

Using the patient-centred medicine clinical framework to better appreciate and explore the many barriers to care in Type 2 diabetes

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ABSTRACT

There are many barriers to diabetes care. This paper explores whether organising these barriers to Type 2 diabetes care within the clinical framework of patient-centred medicine (PCM) enables a better appreciation and conceptualisation of these barriers. The terms 'diabetes', 'barriers to care', 'self-management', 'patient-centred care' and 'outcome assessment' were used to identify 28 articles describing multiple barriers (minimum of three) to care in Type 2 diabetes. Identified barriers were organised within the clinical framework of PCM. Barriers to diabetes care were numerous and diverse, but all could be accommodated within the PCM framework, except for one, that of patient non-compliance (non-adherence). This paternalistic concept contradicts patient autonomy, a key component of the PCM paradigm.

Accepting non-adherence as a plausible barrier stops providers from recognising the actual barriers to diabetes self-management. Clinicians need to stop attributing blame for poor disease outcomes on patients, and instead to become partners in identifying and addressing their patients' real barriers to better health by using the practical clinical framework of PCM.

KEYWORDS: Diabetes mellitus, type 2; medication adherence; patient-centered care; patient compliance; self care

Introduction

Many people with diabetes have poor glycaemic control despite both patients and providers knowing that tight control minimises complications.¹ A wide range of barriers to diabetes care have been described,²⁻⁵ including patient non-compliance (non-adherence).^{2,4-8} To overcome compliance barriers, emphasis has been placed on the need to educate patients to ensure that they follow recommended lifestyle changes and take medications as prescribed.⁸ However, attempts to improve non-compliance have had little impact on long-term glucose control.^{7,8} Why patients don't comply with expert recommendations remains an anomaly of the biomedical paradigm.

'Patient-centredness', as a construct, is generally agreed to be important.^{9,10} In this paper, we examine whether organising barriers to diabetes care within the patient-centred medicine (PCM)¹¹

clinical framework enables a better appreciation and conceptualisation of the range of barriers to care faced by people with Type 2 diabetes, and how this approach may assist clinicians to more fully explore these barriers with their patients.

Looking to the literature

A search of Medline, the Cochrane Library, the authors' personal reference collections, and the bibliographies of relevant papers was made to find both qualitative and quantitative research articles identifying at least three barriers to care for people with Type 2 diabetes. The Medline and Cochrane Library websites were searched twice: first using the terms 'diabetes', 'barriers to care', and 'self-management', and second using the terms 'patient-centered care', 'outcome assessment', and 'diabetes'. Review articles of barriers to diabetes care were excluded. Both authors independently evaluated the papers for inclusion,

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and independently extracted the barriers to diabetes care. A total of 28 articles met our inclusion criteria and formed the dataset for this paper.^{12–39} Any disagreements were resolved by consensus. Barriers were organised under the headings (I–VI) and subheadings (a, b, c etc.) of the PCM clinical framework (see Table 1).

Identified barriers to care

Identified barriers to care for people with Type 2 diabetes are presented in this section of the paper under the headings and subheadings of PCM (Table 1).¹¹ There was only one barrier that did not fit within the PCM framework: ‘patient non-compliance’. This barrier was identified in 12 of the 28 articles.^{12,13,16,20,21,27–30,32,35,36}

I. Disease and illness experience

a) *Fears/feelings as barriers to self-management*

- i. **Fear or distress:** The identified fear could be non-specific, such as fear of loss of control over their life,^{14–19,37} or of potential future events (disease complications,^{14,22–24} and drug side effects^{16,19,20,25,35,39}). The fear could also be specific to events, such as glucose monitoring,^{19,20,36} diagnosis,^{18,21,22,24,29,37} starting oral medications,^{16,18,19,36} starting insulin (including fear of insulin and needles),^{16,18–21,35,36,39} and fear of hypoglycaemia.^{13,16,19}
- ii. **Despair as a barrier:** Feelings of despair were identified as a barrier to care in a number of studies.^{14,18,19,21,23,24,34,39}
- iii. **Guilt/self-blame:** Patients frequently blamed themselves for poor diet/lifestyle as the cause of their diabetes and its poor control.^{13,15,17,19,20,34,39}
- iv. **Shame/embarrassment/stigma:**^{15–17,19,21,26,34,39} Shame of having diabetes included fear of being mistaken for an IV drug user.¹⁹
- i. **Lack of self-confidence**¹⁷

b) *Ideas/beliefs as barriers to self-management*

- i. **Non-scientific health beliefs:** These included a generally poor understanding of diabetes,^{14–19,21,23,24,27,29–31,36,37} as well as

Table 1. Patient-centred medicine overview

I. Disease and illness experience

Understanding the disease requires history, examination, and investigation.

Understanding the illness experience requires an exploration of four dimensions.

a) Feelings/fears

The emotional/psychological responses to the illness.

b) Ideas/beliefs

The intellectual response to the illness.

c) Effects on functioning

The impact of the illness on body and lifestyle.

d) Expectations

What the person expects of the clinician.

II. Understanding the whole person

The meaning of health and illness to a person varies according to their context. Just as the body is made up of a number of interlocking systems, so too the individual is a part of a family, a community, a culture, a country and an ecology. Clinical information only becomes useful knowledge when it is placed in the context of a particular patient's world. Ignoring context will lead to errors in both the interpretation and application of findings.

Patient contexts include:

a) the person

Life history, developmental stage

b) proximal context

Family, finances, education, employment, leisure, social

c) distal context

Culture, health care system, