 2018 May 25]. Available from: <https://www.bda.uk.com/about/executive/annualreport2015>

40. Kieselhorst KJ, Skates J, Pritchett E. American Dietetic Association: standards of practice in nutrition care and updated standards of professional performance. *J Am Diet Assoc.* 2005;105(4):641-645.
41. Sladdin I, Ball L, Bull C, et al. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet.* 2017;30(4):453-470.
42. Vaillancourt H, Légaré F, Gagnon MP, Lapointe A, Deschênes SM, Desroches S. Exploration of shared decision-making processes among dietitians and patients during a consultation for the nutritional treatment of dyslipidaemia. *Health Expect.* 2015;18(6):2764-2775.
43. Vaillancourt H, Légaré F, Lapointe A, Deschênes SM, Desroches S. Assessing patients' involvement in decision making during the nutritional consultation with a dietitian. *Health Expect.* 2014;17(4):545-554.
44. Epstein RM, Street RL. The values and value of patient-centered care. *Ann Fam Med.* 2011;9(2):100-103.
45. Desroches S, Lapointe A, Deschênes S-M, Gagnon M-P, Légaré F. Exploring dietitians' salient beliefs about shared decision-making behaviors. *Implement Sci.* 2011;6(1):57.
46. MacLellan D, Berenbaum S. Canadian dietitians' understanding of the client-centered approach to nutrition counseling. *J Am Diet Assoc.* 2007;107(8):1414-1417.

Chapter 7

Conceptualising and Operationalising PCC in Dietetics

This chapter describes how this research has contributed to the conceptualisation and operationalisation of PCC in dietetics. It describes the development, empirical testing and revision of the conceptual model and how this work aligns with the process of conceptualisation inspired by Babbie (2015)¹²².

7.1 Conceptualising patient-centred care in dietetics

A significant contribution of this research is the conceptualisation of PCC in dietetic practice. “Conceptualisation” refers to developing a more specific and precise meaning for a given concept¹²². Figure 7.1 provides an overview of the conceptualisation process, which involved identifying and defining the dimensions of PCC (steps 1 and 2), producing the conceptual model (step 3), developing the operational definitions for each dimension (step 4), developing and testing an inventory among a sample of patients and dietitians (step 5), and producing the final conceptual model (step 6). Prior to this research there was a lack of clarity about the meaning of PCC in dietetics. Therefore, this body of work has addressed an important gap. The findings can be used to guide future research in this area, particularly since conceptualisation is essential in the initial stages of research and theory development¹²².

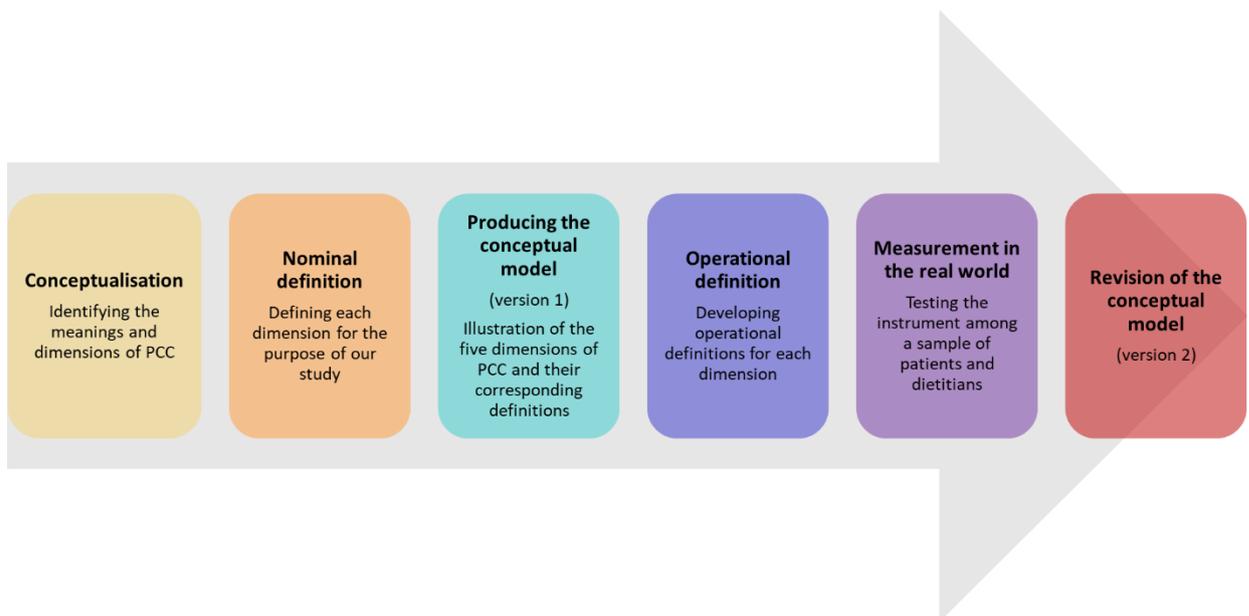


Figure 7.1: Process of conceptualisation. Inspired by Babbie (2015)¹²²

7.1.1 Developing the conceptual model

The initial conceptual model of PCC in dietetics (presented in Chapter 6) was devised from the general review of the literature, the integrative review and patient interviews as illustrated in Figure 7.1. It was comprised of the following five dimensions: “shared decision-making”, “patient–dietitian communication”, “providing holistic care”, “providing individualised care” and “patient–dietitian relationship”. Developing the initial conceptual model was an important part of conceptualising PCC in dietetics. It enabled information to be organised and integrated to provide a visual illustration of PCC and related dimensions relevant to the primary care dietetic setting. It is specifically focused at the micro level⁷⁵ – that is, dimensions of PCC that directly relate to what occurs during an individual consultation involving a patient and dietitian.

The process of developing the model began with a review of literature relating to PCC from medicine, nursing and allied health in the hospital and primary care settings (for details, refer to Table 2.1, Chapter 2)^{75, 92, 93}. An integrative review was then conducted to synthesise literature relating to PCC in the dietetic setting (Chapter 4, Phase I). Next, semi-structured interviews were undertaken with patients who had attended at least one dietetic consultation (Chapter 5, Phase II). This allowed the patients’ perspectives and experiences of PCC to be explored – an important part of conceptualisation¹²².

Findings from the integrative review and qualitative study share similarities with key texts reviewed in the initial stages^{75, 892, 93}. For example, themes identified in Phase I and II - “fostering and maintaining caring relationships” and “establishing a positive dietitian–patient relationship” (Phase II) are similar to the concept of “relationship between the patient and the health professional” described in a narrative review⁹². Further, “individualising and adapting care” (Phase I) and “delivering individualised care” (Phase II) are similar to “patient as a unique person” captured in a systematic review and concept analysis of PCC⁷⁵. The researcher and her team identified common themes arising from these studies and agreed on and assigned nominal definitions for the five dimensions of PCC (illustrated in the initial conceptual model). Nominal definitions are definitions that represent consensus about the meaning of a term¹²².

7.1.2 Operationalising patient-centred care

The lack of a clear definition for PCC makes it challenging to develop high-quality measurement instruments^{40, 88}. The conceptual model, in combination with themes arising from the first two studies, facilitated the operationalisation of PCC, meaning the process of specifying how a concept will be measured¹²². By clarifying and reaching agreement

on the five dimensions of PCC and their definitions, the researcher could select scales to operationalise each dimension and combine them in an inventory to measure PCC. Psychometric testing of the inventory then contributed to a deeper understanding and resulted in small changes to the conceptual model.

7.1.3 Empirical testing and revision of the model

The second version of the conceptual model was developed after findings from the factor analysis necessitated a slight re-specification. The model comprised five dimensions that vary slightly from the first model (Figure 7.2). “Shared decision-making” and “patient–dietitian communication” remaining unchanged. However, “providing holistic care” and “providing individualised care” were considered one dimension, while the “patient–dietitian relationship”, represented two: “knowing the patient/dietitian” and “caring patient–dietitian relationships”.

This research clarified the meaning of PCC in dietetic practice according to relevant literature and patients’ and dietitians’ perspectives^{93,123-125}. The activities/behaviours comprising each component are specified by the items making up the inventory. Therefore, the conceptual model and inventory provide a kind of scaffold for the application of PCC in practice. It is important to note, however, that this is not necessarily the final conceptual model. Conceptualisation and operationalisation are open-ended processes¹¹⁹ and there is opportunity for the model to evolve with further work.

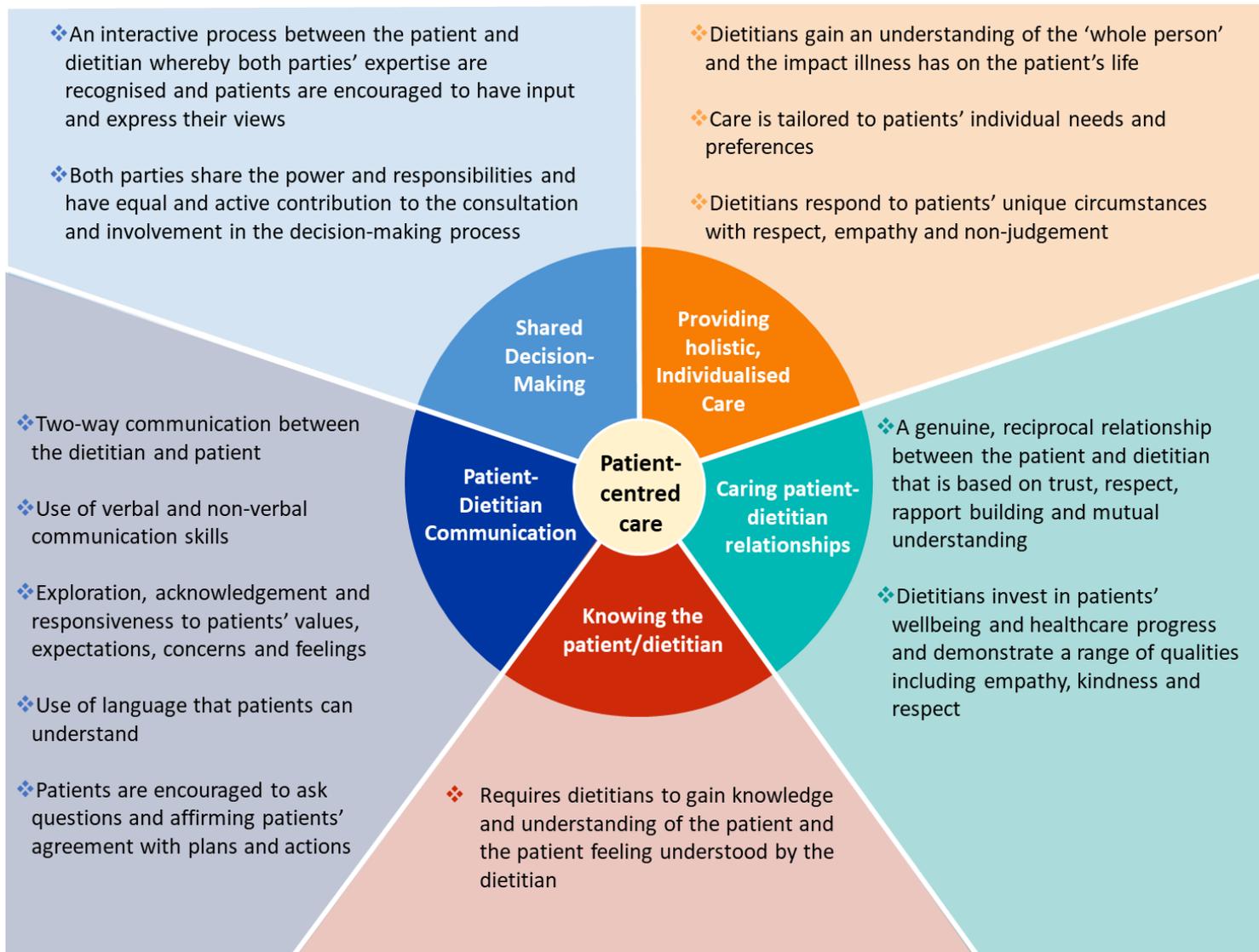


Figure 7.2: Revised conceptual model of PCC in dietetic practice following psychometric testing of the inventory

The process of conceptualisation outlined above transformed the meaning of PCC in dietetics from a vague idea to a specific concept with clear operational definitions for each dimension comprising PCC. Conceptualising PCC was an essential step in advancing the science in the context of dietetics. PCC has been described as a vague concept that is difficult to implement or measure⁴⁰. The issue is that varying and sometimes unrelated terms/descriptions have been used to refer to PCC. Further, PCC has been conflated with other models of care, such as motivational interviewing, narrative dietary counselling and the theory of planned behaviour in the dietetic setting^{112, 123}. The findings presented in this thesis help clarify the meaning of PCC in dietetic practice and made it possible to operationalise this concept.

Chapter 8 Discussion

8.1 Preface

Findings from each phase of research are discussed comprehensively in chapters 4 to 6. This section does not reiterate previous discussion points, or repeat the limitations, implications and recommendations from each phase, but describes the overall contribution of this thesis and provide direction for future research, practice and education.

8.2 Overview of the studies in this thesis

The body of work presented in this thesis contributes to an enhanced understanding of PCC in dietetic practice. This was achieved through a series of studies, which involved exploring patients' perceptions and experiences of PCC, developing a conceptual model of PCC relevant to the primary care dietetic context, and developing and psychometrically testing a patient and dietitian-reported inventory to measure PCC in dietetic practice. Overall, this work advances the conceptualisation and operationalisation of PCC in the dietetic setting. Table 8.1 provides an overview of the studies included in this PhD.

Table 8.1: Overview of the aims and key findings of the studies comprising this PhD thesis

Study	Aim	Key findings
Phase I (paper 1 and evidence update)	To critically analyse and synthesise literature relating to patient-centred care in dietetics.	<ol style="list-style-type: none"> <li>1. Most studies were published between 2009 and 2019. Studies used a broad range of methodological designs, including qualitative focus groups and/or interviews, descriptive quantitative studies and intervention studies. <li>2. Six themes were identified: establishing positive dietitian–patient relationships; individualising and adapting care; displaying humanistic behaviours; redistributing power to the patient; lacking time for patient-centred practices; and using effective communication skills. <li>3. Dietitians can establish trusting relationships with patients by being empathetic, honest and supportive, and by using effective communication skills. Patients expressed a preference for care that is individualised to their unique needs and wants. Findings also suggest that shared decision-making between patients and dietitians requires power redistribution. Dietitians’ adoption of shared decision-making was influenced by their perceived ability to perform these practices, suggesting greater confidence may increase uptake. <li>4. Key barriers to delivering PCC in this setting were identified across the literature, including time and resource limitations, inadequate training and education relevant to PCC, and the lack of conceptual clarity regarding PCC. <li>5. Factors identified as facilitators of delivering PCC in this setting were regular education and training, having a designated leader or champion in the workplace, and PCC skills being a requirement as per professional standards.

6. Overall, research relating to PCC in dietetics is sparse, with only a small number of studies directly referring to PCC in their aims*. Important research gaps were identified, in particular, that the application of PCC in dietetics has not been investigated; intervention studies used mainly clinical outcome measures with a lack of patient-centred outcome measures; and no study specifically aimed to examine patients' understandings of PCC. These gaps highlighted areas for future research.

Phase 2 (paper 2) To enhance understandings of PCC in dietetics by exploring patients' perceptions and experiences of PCC in individual dietetic consultations.

1. Participants' overall views of PCC were consistent with existing definitions and dimensions.
 2. Four themes emerged: fostering and maintaining caring relationships; delivering individualised care; enabling patient involvement; and taking control of one's own health.
 3. Patients wanted dietitians to develop a holistic understanding of patients' backgrounds and factors influencing their health; to adapt advice and strategies to patients' unique circumstances; to be invested in their wellbeing; and to feel involved in decision-making.
 4. Non-individualised care was perceived as generic and inappropriate, and some patients perceived that dietitians controlled the encounter, viewing this as a barrier to patient involvement.
-

5. These findings contribute to future research by guiding the development of patient/user-informed instruments for measuring PCC and informing planning of patient-centred interventions in the dietetic setting.

Phase 3 (paper 3) To develop and psychometrically test a dietitian-reported inventory, underpinned by a conceptual model, for measuring PCC in dietetic practice.

1. Five factors were extracted from dietitian data, accounting for 56.9% of the variance. Most variables loaded strongly on only one factor but there were some differences between results from the factor analysis and the *a priori* hypothesised structure: items from the “Providing Holistic Care” and “Seeing the Individual Patient” sub-scales loaded on a single factor; items from the PDDRS loaded on two separate factors, and half of the CAT items did not load on their original factor.
2. Factors were labelled shared decision-making; holistic and individualised care; patient–dietitian communication; knowing the patient; and caring patient–dietitian relationships. Cronbach’s alpha (range 0.70–0.91) indicated good internal consistency.
3. Both the PDDRS and CAT represented multidimensional constructs, which may be attributed to differences between the characteristics of the sample and the setting compared to those of the original studies.
4. This study clarified dimensions of PCC relevant to individual dietetic consultations. The resulting inventory offers an instrument to measure PCC from the viewpoint of dietitians.

Phase 3 (Paper 4)	To develop and psychometrically test a patient-reported inventory to measure PCC in dietetic practice.	<ol style="list-style-type: none"> 1. Five factors were extracted from patient data, accounting for 78.4% of the variance. The rotated solution revealed a simple factor structure. All but one item loaded acceptably to strongly on only one factor. Similar to the dietitian version, the resulting 5-factor solution demonstrated some variations from the <i>a priori</i> hypothesised factor structure: items from both the “Seeing the Individual Patient” and “Providing Holistic Care” sub-scales loaded strongly on a single factor, and the PDDRS appeared multidimensional. 2. Factors were labelled patient-dietitian communication; shared decision-making; holistic and individualised care; knowing the patient/dietitian; and caring patient–dietitian relationships. Cronbach’s alpha (range 0.87–0.97) indicated good internal consistency, but also suggested some item redundancy. 3. This study addresses an important research gap as the first study to develop and psychometrically test a patient-reported inventory to measure PCC in individual dietetic consultations. The resulting inventory comprises five factors that represent five dimensions of PCC in dietetic practice.
Phase 3 (Paper 5)	To compare patients’ and dietitians’ perceptions of PCC in dietetic practice.	<ol style="list-style-type: none"> 1. Small but important discrepancies were found between patients’ and dietitians’ ratings for four of the five dimensions of PCC. Patients reported a significantly higher overall score for “shared decision-making” ($p=0.004$), but a significantly lower score for “providing holistic and individualised care” ($p=0.005$),

“knowing the dietitian”(p=0.001) and “caring dietitian-patient relationships” (p=0.009), than dietitians.

2. This study provides an initial understanding of differences between patients’ and dietitians’ perceptions of PCC. Work is needed to address these discrepancies to ensure care is aligned with patients’ needs and expectations.
3. The spread of scores for patients was greater than for dietitians, suggesting patients were a less homogenous group in terms of their perceptions of PCC. Variability in scores may have been influenced by patients’ characteristics, and differences between dietetic practices regarding the model of care; dietitians’ caseload and continuity of patient-dietitian assignment. These factors were out of the researcher’s control.

CAT = Communication Assessment Tool; PCC = patient-centred care; PDDRS = Patient-Doctor Depth of Relationship Scale

* The updated review identified seven studies that provided further evidence relevant to PCC.

Table 8.1 illustrates the findings from studies comprising this PhD, highlighting its contribution to new knowledge on the topic of PCC in dietetics. To summarise, this research discovered that:

- 1) prior to this body of work, PCC had not been widely researched in the dietetic setting;
- 2) PCC is clearly valued by both patients and dietitians, but patients do not always perceive that dietitians adopt this approach in practice;
- 3) there are small but important discrepancies between patients' and dietitians' perceptions of PCC in individual consultations;
- 4) strategies to enhance PCC by dietitians should first focus on increasing understandings of PCC, then assist dietitians to better individualise care and establish caring relationships with patients based on knowledge and understanding.

This work developed a conceptual model that clearly describes PCC and the comprising dimensions, and a patient and dietitian-reported inventory that enables PCC to be evaluated in dietetic practice. Both are new contributions to the body of dietetic knowledge. The inventory also provides specific examples of how the dimensions of PCC can be enacted; it could be used as a checklist, with each item being an important skill/behaviour for dietitians to employ.

8.3 Strengths and limitations

The strengths and limitations of each phase of this study were discussed in previous chapters (i.e. publications). They are summarised below.

Phase I: A strength of Phase I was the inclusion of a wide variety of studies, which provided an in-depth exploration of PCC in dietetics. A limitation of any review of this nature relates to the potential for introducing bias due to the complexity of synthesising both qualitative and quantitative research. However, the quality of this review was maximised through use of the systematic and rigorous processes outlined by Whitemore and Knafel¹¹². The poor to moderate quality of included studies should be considered when interpreting findings.

Phase II: While the small sample size was a key limitation of Phase II, data analysis commenced from the beginning of data collection and indicated data saturation was

reached (i.e. no new themes were arising). Another strength of this phase was its approach to maximum variation, which enabled participants with a broad range of demographic characteristics to be sampled to obtain varied perspectives. The interview guide was developed based on findings from Phase I, literature from other healthcare contexts, and was pilot tested. Finally, the six phases of thematic analysis were employed, which provided a systematic and iterative approach to data analysis and a deeper understanding of PCC. The lack of generalisability of findings is a limitation of this study, as with most qualitative studies.

Phase III: A key strength of this phase was the careful selection of valid and reliable scales that aligned with the conceptual model. This contributed to the promising psychometric properties of the inventory and was also more cost and resource effective than developing an inventory from scratch. Minimal missing data also suggests good acceptability of the inventory, which may be attributed to the careful design and prior cognitive testing. A limitation to this study was the potential for response bias due to the self-report nature of the instruments. However, attempts were made to reduce this (e.g. making it self-administered and anonymous). While the sample size was not large enough to meet minimum recommendations for factor analysis (i.e. 5 participants for every item on the inventory), the simple factor structure made this less of a concern. Nevertheless, findings may not be generalisable to a larger population due to the low response rate and inability to obtain characteristics of participants who did not complete the survey or their reasons for not responding.

More broadly, the sequential, multi-phased design is a key strength of this thesis. It allowed the researcher to identify, and subsequently address, key gaps requiring further exploration. The use of multiple methods (i.e. integrative review, qualitative and quantitative research methods) allowed the phenomenon to be investigated from different viewpoints, presenting a more holistic understanding of PCC. Further, it enabled the limitations of one method to be compensated for by the strengths of another (i.e. methodological triangulation)¹²⁷. Finally, the strong conceptual basis is a unique strength of this research; failure to conceptualise PCC has been a significant limitation of previous research in dietetics. The conceptual model and inventory developed through this research will help others avoid this issue in future.

8.4 Next steps

Prior to this PhD, PCC had not been widely investigated in the dietetic context. This research has provided unique findings relating to PCC, yet there are still important gaps that require further investigation. Therefore, this section presents a discussion of potential next steps to address these gaps, which are producing further evidence of the inventory's validity and reliability and continued conceptualisation of PCC in dietetics; undertaking research to provide evidence of the effectiveness of PCC in dietetics in terms of outcomes for patients, practitioners and healthcare services; using the inventory to generate patient experience data, including systems for collecting and reporting these data; and consumer and community involvement in future research relating to PCC. The structure of this section reflects the order in which these steps should be taken. Additional psychometric testing of the inventory and further development of the conceptual model is recommended prior to undertaking steps described in sections 8.3.2 to 8.3.5.

8.4.1 Continued conceptualisation and operationalisation of PCC in dietetics

Future research should continue to enhance the conceptualisation and operationalisation of PCC. This can be achieved through further development and psychometric testing of the inventory (e.g. use as an observer instrument, additional testing of construct validity)^{125, 126} and expansion of the conceptual model.

The explorative factor structure reported in Phase III can be cross-validated using confirmatory factor analysis (CFA). CFA tests the hypothesised factor structure using several fit statistics. Undertaking CFA will require a large sample size, with recommendations ranging from a ratio of at least 10 respondents per variable in a model or five respondents per model parameter¹³⁰. Thus, for a 39-item inventory, the sample size should be at least 390, but may need to be higher depending on the number of model parameters¹³⁰. Further, it is important that assumptions of CFA are met, particularly that of multivariate normality¹³¹⁻¹³³. Cross-validating the findings from Phase III will provide further empirical evidence of the inventory's construct validity¹²⁹.

Convergent validity can also be tested to provide further evidence of construct validity. Testing for convergent validity involves assessing whether scale scores for two measures of the same or similar constructs are positively correlated^{128, 129}; for example, testing

whether the SDM-Q-9 is significantly positively correlated with scores on another measure of shared decision-making, such as the Dyadic OPTION¹³⁴. This type of psychometric testing will require established measures to be identified for each of the five dimensions of PCC outlined in the conceptual model.

Testing hypotheses about the relationship between PCC and other relevant constructs is another way to evaluate construct validity. *A priori* hypotheses about the direction and magnitude of relationships between constructs are usually formulated based on available evidence¹²⁸. For example, Elwyn and colleagues assessed the construct validity of the OPTION instrument by testing several hypothetical constructs based on the literature (e.g. patient age, gender, and the qualifications of the clinician). They found that older age was negatively correlated with levels of involvement in decision-making¹⁰³. Higher OPTION scores have also been associated with physicians' social participation (i.e. involvement in committees) and patients status as employed⁴⁸. Authors of the Client-Centred Care Questionnaire (CCCQ) tested three hypotheses for construct validity: that CCCQ scores would be higher in women, people who were ≥ 80 years old and people with lower education. There was no significant difference in scores based on gender or age, but CCCQ scores were significantly lower for people with higher education than for people with primary/secondary education¹³⁵.

Additional testing for construct validity will require the following: a cross-sectional study design (similar to Phase III); a large sample size, for example $n \geq 390$; inclusion of additional outcome measures; and employment of dependence techniques, such as regression analysis, which allow researchers to assess the magnitude of the relationship between variables¹³¹. Undertaking this research will provide further evidence of the validity of the inventory and identify factors that influence PCC. These steps/recommendations are necessary for continued conceptualisation and operationalisation of PCC in dietetic practice.

When further testing is undertaken, item redundancy should also be considered. In this research, Cronbach's alpha values for some scales were >0.90 and inter-item correlations were high, suggesting some redundant items were candidates for exclusion¹³⁶. To avoid losing important information, the decision to omit items should be based on additional testing and feedback from end users. Removing redundant items will produce a more

parsimonious, user-friendly instrument. This will be particularly helpful in the practice setting, where time constraints are a barrier to applying outcome measures in practice¹³⁷. It would be useful to adapt and test the inventory as an observer instrument. This would require revision of items and additional testing for intra- and inter-rater reliability, for example, with a sample of audiotaped consultations. An observer instrument would make it possible to compare observational and self-report data and produce further evidence of dietitians' PCC practices. It could also be used for assessing dietitians' skills/competences, including for education, such as during OSCEs. It is important to note that while observer instruments avoid some of the limitations inherent to self-report instruments (e.g. social desirability bias), they can be more time and resource intensive, which may reduce their value in some settings (e.g. for systematic use by practitioners). The inventory could also be used and tested in other dietetic settings (e.g. secondary care). For example, a recent study of older malnourished patients' views of PCC in the hospital context concluded that there was a need for an instrument to measure PCC in this setting¹¹⁸. The non-specific nature of the inventory means it may be appropriate for other settings. In fact, the individual scales/sub-scales were originally developed for use in different practice contexts (i.e. primary care, secondary care, nursing and medicine), including internationally¹³⁸⁻¹⁴²). Using and testing the inventory in this way will produce an instrument that has established validity and reliability across multiple contexts and provide a broader understanding of the level of PCC practiced by dietitians. This data may also provide insight regarding potential differences in patients' and dietitians' expectations and perceptions of PCC between settings and patient populations.

To understand patients' and dietitians' preferences for PCC, the inventory could be adapted and used as a choice survey appropriate for a discrete choice experiment (DCE)¹⁴³. DCEs involve participants completing hypothetical choice tasks, and responses are analysed to estimate the value placed on varying dimensions/attributes¹⁴³. Undertaking a DCE would provide greater insight/evidence regarding patients' and dietitians' preferences for PCC.

The conceptual model could be further developed. The current model only captures dimensions that directly relate to the individual consultation (i.e. the "micro" level). It could be expanded to include dimensions that relate to the "meso" (e.g. access to care, coordination and continuity) and "macro" levels (e.g. legislation, policy and

accreditation)⁷⁵ to enhance/expand the conceptualisation of PCC in dietetics. There are several ways in which these other levels could be explored, including: expanding the inclusion criteria of future systematic literature reviews to capture multidisciplinary research articles (i.e. studies involving dietitians *and* other healthcare professionals), as well as those involving group-based interventions, for example; conducting a longitudinal study, following patients as they progress through the healthcare system over time to understand their experiences of access, continuity and coordination, as was done in Dowell et al.¹⁴⁴; conducting a policy document analysis, such as an in-depth review of dietetic professional standards for a deeper understanding of how the model might be incorporated within these standards; and employing structural equation modelling techniques to investigate relationships between micro, meso and macro dimensions of PCC¹³¹. Employing these approaches will expand the conceptualisation of PCC and result in a strengthened, more informative conceptual model.

8.4.2 Evaluating the effectiveness of PCC in dietetics

There is no evidence to support the contention that outcomes for patients will improve if dietitians adopt patient-centred practices. This needs to be the focus of future research. Limitations of previous research on this topic include a lack of valid outcome measures, studies being underpowered, and failure to adequately conceptualise PCC^{16, 17}. As discussed in chapter 7, the latter has particularly been an issue in dietetics.

The lack of conceptual clarity regarding PCC can be seen in the design of some patient-centred interventions¹⁴⁵⁻¹⁴⁷. For example, one study conducted in the US aimed to evaluate the effect of a “patient-centred nutrition counselling” method on changes in nutrient, anthropometric and clinical outcomes¹⁴⁵. The intervention resulted in significant benefits for patients, including improved dietary intake and weight loss compared to patients who did not participate in the intervention. However, these findings do not specifically support the effectiveness of PCC because the patient-centred component of the intervention was poorly conceptualised. Another example of this can be seen in a 12-month randomised clinical trial conducted in Brazil¹⁴⁶. The intervention was said to be based on a “client-centred approach”, but there was a lack of detail regarding the intervention design and the authors did not provide a clear conceptual definition, making it difficult to accept that the intervention was actually patient-centred¹⁴⁶. There are other examples of how research has been hindered by the lack of conceptual clarity regarding

PCC^{118, 147}. This may also explain why there is still a lack of research/evidence regarding the effectiveness of PCC in the dietetic context. This thesis provides a solid foundation for advancing research on this topic. The conceptual model provides a clear framework to ensure interventions are aligned with PCC, and the inventory provides a measure of PCC. Therefore, some of these limitations may be avoidable in future.

It is recommended that high-quality interventions are designed and tested to examine links between PCC and outcomes such as biomedical and psychosocial outcomes for patients⁸⁷. In accordance with the Medical Research Council Guidelines for Designing Complex Interventions, it is essential to first undertake careful planning and development^{148, 149}. This involves clarifying what is being evaluated, including formative evaluation (i.e. process outcomes) and summative evaluation (i.e. definitive outcomes), and drawing on prior evidence to inform hypotheses regarding how PCC can lead to specific outcomes^{149, 150}. Next, feasibility and piloting methods should be undertaken to evaluate the acceptability, demand, practicality, fidelity, adaptation and reach of interventions, for example¹⁴⁹. For the evaluation phase, the choice of experimental or non-experimental method needs to be specified and justified (e.g. parallel group randomised controlled trial, cluster randomisation or a stepped wedge design). Protocols should be based on theory, clear enough to be reproducible, adequately controlled, and involve samples large enough to provide appropriate statistical power¹⁵¹. Developing and testing high-quality interventions could produce evidence that dietitians' use of a patient-centred approach can lead to improvements for patients. If this occurred, it would encourage dietitians to engage in these behaviours, enable the dietetic profession to lobby governments for greater funding, and ultimately, ensure patients are receiving higher-quality, effective care.

8.4.3 Application of PCC techniques in the healthcare setting

Further research is needed to determine if interventions to train dietitians and patients in PCC produce improvements in PCC scores. The patient and dietitian-reported inventories described in this thesis could be used to evaluate any changes/improvements. However, it is important to assess the stability of the inventory first (e.g. test-retest reliability); this would involve administering the inventory on two occasions (usually close enough in time that the construct of interest will not have changed) and evaluating whether scores were similar¹⁵². This should be considered by researchers undertaking additional

psychometric testing of the inventory. Training for providers has shown to be successful in transferring PCC skills in other healthcare settings¹⁶. For example, a systematic review found that interventions designed to enhance shared decision-making were associated with health professionals achieving higher scores for involving patients in decision-making (i.e. OPTION scores)¹⁰⁸. Training patients to be more actively involved in their care processes has also been shown to be effective, assisting patients to elicit information and have greater input^{28, 88}. Evidence from a study like this would also provide information about the best way to educate/train patients and dietitians in PCC practices.

8.4.4 Using patient experience data

This work aligns with the move toward patient-reported experience measures (PREMS)¹⁵³. Systematic reporting of patient experience data is currently being undertaken internationally to measure, evaluate and subsequently improve health care quality. In some cases, patient experience data are used to inform the distribution of public funds (e.g. through pay-for-performance programs)^{153, 154}. The lack of appropriate instruments to measure and monitor patients' experience of PCC is a frequently described barrier in healthcare⁸⁶, including by dietitians in a recent qualitative study¹¹⁵. The inventory captures important aspects of patient experience as outlined by a systematic review¹⁵³, such as patient–dietitian communication and patient involvement (one aspect of patient experience). Therefore, this work has contributed to the availability of PREMs in the dietetic setting. This section provides recommendations for using the inventory to gather patient experience data¹⁵⁴.

The inventory could be used to systematically collect patient experience data relating to PCC in dietetic practice. This was a key ACSQHC recommendation⁸ and healthcare organisations have described it as an important enabler for patient-centred practices³⁷. Advocating for use of the inventory in this manner will require engagement of key spokespersons (e.g. well-known dietitians) and promotion of the inventory by dietetic professional organisations (e.g. the Dietitians Association of Australia and Dietitian Unite). It is also important to devise systems that enable appropriate and sustainable practices, such as offering patients the opportunity to provide feedback in the waiting room after a consultation. These data have the potential to improve healthcare practices, particularly when provided regularly¹⁰⁵. Obtaining patient feedback recurrently will highlight aspects of care requiring improvements to minimise discrepancies between

patients' and dietitians' experiences⁸⁵. Patient feedback can inform valid, appropriate and sustainable service improvements, and enables patients to express their preferences for PCC.

Analysis and interpretation of patient experience data is a vital step in ensuring these data are utilised. One way to ensure patient experience data is understandable to stakeholders is to compare results with prior information – such as data from similar organisations – to determine whether their organisation, practice, or department is performing better or worse than others. It is recommended that these data are complemented by qualitative patient feedback (e.g. interviews, focus groups). Data can also be benchmarked against historical data to provide evidence of service improvements/outcomes over time. The patient-reported inventory needs to be used across a variety of settings over time, so that data are available for such analyses and interpretation.

It is also essential that patient experience data are disseminated widely, using a variety of media. This can involve communicating findings to staff and patients internally (e.g. during in-services, discussion of findings at departmental, staff or ward meetings); to the broader public via posters, reports, online publication and/or via the press; and explaining results to clinical/practice managers. Patient and public involvement may be particularly helpful for the dissemination of findings (discussed in more detail below). Any of these strategies will require appointment of personnel to undertake this task regularly. This is a critical step in ensuring research findings translate into effective, sustained practice improvements.

8.4.5 Patient and public involvement in future research

Individuals undertaking research relevant to PCC should consider consumer and community participation (also referred to as patient and public involvement), which aligns with the principles of PCC. Both concepts focus on enhancing patient engagement, ensuring relevance and value to meet the needs of end users, overcoming the expert-driven nature of healthcare services, and bridging the gap between what researchers and practitioners think is important and what patients know to be important based on their lived experience^{155, 158}. Consumer and community participation can range from involvement as study participants to collaborating with researchers and initiating and conducting research¹⁵⁵. Approaches shown to be effective include consumer and community consultation forums, and organised workshops involving researchers,

clinicians, consumers and policymakers. Consumers and the community can be accessed via several means, including disease-specific social networks and consumer/community advisory groups¹⁵⁷.

There are important benefits to engaging consumers and the community in research^{155, 157, 158}. For example, consumers and community members can assist with participant recruitment, thanks to good links to the community and insight about effective and relevant strategies. They can also contribute to the development of user-friendly instruments by providing valuable feedback on wording, salience and relevance of questionnaire items and the acceptability and cultural sensitivity of instruments^{155, 157}. Further, this approach can give people a sense of ownership and therefore increase their likelihood of implementing research outputs in practice. Consumers and community members can be particularly effective for disseminating research findings. For example, when presenting findings at seminars and conferences, they can reflect on their personal experiences to make them more relatable and understandable to the layperson¹⁵⁷. Finally, consumer and community participation can have important implications for funding. Some funding bodies now involve consumers and community members in review panels to identify acceptable research proposals, and require evidence of planning for consumer and community participation in research and/or ensuring research findings are disseminated to consumers and community members¹⁵⁵. Overall, consumer and community participation can enhance the validity, applicability and effectiveness of healthcare research¹⁵⁷. Therefore, this approach should be considered when undertaking future research relevant to PCC.

8.5 Conclusion

Patient-centred care is an integral component of high-quality care. Despite increasing emphasis on ensuring healthcare systems are patient-centred, limited research had been conducted in dietetics. To enhance understandings of PCC in dietetics, this research involved synthesising literature relating to PCC in dietetics and identifying any gaps requiring further exploration; exploring patients' perceptions and experiences of PCC in dietetics; developing and psychometrically testing a patient and dietitian-reported inventory to measure PCC in dietetics; and comparing patients' and dietitians' experiences of PCC. Overall, this research suggests clearly that both patients and

dietitians value PCC. However, patients do not always perceive that dietitians adopt this approach in practice, and there are small but important differences between patients' and dietitians' perceptions of PCC.

This research contributes important new knowledge relevant to PCC in dietetics and provides a solid foundation for future work in this area. Specifically, by developing a sound conceptual model of PCC and a patient and dietitian-reported inventory, this work has enhanced our ability to conceptualise and operationalise of PCC in dietetics. In future, the inventory can be used to identify opportunities for practice improvements; the conceptual model can assist in aligning dietetic curricular and practice standards with PCC; and both can support researchers undertaking studies of the effectiveness of PCC in dietetics.

Finally, it is imperative that dietitians reflect on the ways in which they use a patient-centred approach in their practice. Dietetic practice does not only include advice about healthy eating and lifestyle choices, it encompasses a holistic and compassionate approach, one that may make an indelible mark on patients' healthcare experience and subsequent quality of life.

References

1. Balint E. The possibilities of patient-centred medicine. *J R Coll Gen Pract.* 1969;17(82):269-76.
2. Beatrice DF, Thomas CP, Biles B. Essay: Grant Making With An Impact: The Picker/Commonwealth Patient-Centered Care Program: A successful multimillion-dollar program offers lessons to grantmakers about how a foundation can advance a field. *Health Aff.* 1998;17(1):236-44.
3. Gerteis M, Edgman-Levitan S, Walker JD, Stoke DM, Cleary PD, Delbanco TL. What patients really want. *Health Manage Q.* 1993;15:2-6.
4. International Alliance of Patients' Organizations. What is Patient-Centred Healthcare? A Review of Definitions and Principles. London, UK: IAPO; 2007.
5. Gerteis M, Edgman-Levitan S, Dalay J, Delbanco TL. *Through the Patient's Eyes: Understanding and Promoting Patient-Centered Care.* San Francisco, US: Jossey-Bass Publishers; 1993.
6. Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century.* Washington, D.C: National Academy Press; 2001.
7. Goodrich J. Exploring the wide range of terminology used to describe care that is patient-centred. *Nurs Times.* 2009;105(2):14-7.
8. Australian Commission on Safety and Quality in Healthcare. *Patient-centred care: Improving quality and safety by focusing care on patients and consumers.* Canberra, ACT: ACSQHC; 2010 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/01/PCCC-DiscussPaper.pdf>
9. Harding E, Wait S & Scrutton J. *The state of play in person-centred care: A pragmatic review of how personcentred care is defined, applied and measured, featuring selected key contributors and case studies across the field.* London, UK: The Health Foundation;2015, [cited 2018 April 25]. Available from: <http://www.healthpolicypartnership.com/wp-content/uploads/State-of-play-in-person-centred-care-full-report-Dec-11-2015.pdf>
10. World Health Organization. *People-Centred and Integrated Health Services: An Overview of the Evidence. Services Deliver and Safety.* Geneva, Switzerland: WHO;2015, [cited 2018 May 25]. Available from:

https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf?sequence=1&isAllowed=y

11. National Health Priority Action Council. National Chronic Disease Strategy. Canberra, Australia: Department of Health and Ageing; 2006. [cited 2018 May 20]. Available from: [https://extranet.who.int/ncdccc/Data/AUS_B3_Att%20A%20-%20National%20Chronic%20Disease%20Strategy%202005%20\(D15-706588\).PDF](https://extranet.who.int/ncdccc/Data/AUS_B3_Att%20A%20-%20National%20Chronic%20Disease%20Strategy%202005%20(D15-706588).PDF)
12. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, NSW: ACSQHC; 2012. [cited 2018 May 20]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2011/09/NSQHS-Standards-Sept-2012.pdf>
13. Herbert CP. Changing the culture: interprofessional education for collaborative patient-centred practice in Canada. *J Interprof Care*. 2005;19:1-4.
14. Australian Commission on Safety and Quality in Health Care. Australian Safety and Quality Framework for Health Care. Sydney, Australia: ACSQHC; 2010 [cited 2018 May 25]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2012/04/Australian-SandQ-Framework1.pdf>
15. Department of Health and Ageing. Building a 21st Century Primary Health Care System: Australia's First National Primary Health Care Strategy. Canberra, Australia: Commonwealth of Australia; 2010 [cited 2018 May 25]. Available from: http://www.nationalplanningcycles.org/sites/default/files/country_docs/Australia/6552_nphc_1205.pdf
16. Dwamena F, Holmes-Rovner M, Gaulden CM, Jorgenson S, Sadigh G, Sikorskii A, et al. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database Syst Rev*. 2012;12:1-178.
17. McMillan SS, Kendall E, Sav A, King MA, Whitty JA, Kelly F, et al. Patient-centered approaches to health care: a systematic review of randomized controlled trials. *Med Care Res Rev*. 2013;70(6):567-96.
18. Olsson LE, Jakobsson Ung E, Swedberg K, Ekman I. Efficacy of person-centred care as an intervention in controlled trials - a systematic review. *J Clin Nurs*. 2013;22(3-4):456-65.
19. Wolf DM, Lehman L, Quinlin R, Zullo T, Hoffman L. Effect of patient-centered care on patient satisfaction and quality of care. *J Nurs Care Qual*. 2008;23(5):316-21.
20. Bauman AE, Fardy HJ, Harris PG. Getting it right: why bother with patient-centred care? *Med JAust*. 2003;179(5):253-6.

21. Saha S, Beach MC. The impact of patient-centered communication on patients' decision making and evaluations of physicians: a randomized study using video vignettes. *Patient Educ Couns*. 2011;84(3):386-92.
22. Flach SD, McCoy KD, Vaughn TE, Ward MM, Bootsmiller BJ, Doebbeling BN. Does patient-centered care improve provision of preventive services? *JGen Intern Med*. 2004;19(1):1019-26.
23. Meterko M, Wright S, Lin H, Lowy E, Cleary PD. Mortality among patients with acute myocardial infarction: the influences of patient-centered care and evidence-based medicine. *Health Serv Res*. 2010;45(5 Pt 1):1188-204.
24. Fredericks S, Lapum J, Hui G. Examining the effect of patient-centred care on outcomes. *Brit J Nurs*. 2015;24(7):394-400.
25. Rathert C, Wyrwich MD, Boren SA. Patient-centered care and outcomes: a systematic review of the literature. *Med Care Res Rev*. 2013;70(4):351-79.
26. de Silva D. Helping measure person-centred care: A review of evidence about commonly used approaches and tools used to help measure person-centred care. London, UK: The Health Foundation; 2014 [cited 2018 May 25]. Available from: <https://www.health.org.uk/sites/default/files/HelpingMeasurePersonCentredCare.pdf>
27. Edwards A, Elwyn G, Smith C, Williams S, Thornton H. Consumers' views of quality in the consultation and their relevance to 'shared decision-making' approaches. *Health Expect*. 2000;4(3):151-61.
28. Williams CG, McGregor H, Zeldman A, Freedman ZR, Deci EL, Elder D. Promoting glycemic control through diabetes self-management: evaluating a patient activation intervention. *Patient Educ Couns*. 2005(1);56:28-34.
29. Williams GC, Lynch M, Glasgow RE. Computer-assisted intervention improves patient-centered diabetes care by increasing autonomy support. *Health Psychol*. 2007;26(6):728-34.
30. Egan M, Kessler D, Laporte L, Metcalfe V, Carter M. A pilot randomized controlled trial of community-based occupational therapy in late stroke rehabilitation. *Top Stroke Rehabil*. 2007;14(5):37-45.
31. Olsson LE, Hansson E, Ekman I, Karlsson J. A cost-effectiveness study of a patient-centred integrated care pathway. *JAdv Nurs*. 2009;65(8):1626-35.
32. Wolf D, Lehman L, Quinlin R, Rosenzweig M, Friede S, Zullo T, et al. Can nurses impact patient outcomes using a patient-centered care model? *JNurs Adm*. 2008;38(12):532-40.

33. Gachoud D, Albert M, Kuper A, Stroud L, Reeves S. Meanings and perceptions of patient-centeredness in social work, nursing and medicine: a comparative study. *J Interprof Care*. 2012;26(6):484-90.
34. Sahlen KG, Boman K, Brannstrom M. A cost-effectiveness study of person-centered integrated heart failure and palliative home care: Based on a randomized controlled trial. *Palliat Med*. 2016;30(3):296-302.
35. Engel G. The Need for a New Medical Model: A challenge for Biomedicine. *Science*. 1977;196(4286):129-36.
36. Stewart M, Brown JB, Weston WW, McWhinney IR, McWilliam CL, Freeman TR. *Patient-Centred Medicine Transforming the Clinical Method*. 2nd ed. Stewart M, Brown JB, Freeman TR, editors: Radcliffe Medical Press Ltd; 2003.
37. Luxford K, Safran DG, Delbanco T. Promoting patient-centered care: a qualitative study of facilitators and barriers in healthcare organizations with a reputation for improving the patient experience. *Int J Qual Healthcare*. 2011;23(5):510-5.
38. Legare F, Ratté S, Gravel K, Graham ID. Barriers and facilitators to implementing shared decision-making in clinical practice: update of a systematic review of health professionals' perceptions. *Patient Educ Couns*. 2008;73(3):526-35.
39. Gillespie R, Florin D, Gillam S. How is patient-centred care understood by the clinical, managerial and lay stakeholders responsible for promoting this agenda? *Health Expect*. 2004;7(2):142-8.
40. Epstein RM, Street RL, Jr. The values and value of patient-centered care. *Ann Fam Med*. 2011;9(2):100-3.
41. Frosch DL, May SG, Rendle KA, Tietbohl C, Elwyn G. Authoritarian physicians and patients' fear of being labeled 'difficult' among key obstacles to shared decision making. *Health Aff (Millwood)*. 2012;31(5):1030-8.
42. Dunn N. Practical issues around putting the patient at the centre of care. *J R Soc Med*. 2003;96(7):325-7.
43. West E, Barron DN, Reeves R. Overcoming the barriers to patient-centred care: time, tools and training. *J Clin Nurs*. 2005;14(4):435-43.
44. Pellerin MA, Elwyn G, Rousseau M, Stacey D, Robitaille H, Legare F. Toward shared decision making: using the OPTION scale to analyze resident-patient consultations in family medicine. *Acad Med*. 2011;86(8):1010-8.

45. Menear M, Garvelink MM, Adekpedjou R, Perez MMB, Robitaille H, Turcotte S, et al. Factors associated with shared decision making among primary care physicians: Findings from a multicentre cross-sectional study. *Health Expect*. 2018;21(1):212-21.
46. Marsteller JA, Hsu YJ, Reider L, Frey K, Wolff J, Boyd C, et al. Physician satisfaction with chronic care processes: a cluster-randomized trial of guided care. *Ann Fam Med*. 2010;8(4):308-15.
47. Sullivan MD, Leigh J, Gaster B. Brief report: Training internists in shared decision making about chronic opioid treatment for noncancer pain. *J Gen Intern Med*. 2006;21(4):360-2.
48. Robinson JH, Callister LC, Berry JA, Dearing KA. Patient-centered care and adherence: definitions and applications to improve outcomes. *J Am Acad Nurse Pract*. 2008;20(12):600-7.
49. Goodchild CE, Skinner TC, Parkin T. The value of empathy in dietetic consultations. A pilot study to investigate its effect on satisfaction, autonomy and agreement. *J Hum Nutr Diet*. 2005;18(3):181-5.
50. Australian Institute of Health and Welfare. Australia's health 2018: In brief. Canberra, Australia: AIHW; 2018 [cited 2018 May 25]. Available from: <https://www.aihw.gov.au/getmedia/fe037cf1-0cd0-4663-a8c0-67cd09b1f30c/aihw-aus-222.pdf.aspx?inline=true>
51. Tinetti ME, Fried TR, Boyd CM. Designing health care for the most common chronic condition--multimorbidity. *J Amer Med Assoc*. 2012;307(23):2493-4.
52. World Health Organization. Innovative care for chronic conditions: building blocks for action. Geneva, Switzerland: WHO; 2002 [cited 2018 May 25]. Available from: <https://www.who.int/chp/knowledge/publications/icccglobalreport.pdf>
53. Dennis SM, Zwar N, Griffiths R, Roland M, Hasan I, Powell Davies G, et al. Chronic disease management in primary care: from evidence to policy. *Med JAust*. 2008;188(8):S53-6.
54. Australian Diabetes Educators Association. Client Centred Care: Position Statement. Canberra, Australia: ADEA; 2008 [cited 2018 May 25]. Available from: https://www.adea.com.au/wp-content/uploads/2013/08/150415_Person-Centred-Care-Information-Sheet-FINAL-APPROVED.pdf
55. Bayliss EA, Ellis JL, Steiner JF. Barriers to self-management and quality-of-life outcomes in seniors with multimorbidities. *Ann Fam Med*. 2007;5(5):395-402.

56. Granger BB, Sandelowski M, Tahshjain H, Swedberg K, Ekman I. A qualitative descriptive study of the work of adherence to a chronic heart failure regimen: patient and physician perspectives. *J Cardiovasc Nurs*. 2009;24(4):308-15.
57. Yen L, Gillespie J, Rn YH, Kljakovic M, Anne Brien J, Jan S, et al. Health professionals, patients and chronic illness policy: a qualitative study. *Health Expect*. 2011;14(1):10-20.
58. Tong A, Sainsbury P, Chadban S, Walker RG, Harris DC, Carter SM, et al. Patients' experiences and perspectives of living with CKD. *Am J Kidney Dis*. 2009;53(4):689-700.
59. Anderson RM, Funnell MM. Patient empowerment: reflections on the challenge of fostering the adoption of a new paradigm. *Patient Educ Couns*. 2005;57(2):153-7.
60. Kvale K, Bondevik M. What is important for patient centred care? A qualitative study about the perceptions of patients with cancer. *Scand J Caring Sci*. 2008;22(4):582-9.
61. Raja S, Hasnain M, Vadakumchery T, Hamad J, Shah R, Hoersch M. Identifying elements of patient-centered care in underserved populations: a qualitative study of patient perspectives. *PLoS One*. 2015;10(5):e0126708.
62. Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Preferences of patients for patient centred approach to consultation in primary care: observational study. *Brit Med J*. 2001;322(7284):468-72.
63. DiMatteo MR. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. *Med Care*. 2004;42:200-9.
64. World Health Organization. Adherence to long-term therapies: Evidence for action. Geneva, Switzerland: WHO; 2003 [cited 2018 May 25]. Available from: <https://apps.who.int/iris/bitstream/handle/10665/42682/9241545992.pdf>
65. Zolnierok BHK, DiMatteo RM. Physician Communication and Patient Adherence to Treatment: A Meta-analysis. *Med Care*. 2009;47(4):826-34.
66. McLean E. Chronic disease prevention and management in primary health care. DAA: ACT, Australia; 2015 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/Inquiry-into-Chronic-Disease-Prevention-and-Management-in-Primary-Health-Care.pdf>
67. Australian Government Department of Health. Chronic Disease Management: Individual Allied Health Services under Medicare - Provider Information. Canberra, Australia: Australian Government Department of Health; 2014 [cited 2018 May 25].

Available from: http://www.health.gov.au/internet/main/publishing.nsf/content/health-medicare-health_pro-gp-pdf-allied-cnt.htm.

68. Howatson A, Wall CR, Turner-Benny P. The contribution of dietitians to the primary health care workforce. *J Prim Health Care*. 2015;7(4):324-32.
69. Crustolo AM, Kates N, Ackerman S, Schamehorn S. Integrating nutrition services into primary care: Experience in Hamilton, Ont. *Can Fam Physician*. 2005;51(12):1647-53.
70. Dietitians Association of Australia. National Competency Standards for Dietitians in Australia. ACT, Australia: DAA; 2015 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/NCS-Dietitians-Australia-with-guide-1.0.pdf>
71. Milosavljevic M, Noble G, Zaremba C. Day-to-day activities of clinical dietitians working in the inpatient and outpatient settings in a group of New South Wales public hospitals: The results of a direct observational study. *Nutr Diet*. 2014;71(1):10-5.
72. Dietitians Association of Australia. Chronic Disease Prevention and Management in Primary Health Care. ACT, Australia: DAA; 2015 [cited 2018 May 25]. Available from: <https://daa.asn.au/wp-content/uploads/2017/01/Inquiry-into-Chronic-Disease-Prevention-and-Management-in-Primary-Health-Care.pdf>
73. Dietitians Association of Australia. Dietitians Association of Australia Annual Report 2017-2018. Canberra, Australia: DAA; 2018 [cited 2018 June 25]. Available from: <https://daa.asn.au/wp-content/uploads/2018/10/Annual-Report-2017-June-2018.pdf>.
74. Brown L, Capra S, Williams LT. Profile of the Australian dietetic workforce: 1991-2005. *NutrDiet*. 2006;63(3):166-78.
75. Scholl I, Zill JM, Harter M, Dirmaier J. An integrative model of patient-centeredness - a systematic review and concept analysis. *PloS one*. 2014;9(9):e107828.
76. Eaton S, Roberts S, Turner B. Delivering person centred care in long term conditions. *Brit Med J*. 2015;350:h181.
77. European Federation of the Association of Dietitians. European Dietetic Advanced Competences. 2012 [cited 2018 May 25]. Available from: <http://www.efad.org/media/1419/european-dietetic-advanced-competences.pdf>
78. Dietitians of Canada and College of Dietitians of Ontario. Professional standards for dietitians in Canada. Toronto, Canada: College of Dietitians of Ontario; 1997 [cited

2018 May 25]. Available from:

[https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-\(1.aspx](https://www.collegeofdietitians.org/resources/professional-practice/standards-of-practice/professional-standards-for-dietitians-in-canada-(1.aspx)

79. Kieselhorst KJ, Skates J, Pritchett E. American Dietetic Association: standards of practice in nutrition care and updated standards of professional performance. *J Am Diet Assoc.* 2005;105(4):641-5.
80. Vaillancourt H, Légaré F, Gagnon MP, Lapointe A, Deschênes SM, Desroches S. Exploration of shared decision-making processes among dietitians and patients during a consultation for the nutritional treatment of dyslipidaemia. *Health Expect.* 2015;18(6):2764-75.
81. Vaillancourt H, Legare F, Lapointe A, Deschenes SM, Desroches S. Assessing patients' involvement in decision making during the nutritional consultation with a dietitian. *Health Expect.* 2014;17(4):545-54.
82. MacLellan D, Berenbaum S. Canadian dietitians' understanding of the client-centered approach to nutrition counseling. *J Am Diet Assoc.* 2007;107(8):1414-7.
83. Mitchell LJ, Ball LE, Ross LJ, Barnes KA, Williams LT. Effectiveness of dietetic consultations in primary health care: a systematic review of randomized controlled trials. *J Acad Nutr Diet.* 2017;117(12):1941-62.
84. Williams LT, Barnes K, Ball L, Ross LJ, Sladdin I, Mitchell LJ. How Effective Are Dietitians in Weight Management? A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Healthcare.* 2019;7(1):20.
85. Ross LJ, Barnes KA, Ball LE, Mitchell LJ, Sladdin I, Lee P, Williams LT. Effectiveness of dietetic consultation for lowering blood lipid levels in the management of cardiovascular disease risk: A systematic review and meta-analysis of randomised controlled trials. *Nutr Diet.* 2019;76(2):199-210.
86. Lawrence M, Kinn S. Defining and measuring patient-centred care: an example from a mixed-methods systematic review of the stroke literature. *Health Expect.* 2012;15(3):295-326.
87. Epstein RM, Franks P, Fiscella K, Shields CG, Meldrum SC, Kravitz RL, et al. Measuring patient-centered communication in patient-physician consultations: theoretical and practical issues. *Soc Sci Med.* 2005;61(7):1516-28.
88. Ekman I, Swedberg K, Taft C, Lindseth A, Norberg A, Brink E, et al. Person-centered care--ready for prime time. *Eur J Cardiovasc Nurs.* 2011;10(4):248-51.

89. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med*. 2000;51(7):1087-110.
90. The Picker Institute. *Patient-Centered Care 2015: Scenarios, Vision, Goals & Next Steps*. Maine, US: The Picker Institute; 2004 [cited 2018 may 25]. Available from: <http://www.altfutures.org/pubs/health/Picker%20Final%20Report%20May%202014%202004.pdf>
91. Kitson A, Marshall A, Bassett K, Zeitz K. What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *J Adv Nurs*. 2013;69(1):4-15.
92. Sidani S, Fox M. Patient-centered care: clarification of its specific elements to facilitate interprofessional care. *J Interprof Care*. 2014;28(2):134-41.
93. Eklund JH, Holmström IK, Kumlin T, Kaminsky E, Skoglund K, Högländer J, et al. "Same same or different?" A review of reviews of person-centered and patient-centered care. *Patient Educ Couns*. 2018;102(1):3-11.
94. Ferguson LM, Ward H, Card S, Sheppard S, McMurtry J. Putting the 'patient' back into patient-centred care: an education perspective. *Nurse Educ Pract*. 2013;13(4):283-7.
95. Windover K, Boissy A, Rice T, Gilligan T, Velez V, Merlino J. The REDE model of healthcare communication: Optimizing relationship as a therapeutic agent. *J Patient Exp*. 1(1): 8–13
96. Slater L. Person-centredness: a concept analysis. *Contemp Nurse*. 2006;23(1):135-44.
97. Elwyn G, Edwards A, Kinnersley P. Shared decision-making in primary care: the neglected second half of the consultation. *Br J Gen Pract*. 1999;49(443):477-82.
98. Sumsion T, Lencucha R. Balancing Challenges and Facilitating Factors when Implementing Client-Centred Collaboration in a Mental Health Setting. *Br J Occup Ther*. 2007;70(12):513-20.
99. Street RL, Jr., Makoul G, Arora NK, Epstein RM. How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns*. 2009;74(3):295-301.
100. Squire S, Hill P. The Expert Patients Programme. *Clin Govern Int J*. 2006;11(1):17-21.

101. Bolster D, Manias E. Person-centred interactions between nurses and patients during medication activities in an acute hospital setting: qualitative observation and interview study. *Int J Nurs Stud*. 2010;47(2):154-65.
102. Elwyn G, Edwards A, Wensing M, Hood K, Atwell C, Grol R. Shared decision making: developing the OPTION scale for measuring patient involvement. *Qual Saf Health Care*. 2003;12(2):93-9.
103. Alonso Y. The biopsychosocial model in medical research: the evolution of the health concept over the last two decades. *Patient Educ Couns*. 2004;53(2):239-44.
104. Ivers N, Jamtvedt G, Flottorp S, Young JM, Odgaard-Jensen J, French SD, et al. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev*. 2012;6: CD000259.
105. DeVellis FR. *Scale Development: Theory and Applications*. 2nd ed. California, USA: SAGE publications; 2003.
106. Williams K, Thompson C. *Patient-reported outcome measures: Stakeholder interviews*. Sydney, NSW: ACSQHC; 2018 [cited 2019 February 13]. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2018/08/PROMs-stakeholder-interviews-report-2018.pdf>
107. Couët N, Desroches S, Robitaille H, Vaillancourt H, Leblanc A, Turcotte S, et al. Assessments of the extent to which health-care providers involve patients in decision making: A systematic review of studies using the OPTION instrument. *Health Expect*. 2015;18(4):542-61.
108. Howie JG, Heaney D, Maxwell M. Quality, core values and the general practice consultation: issues of definition, measurement and delivery. *Fam Pract*. 2004;21(4):458-68.
109. Streiner DL, Norman GR. *Health measurement scales: a practical guide to their development and use*. 4th ed. US: Oxford University Press; 2008.
110. International Alliance of Patients' Organizations. *Declaration on Patient-Centred Healthcare: Patient-centred healthcare is the way to a fair and cost effective healthcare system*. London, UK: IAPO;2006 [cited 2018 May 25]. Available from: <https://www.iapo.org.uk/sites/default/files/files/IAPO%20Declaration%20on%20Patient-Centred%20Healthcare%20Poster.pdf>
111. Scotland J. Exploring the Philosophical Underpinnings of Research: Relating Ontology and Epistemology to the Methodology and Methods of the Scientific, Interpretive, and Critical Research Paradigms. *Eng Lang Teach*. 2012;5(9):9-16.

112. Whitemore R, Knafl K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546-53.
113. Guba EG, Lincoln YS. Competing paradigms in qualitative research. In: Denzin NK, Lincoln YS, editors. *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage;105-17.
114. Ponterotto J. Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *J Couns Psychol*. 2005;52(2):126.
115. Notaras S, Mark M, Wilson N. Advancing practice in dietitians' communication and nutrition counselling skills: a workplace education program. *J Hum Nutr Diet*. 2018; 31(6):725-733
116. Levey R, Ball L, Chaboyer W, Sladdin I. Dietitians' perspectives of the barriers and enablers to delivering patient-centred care. Under review (submitted to *J Hum Nutr Diet*). 2019.
117. Camolas J, Santos O, Moreira P, do Carmo I. INDIVIDUO: Results from a patient-centered lifestyle intervention for obesity surgery candidates. *Obes Res Clin Pract*. 2016;11(4):475-88.
118. Hazzard E, Barone L, Mason M, Lambert K, McMahon A. Patient-centred dietetic care from the perspectives of older malnourished patients. *J Hum Nutr Diet*. 2017. 30(5):574-587
119. Morris A, Herrmann T, Liles C, Roskell C. A qualitative examination of patients experiences of dietitians ' consultation engagement styles within nephrology. *J Hum Nutr Diet*. 2018;31(1):12-22.
120. Heslehurst N, Dinsdale S, Brandon H, Johnston C, Summerbell C, Rankin J. Lived experiences of routine antenatal dietetic services among women with obesity: A qualitative phenomenological study. *Midwifery*. 2017;49:47-53.
121. Stevenson J, Tong A, Campbell KL, Craig JC, Lee VW. Perspectives of healthcare providers on the nutritional management of patients on haemodialysis in Australia: an interview study. *Brit Med J open*. 2018;8(3):e020023-e.
122. Babbie ER. *Conceptualization, Operationalization, and Measurement. The practice of social research*. 14 ed. Boston: Cengage Learning US; 2015. p. 123-54.
123. Sladdin I, Ball L, Bull C, Chaboyer W. Patient-centred care to improve dietetic practice: an integrative review. *J Hum Nutr Diet*. 2017;30(4):453-70.
124. Sladdin I, Chaboyer W, Ball L. Patients' perceptions and experiences of patient-centred care in dietetic consultations. *J Hum Nutr Diet*. 2018;31(2):188-98.

125. Scholl I, Koelewijn-van Loon M, Sepucha K, Elwyn G, Legare F, Harter M, et al. Measurement of shared decision making - a review of instruments. *Z Evid Fortbild Qual Gesundhwes*. 2011;105(4):313-24.
126. Rosal MC, Ebbeling CB, Lofgren I, Ockene JK, Ockene IS, Hebert RJ. Facilitating dietary change: the patient-centered counseling model. *J Am Diet Assoc*. 2001;101(3):332-41.
127. Mafuba K, Gates B. Sequential multiple methods as a contemporary method in learning disability nursing practice research. *J Intellect Disabil*. 2012;16(4):287-96.
128. Mokkink LB, Terwee CB, Knol DL, Stratford PW, Alonso J, Patrick DL, et al. The COSMIN checklist for evaluating the methodological quality of studies on measurement properties: a clarification of its content. *BMC Med Res Method*. 2010(1);10:22.
129. Bolarinwa OA. Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Niger Postgrad Med J*. 2015;22(4):195.
130. Myers ND, Myers ND, Ahn S, Ahn S, Jin Y, Jin Y. Sample size and power estimates for a confirmatory factor analytic model in exercise and sport: a monte carlo approach. *Res Q Exerc Sport*. 2011;82(3):412-23.
131. Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL. *Multivariate data analysis*. 6th ed. Upper Saddle River, N.J: Pearson Prentice Hall; 2006.
132. van Prooijen J-W, van der Kloot WA. Confirmatory Analysis of Exploratively Obtained Factor Structures. *Educ Psychol Meas*. 2001;61(5):777-92.
133. Byrne BM. *Structural equation modeling with AMOS: basic concepts, applications, and programming*. 2nd ed. New York: Routledge; 2010.
134. Melbourne E, Roberts S, Durand M-A, Newcombe R, Légaré F, Elwyn G. Dyadic OPTION: Measuring perceptions of shared decision-making in practice. *Patient Educ Couns*. 2010;83(1):55-7.
135. Muntinga ME, Mokkink LB, Knol DL, Nijpels G, Jansen AP. Measurement properties of the Client-centered Care Questionnaire (CCCQ): factor structure, reliability and validity of a questionnaire to assess self-reported client-centeredness of home care services in a population of frail, older people. *Qual Life Res*. 2014;23(7):2063-72.
136. Tavakol M, Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ*. 2011;2:53-5.

137. Jette DU, Halbert J, Iverson C, Miceli E, Shah P. Use of Standardized Outcome Measures in Physical Therapist Practice: Perceptions and Applications. *Phys Ther.* 2009;89(2):125-35.
138. Ridd M, Shaw A, Lewis G, Salisbury C. The patient-doctor relationship: a synthesis of the qualitative literature on patients' perspectives. *Br J Gen Pract.* 2009;59(561):e116-33.
139. Makoul G, Krupat E, Chang CH. Measuring patient views of physician communication skills: development and testing of the Communication Assessment Tool. *Patient Educ Couns.* 2007;67(3):333-42.
140. Scholl I, Kriston L, Dirmaier J, Buchholz A, Härter M. Development and psychometric properties of the Shared Decision Making Questionnaire--physician version (SDM-Q-Doc). *Patient Educ Couns.* 2012;88(2):284-90.
141. Schmidt L. The development and testing of a measure of patient satisfaction within nursing care. Florida: Univeresity of Maimi; 2001.
142. Slater P, McCance T & McCormack B. The development and testing of the Person-centred Practice Inventory - Staff (PCPI-S). *Int J Qual Health Care.* 2017; 29(4): 541–547.
143. de Bekker-Grob EW, Ryan M, Gerard K. Discrete choice experiments in health economics: a review of the literature. *Health Economics.* 2012;21(2):145-72.
144. Dowell A, Stubbe M, Macdonald L, Tester R, Gray L, Vernall S, et al. A Longitudinal Study of Interactions Between Health Professionals and People With Newly Diagnosed Diabetes. *Ann Fam Med.* 2018;16(1):37-44.
145. Everett ST, Wolf R, Contento I, Haiduc V, Richey M, Erkan D. Short-term patient-centered nutrition counseling impacts weight and nutrient intake in patients with systemic lupus erythematosus. *Lupus.* 2015;24(12):1321-6.
146. Almeida LB, Segurado AC, Duran ACF, Jaime PC. Impact of a nutritional counseling program on prevention of HAART-related metabolic and morphologic abnormalities. *AIDS Care.* 2011;23(6):755-63.
147. Jacka FN, O'Neil A, Opie R, Itsiopoulos C, Cotton S, Mohebbi M, et al. A randomised controlled trial of dietary improvement for adults with major depression (the 'SMILES'trial). *BMC Med.* 2017;15(1):23.
148. Campbell M, Fitzpatrick R, Haines A, Kinmonth AL, Sandercock P, Spiegelhalter D, et al. Framework for design and evaluation of complex interventions to improve health. *Brit Med J.* 2000;321(7262):694-6.

149. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. *Brit Med J*. 2008;337:a1655.
150. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. *Brit Med J*. 2015;350:h1258.
151. Bowen DJ, Kreuter M, Spring B, Cofta-Woerpel L, Linnan L, Weiner D, et al. How we design feasibility studies. *Amer J Prevent Med*. 2009;36(5):452-7.
152. McCrae RR, Kurtz JE, Yamagata S, Terracciano A. Internal consistency, retest reliability, and their implications for personality scale validity. *Pers Soc Psychol Rev*. 2011;15(1):28-50.
153. Miller D, Gray CS, Kuluski K, Cott C. Patient-Centered Care and Patient-Reported Measures: Let's Look Before We Leap. *Patient*. 2015;8(4):293-9.
154. Anaba C, Osei-Kesse F, Kumah E. Understanding and Using Patient Experience Feedback to Improve Health Care Quality: Systematic Review and Framework Development. *J Patient-Centered Res Rev*. 2017;4(1):24-31.
155. McKenzie A, Hanley B. Planning for consumer and community participation in health and medical research: a practical guide for health and medical researchers. WA, Australia: University of Western Australia; 2014.
156. Shippee ND, Domecq Garces JP, Prutsky Lopez GJ, Wang Z, Elraiayah TA, Nabhan M, et al. Patient and service user engagement in research: a systematic review and synthesized framework. *Health Expect*. 2015;18(5):1151-66.
157. Brett J, Staniszewska S, Mockford C, Herron-Marx S, Hughes J, Tysall C, et al. Mapping the impact of patient and public involvement on health and social care research: a systematic review. *Health Expect*. 2014;17(5):637-50.
158. McKenzie A, Haines H. Consumer and community participation in health and medical research. WA, Australia: University of Western Australia; 2002.

Appendix A: Ethics Approvals

3/26/2019

Mail - l.sladdin@griffith.edu.au

Your Human Ethics Protocol 2016/641 has been Fully approved

RIMS Griffith

Mon 9/26/2016 1:57 PM

To: Wendy Chaboyer <w.chaboyer@griffith.edu.au>; Ishtar Sladdin <i.sladdin@griffith.edu.au>; Lauren Ball <l.ball@griffith.edu.au>;
Cc: research-ethics@griffith.edu.au <research-ethics@griffith.edu.au>; Kim Madison <k.madison@griffith.edu.au>;

Importance: High

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE

Dear Dr Lauren Ball

I write in relation to your application for ethical clearance for your project "Patients' perceptions and experiences of patient-centred care in dietetic consultations" (GU Ref No: 2016/641). The research ethics reviewers resolved to grant your application a clearance status of "Fully Approved".

This is to confirm receipt of the remaining required information, assurances or amendments to this protocol.

Consequently, I reconfirm my earlier advice that you are authorised to immediately commence this research on this basis.

The standard conditions of approval attached to our previous correspondence about this protocol continue to apply.

Regards

Kim Madison
Human Research Ethics and Integrity
Office for Research
Bray Centre, Nathan Campus
Griffith University
ph: +61 (0)7 373 58043
fax: +61 (07) 373 57994
email: k.madison@griffith.edu.au

Researchers are reminded that the Griffith University Code for the Responsible Conduct of Research provides guidance to researchers in areas such as conflict of interest, authorship, storage of data, & the training of research students.

You can find further information, resources and a link to the University's Code by visiting Griffith's webpage: Griffith University Code for the Responsible Conduct of Research

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1/2

2016/641 - Variation Approved

RIMS Griffith

Mon 9/26/2016 2:00 PM

To: Wendy Chaboyer <w.chaboyer@griffith.edu.au>; Ishtar Sladdin <i.sladdin@griffith.edu.au>; Lauren Ball <l.ball@griffith.edu.au>;

Cc: research-ethics@griffith.edu.au <research-ethics@griffith.edu.au>; Kim Madison <k.madison@griffith.edu.au>;

Importance: High

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE

Dear Dr Lauren Ball

I write further to your application for a variation to your approved protocol "Patients's perceptions and experiences of patient-centred care in dietetic consultations" (2016/641). This request has been considered by the Office for Research.

The OR resolved to approve the requested variation:

- 1) To put a recruitment Facebook post on the Healthy Lifestyles Australia Facebook page. The post will read: "Would you like to share your experience of seeing a dietitian and go in the draw to win one of 5 \$50 Coles and Myers Gift Vouchers?"
- 2) For dietitians working for Healthy Lifestyles Australia to provide clients with a recruitment flyer and Participant Information Sheet during client consultations. No changes have been made to the Participant Information Sheet.

This decision is subject to ratification at the next meeting of the HREC. However, you are authorised to immediately commence the revised project on this basis. I will only contact you again about this matter if the HREC raises any additional questions or comments about this variation.

Regards

Kim Madison
Human Research Ethics and Integrity
Office for Research
Bray Centre, Nathan Campus
Griffith University
ph: +61 (0)7 373 58043
fax: +61 (07) 373 57994
email: k.madison@griffith.edu.au

3/26/2019

Mali - i.sladdin@griffith.edu.au

Full Research Ethics Clearance 2017/730 (provisional to full approval)

RIMS Griffith

Wed 9/6/2017 10:11 AM

Important

To: Wendy Chaboyer <w.chaboyer@griffith.edu.au>; Brigid Gillespie <B.Gillespie@griffith.edu.au>; Ishtar Sladdin <i.sladdin@griffith.edu.au>; Lauren Ball <l.ball@griffith.edu.au>;

C: research-ethics@griffith.edu.au <research-ethics@griffith.edu.au>; Gary Allen <G.Allen@griffith.edu.au>;

Importance: High

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS REVIEW

Dear Dr Lauren Ball

I write further to the additional information provided in relation to the provisional approval granted to your application for ethical clearance for your project "NR: Patient-Centred Care in Dietetic Practice: a Survey" (GU Ref No: 2017/730).

This is to confirm that this response has addressed the comments and concerns of the HREC.

The ethics reviewers resolved to grant your application a clearance status of "Fully Approved".

Consequently, you are authorised to immediately commence this research on this basis.

Regards

Dr Gary Allen
Senior Policy Officer
Office for Research
Bray Centre, Nathan Campus
Griffith University
ph: 3735 5585
fax: 5552 9058
email: g.allen@griffith.edu.au

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1/1

3/26/2019

Mail - l.sladdin@griffith.edu.au

2017/730 - Variation Approved

RIMS Griffith

Sat 11/4/2017 10:00 AM

Important

To: Wendy Chaboyer <w.chaboyer@griffith.edu.au>; Brigid Gillespie <B.Gillespie@griffith.edu.au>; Ishtar Sladdin <i.sladdin@griffith.edu.au>; Lauren Ball <l.ball@griffith.edu.au>;

Ccresearch-ethics@griffith.edu.au <research-ethics@griffith.edu.au>; Rick Williams <rick.williams@griffith.edu.au>;

Importance: High

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE

Dear Dr Lauren Ball

I write further to your application for a variation to your approved protocol "NR: Patient-Centred Care in Dietetic Practice: a Survey" (2017/730). This request has been considered by the Office for Research

The OR resolved to approve the requested variation:

Additional strategy for distributing the e-survey to dietitians:

1) Distribute the e-survey link via social media (Twitter, Facebook, LinkedIn and Dietitians Connection weekly email). Copy provided of proposed marketing strategy.

Please note that, for recruitment utilising social media methods, you must ensure that all reasonable steps are taken to protect the confidentiality and privacy of potential participants (e.g. in the case of Facebook, ensure that appropriate privacy settings are utilised). For more information please refer to section 5.0 of Booklet 37 of the Griffith University Research Ethics Manual.

This decision is subject to ratification at the next meeting of the HREC. However, you are authorised to immediately commence the revised project on this basis. I will only contact you again about this matter if the HREC raises any additional questions or comments about this variation.

Regards

Mr Rick Williams
Manager Research Ethics and Integrity
Office for Research
Bray Centre, Nathan Campus
Griffith University
Tel: +61 (0)7 373 54375
fax: +61 (07) 373 57994
Email: Rick.Williams@Griffith.edu.au

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1/2

3/28/2019

Mail - i.sladdin@griffith.edu.au

2017/730 - Variation Approved

RIMS Griffith

Thu 1/18/2018 11:08 AM

Important

To: Wendy Chaboyer <w.chaboyer@griffith.edu.au>; Brigid Gillespie <B.Gillespie@griffith.edu.au>; Ishtar Sladdin <i.sladdin@griffith.edu.au>; Lauren Ball <l.ball@griffith.edu.au>;

Cc: research-ethics@griffith.edu.au <research-ethics@griffith.edu.au>; Rick Williams <rick.williams@griffith.edu.au>;

Importance: High

GRIFFITH UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE

Dear Dr Lauren Ball

I write further to your application for a variation to your approved protocol "NR: Patient-Centred Care in Dietetic Practice: a Survey" (2017/730). This request has been considered by the Office for Research

The OR resolved to approve the requested variation:

Add an additional strategy for distributing the survey to dietitians:

1) Distribute the paper-based survey (including participant information sheet) at a national seminar for dietitians ("Dietitians Unite") held in Brisbane on 02/03/2018. Permission has been granted by the event organisers to invite attendees to complete the survey at the event. A secure box will be available for dietitians to return the survey to so that responses remain anonymous.

Copy provided of brief description event organisers will read to inform attendees of the study.

Link to the event page for your information: <https://dietitianconnection.com/event/dietitians-unite-2018/>

No other changes have been made.

This decision is subject to ratification at the next meeting of the HREC. However, you are authorised to immediately commence the revised project on this basis. I will only contact you again about this matter if the HREC raises any additional questions or comments about this variation.

Regards

Mr Rick Williams
Manager Research Ethics and Integrity
Office for Research?
Bray Centre, Nathan Campus?
Griffith University?
Tel: +61 (0)7 373 54375
Email: Rick.Williams@Griffith.edu.au

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Appendix B: Participant Information Form Phase II



Patient Information Sheet

Study title: **Patients' perceptions and experiences of patient-centred care in dietetic consultations: qualitative insights from patients with chronic disease**

Lead Investigator: Dr. Lauren Ball

Student Investigator: Ishtar Sladdin

Contact phone number: (+61) 422 181 303

Contact email address: ishtar.sladdin@griffithuni.edu.au

Why are we doing the study?

The objective of this project is to explore patients' experiences and perceptions of dietetic care received for the management of their chronic disease, and in particular, understand patients' perspectives of patient-centred care. This research is important as patient-centred practices in dietetics has the potential to increase dietitians' ability to engage patients in their care processes and benefit patients with chronic disease.

What will you be asked to do?

If you take part in the study, you will be asked to participate in a one-on-one telephone interview. The interview will be scheduled at a time that suits you and will last approximately 15-30 minutes. The interview will be recorded so that researchers can make sure they collect your opinions accurately.

Some of the questions you will be asked include:

- Please share with me your overall impressions of the encounter / appointment with the dietitian
- What has been important to you in the care you have received so far from your dietitian?
- Can you tell me what you think the term Patient-Centred Care means to you?
- Based on what you think patient-centred care is, give me one example of how it might look to you

What are the possible benefits and risks to you of participating?

There are no foreseeable risks in taking part in this study. By taking part you will go in the draw to win one of five \$50 gift vouchers for the Coles & Myers group. Further, you may contribute to the body of knowledge that improves dietetic practice and patient care.

Standard terms and conditions of Prize Draw:

Rather than offer every participant an incentive a researcher may elect to offer entry in a prize draw to every participant (i.e. every person who participates in the research is entered into a draw to 'win' the incentive).

What are the rights of participants in the study?

Taking part in this study is voluntary. You are free to decline to participate or to withdraw from this research at any time. All information collected from this study is confidential and will not be available to anyone other than the researchers. No names will be used on the transcribed document from the telephone interview or any subsequent publications about the study. When writing up the study when an individual is used they will be called Participant X.

What will happen after the study ends, or if you pull out?

All audio recordings will be erased after transcription. However, other research data (interview transcripts and analysis) will be retained on a password protected electronic file at Griffith University for a period of five years before being destroyed. No participant will be identifiable. No information will be disclosed to third parties without the participants consent and the participant's anonymity will be safeguarded at all times. Participants will not be referred to by name during the research in any reports of discussion. All computer records will be restricted by password. Thematic analysis of that data will be undertaken. Once available, a summary of results and the final research report will be emailed to all participants. The final report will be published in a journal, and presented at a conference.

How to participate?

If you are interested in participating in this study, please contact Ishtar Sladdin:

Telephone number: 0422 181 303

Email: ishtar.sladdin@griffithuni.edu.au

Privacy Statement

The conduct of this research involves the collection, access and/ or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University's Privacy Plan at <http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan> or telephone (07) 3735 4375.

Please note, this invitation has been sent by Healthy Lifestyles Australia on behalf of the researchers. The researchers have not been given the names or contact details of any clients.

Where can you go for more information about the study, or to raise concerns or complaints? If you have any questions, concerns or complaints about the study at any stage, you can contact:

Dr Lauren Ball

Telephone number: (07) 555 29702

Email: l.ball@griffith.edu.au

For any queries regarding ethical concerns you may contact the Manager of Griffith University Ethics Department. Telephone: 07 3735 4375 or Email: research-ethics@griffith.edu.au.

APPROVED BY GRIFFITH UNIVERSITY, GOLD COAST: REFERENCE
NUMBER: 2016/641

Appendix C: Participant Information Forms Phase III



Participant Information Sheet

Study title: **Patient Centred Care in Individual Dietetic Consultations: A Survey**

Investigators: Dr Lauren Ball and Ishtar Sladdin

Contact phone number: (+61) 422 181 303

Contact email address: ishtar.sladdin@griffithuni.edu.au

Why are we doing the study?

Patient-centred practices have the potential to increase dietitians' ability to engage patients in their care and benefit patients in terms of their care experience and health outcomes. The present survey is designed for use by patients following an individual dietetic consultation. The objective of this survey is to describe the extent to which patients view the care dietitians provide to be patient-centred.

What will you be asked to do?

If you take part in the study, you will be asked to complete the survey following a consultation with the dietitian. This survey will take about 10 minutes to complete and will ask you a range of questions relating to your experience of receiving care from the dietitian.

What are the possible benefits and risks to you of participating?

There are no foreseeable risks in taking part in this study. By participating, you will contribute to the body of knowledge that improves dietetic practice and patient care.

What are the rights of participants in the study?

Taking part in this study is voluntary. You are free to decline to participate. Your participation will be anonymous and all information collected from this study is confidential and will not be available to anyone other than the researchers. Because the survey is anonymous you will not be able to withdraw once you have submitted the survey, as it will not be possible to identify individual responses.

What will happen after the study ends, or if you pull out?

Research data (completed survey and analysis) will be retained on a password protected electronic file and locked filing cabinet at Griffith University for a period of five years before being destroyed. No participant will be identifiable. No information will be disclosed to third parties without the participants consent and the participants anonymity will be safeguarded at all times. Participants will not be referred to by name during the research in any reports or discussion. All computer records will be restricted by password. The final report will be published in a journal, and presented at a conference.

Consent

By completing this survey you are indicating that you are at least 18 years old, have read and understood this participant information sheet and agree to participate in this research study.

How to participate?

If you are interested in participating in this study, please contact Ishtar Sladdin:

Telephone number: 0422 181 303

Email: ishtar.sladdin@griffithuni.edu.au

Where can you go for more information about the study, or to raise concerns or complaints? If you have any questions, concerns or complaints about the study at any stage, you can contact:

Dr Lauren Ball

Telephone number: (07) 555 29702

Email: l.ball@griffith.edu.au

For any queries regarding ethical concerns you may contact the Manager of Griffith University Ethics Department. Telephone: 07 3735 4375 or Email: research-ethics@griffith.edu.au.

APPROVED BY GRIFFITH UNIVERSITY, GOLD COAST: REFERENCE
NUMBER: 2017/730

Study title: **Patient Centred Care in Individual Dietetic Consultations: A Survey**

Lead Investigator: Dr Lauren Ball

Student Investigator: Ishtar Sladdin

Contact phone number: (+61) 422 181 303

Contact email address: ishtar.sladdin@griffithuni.edu.au

Why are we doing the study?

Patient-centred practices have the potential to increase dietitians' ability to engage patients in their care and benefit patients in terms of their care experience and health outcomes. The present survey is designed for use by dietitians with the objective to describe the extent to which dietitians view the care they provide to be patient-centred.

What will you be asked to do?

If you take part in the study, you will be asked to complete the survey at a time most convenient to you. The survey will direct you to reflect on your experience of consulting with your patients. This survey will take approximately 10 minutes to complete.

What are the possible benefits and risks to you of participating?

There are no foreseeable risks in taking part in this study. Further, your participation will contribute to the body of knowledge that improves dietetic practice and patient care.

What are the rights of participants in the study?

Taking part in this study is voluntary. You are free to decline to participate. Your participation will be anonymous and all information collected from this study is confidential and will not be available to anyone other than the researchers. Since the survey is anonymous you will not be able to withdraw once you have submitted the survey, as it will not be possible to identify individual responses.

What will happen after the study ends, or if you pull out?

Research data (completed survey and analysis) will be retained on a password protected electronic file and locked filing cabinet at Griffith University for a period of five years before being destroyed. No participant will be identifiable. Participants' anonymity will be safeguarded at all times. Participants' names will not be known. All computer records will be restricted by password. The final report will be published in a journal, and presented at a conference.

Consent

By completing this survey you are indicating that you are at least 18 years old, have read and understood this participant information sheet and agree to participate in this research study.

How to participate?

If you are interested in participating in this study, simply complete the online survey. For any questions regarding this research, contact Ishtar Sladdin:

Telephone number: 0422 181 303

Email: ishtar.sladdin@griffithuni.edu.au

Where can you go for more information about the study, or to raise concerns or complaints? If you have any questions, concerns or complaints about the study at any stage, you can contact:

Dr Lauren Ball

Telephone number: (07) 555 29702

Email: l.ball@griffith.edu.au

For any queries regarding ethical concerns you may contact the Manager of Griffith University Ethics Department. Telephone: 07 3735 4375 or Email: research-ethics@griffith.edu.au.

APPROVED BY GRIFFITH UNIVERSITY, GOLD COAST: REFERENCE
NUMBER: 2017/730

Appendix D: Phase II Interview Guide

Research Question: What are patients' perceptions and experiences of patient-centred care in dietetics?

To start, I'm just going to ask a few questions, so I understand your perspective:

- How many times you have seen a dietitian?
 - How many dietitians have you seen?
 - How long ago?
 - How often?
 - For what reason did you see the dietitian?
1. Please share with me your overall impressions of the encounter / appointment with the dietitian
 2. What has been important to you in the care you have received so far from your dietitian?
Prompt: Why are those things important to you?
 3. Thinking back, when you have seen a dietitian, please describe to me what was good or what was bad about this experience?
Prompt: what made that bad / good
 4. What do you think could have been done differently to improve the care you received?
 5. Can you tell me what you think the term patient-centred care means to you?
*Prompt: Based on their definition – to what extent was PCC provided?
How valuable / helpful would it be?*
 6. What advice would you give to dietitians who are trying to be more patient-centred?
 7. Are there any behaviours that you would particularly find helpful in your dietitian if she/he was to provide PCC?
 8. To what extent did you feel like you had control during the consultation/s?
 9. Did you feel you had the opportunity to provide feedback / ask questions / direct it in a way suitable to you?
 10. To what extent were you able to raise issues that were important to you?

11. How much were you able to bring up things that you wanted to discuss?
12. How much did you feel you were able to speak without being questioned?
13. Did you feel comfortable to bring up ideas and questions?
14. What opportunities to discuss alternative dietary options and plans arose?
15. Can you tell me about times in the consult where you discussed different options?

Prompt: what happened?

Prompt: How was the decision made? What option was decided on?

Appendix E: Phase II Contact Summary Form

Contact type:	
Participant no:	Contact date:
Written by:	Today's date:

1. What were the main issues or themes that struck you in this contact?
2. Summarize the information you got (or failed to get) on each target question you had for the contact.

Overall impression of dietetic appointment	
What has been important?	
Examples of good /bad experiences of care	
Meaning of PCC	
How it could be made more patient centred	
Helpful dietitian behaviours	
Level of control?	

3. **Anything else that struck you as salient, interesting, illuminating or important in this contact?**
4. **What new (or remaining) target questions do you have in considering the next contact with a participant?**

Adapted from: Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Thousand Oaks, California: Sage.

Appendix F: Phase III Surveys



Patient-centred dietetic care: a survey of patients

Please consider **ONLY** your experience of seeing the dietitian today.

Patient-centred care is when patients and health professionals together plan care that focuses on patients' needs.

For the following item, indicate your level of agreement or disagreement by circling the appropriate number.

#	Item	Completely disagree	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Completely agree
1	Overall, the care I received from my dietitian was patient-centred	1	2	3	4	5	6

#	The dietitian...	Poor	Fair	Good	Very good	Excellent
2	Greeted me in a way that made me feel comfortable	1	2	3	4	5
3	Treated me with respect	1	2	3	4	5
4	Showed interest in my ideas about my health	1	2	3	4	5
5	Understood my main reason for the visit	1	2	3	4	5
6	Paid attention to me (looked at me, listened)	1	2	3	4	5
7	Let me talk without interruptions	1	2	3	4	5
8	Gave me as much information as I wanted	1	2	3	4	5

#	The dietitian...	Poor	Fair	Good	Very good	Excellent
9	Talked in terms I could understand	1	2	3	4	5
10	Checked to be sure I understood everything	1	2	3	4	5
11	Encouraged me to ask questions	1	2	3	4	5
12	Involved me in decisions as much as I wanted	1	2	3	4	5
13	Discussed next steps regarding my nutrition care	1	2	3	4	5
14	Showed care and concern	1	2	3	4	5
15	Spent the right amount of time with me	1	2	3	4	5

#	Item	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
16	The dietitian treated me like a special person	1	2	3	4	5
17	I knew my dietetic care was specifically tailored to my needs	1	2	3	4	5
18	The dietitian took time to find out more about me as a person	1	2	3	4	5
19	When the dietitian was providing my care, I was at the centre of their attention	1	2	3	4	5
20	The dietitian was warm in their interaction with me	1	2	3	4	5

#	Item	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
21	My dietitian strives to gain a sense of me as a whole person	1	2	3	4	5
22	My dietitian assesses my needs, taking account of all aspects of my life	1	2	3	4	5
23	My dietitian delivers care that takes account of me as a whole person	1	2	3	4	5

#	Item	Disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Totally agree
24	I know this dietitian well	1	2	3	4	5
25	This dietitian knows me as a person	1	2	3	4	5
26	This dietitian really knows how I feel	1	2	3	4	5
27	I know what to expect with this dietitian	1	2	3	4	5
28	This dietitian really cares for me	1	2	3	4	5
29	This dietitian takes me seriously	1	2	3	4	5
30	This dietitian accepts me the way I am	1	2	3	4	5
31	I feel relaxed around the dietitian	1	2	3	4	5

#	Item	Completely disagree	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Completely agree
32	My dietitian made clear that decisions need to be made regarding my nutrition care	1	2	3	4	5	6
33	My dietitian wanted to know exactly how I want to be involved in making decisions	1	2	3	4	5	6
34	My dietitian told me that there are different options to address my nutrition needs	1	2	3	4	5	6
35	My dietitian clearly explained the advantages and disadvantages of different options	1	2	3	4	5	6
36	My dietitian helped me understand all the information relevant to my nutrition care	1	2	3	4	5	6
37	My dietitian asked me which nutritional options I prefer	1	2	3	4	5	6
38	My dietitian and I thoroughly considered the different options	1	2	3	4	5	6
39	My dietitian and I selected a nutrition related option together	1	2	3	4	5	6

#	Item	Completely disagree	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Completely agree
40	My dietitian and I reached an agreement on how to proceed with my goals/plans	1	2	3	4	5	6

NOW WE WOULD LIKE TO KNOW A LITTLE MORE ABOUT YOU

Please note, your participation will be anonymous. All information collected from this study is confidential and will not be available to anyone other than the researchers.

41. What is your current age? _____ years

42. What gender do you identify with?

Male1

Female2

Other.....3

43. Which country were you born in?

44. In the last 2 years, how many times have you seen a dietitian?

45. How many *different* dietitians have you seen?

46. If you have seen more than one, please explain why:

47. Do you *now* have a regular dietitian?

Yes.....1

No.....2

48. What was the reason for your most recent visit with the dietitian?

49. Which of the following statements best describes your current employment situation?

- Working full time1
- Working part time.....2
- Working as a casual employee.....3
- Unemployed.....4
- Other (please explain).....6

50. What is the highest level of education you have completed?

- Primary School.....1
- Secondary School.....2
- Vocational (TAFE).....3
- Tertiary education (University).....4
- Postgraduate education (PhD, Masters)5

THANK YOU!

APPROVED BY GRIFFITH UNIVERSITY: REFERENCE NUMBER: 2017/730

Patient-centred dietetic care: a survey of primary care dietitians

Please consider your experience of conducting a one-on-one dietetic consultation
(Circle ONLY ONE ANSWER for each question)

For each statement, indicate your level of agreement or disagreement by circling the appropriate number

#	Items	Completely disagree	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Completely agree
1	Overall, the care I provide to my patients is patient-centred	1	2	3	4	5	6

#	Item	Poor	Fair	Good	Very good	Excellent
2	I greet my patients in a way that makes my patients feel comfortable	1	2	3	4	5
3	I treat my patients with respect	1	2	3	4	5
4	I show interest in my patients' ideas about their health	1	2	3	4	5
5	I understand my patients' main health concerns	1	2	3	4	5
6	I pay attention to my patients (look at them, listen)	1	2	3	4	5
7	I let my patients talk without interruptions	1	2	3	4	5
8	I give my patients' as much information as they want	1	2	3	4	5
9	I talk in terms my patients can understand	1	2	3	4	5
10	I check to be sure my patients understand everything	1	2	3	4	5
11	I encourage my patients to ask questions	1	2	3	4	5

12	I involve my patients in decisions as much as they want	1	2	3	4	5
13	I discuss next steps	1	2	3	4	5
14	I show care and concern for my patients	1	2	3	4	5
15	I spend the right amount of time with patients	1	2	3	4	5

#		Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
16	I treat every patient as a unique person	1	2	3	4	5
17	I tailor dietetic care specifically to my patients' needs	1	2	3	4	5
18	I take time to find out more about each patient as a person	1	2	3	4	5
19	When I provide care, my patients are at the centre of my attention	1	2	3	4	5
20	I am warm in my interactions with patients	1	2	3	4	5

#		Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
21	I strive to gain a sense of every patient as a whole person	1	2	3	4	5
22	I assess the needs of the person, taking account of all aspects of their lives	1	2	3	4	5
23	I deliver care that takes account of the whole person	1	2	3	4	5

#	Item	Disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Totally agree
24	I know my patients well	1	2	3	4	5
25	I know every patient as a person	1	2	3	4	5
26	I really know how my patients feel	1	2	3	4	5
27	My patients know what to expect with me	1	2	3	4	5
28	I really care about my patients	1	2	3	4	5
29	I take my patients seriously	1	2	3	4	5
30	I accept my patients the way they are	1	2	3	4	5
31	My patients feel at ease with me	1	2	3	4	5

#	Items	Completely disagree	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Completely agree
32	I make clear to my patients that decisions needs to be made regarding their nutritional goals	1	2	3	4	5	6
33	I want to know from my patients exactly how they want to be involved in making decisions	1	2	3	4	5	6

34	I tell my patients that there are different options regarding their nutrition care	1	2	3	4	5	6
35	I clearly explain the advantages and disadvantages of different options to my patients	1	2	3	4	5	6
36	I help my patients understand all the information	1	2	3	4	5	6
37	I ask my patients which treatment options they prefer	1	2	3	4	5	6
38	My patients and I thoroughly evaluated the different treatment options	1	2	3	4	5	6
39	My patients and I select a treatment option together	1	2	3	4	5	6
40	My patients and I reach an agreement on how to proceed	1	2	3	4	5	6

NOW WE WOULD LIKE TO KNOW A LITTLE MORE ABOUT YOU

41. What is your age? _____ years

42. What is your gender?

Male.....1

Female.....2

43. For how many years have you been a practicing dietitian? _____

44. For what length of time have you worked in private practice? _____

45. Approximately how many hours per week do you work as a dietitian? _____

46. Have you undertaken any additional training since becoming a dietitian? (e.g. graduate diploma in counselling, PhD)

Yes1

No.....2

47. If you answered yes to the previous question, please provide details on the type(s) of

additional training you have undertaken:

48. Please list the types of patients you usually consult with (e.g. overweight/obesity, type II diabetes, coeliac disease)

THANK YOU!

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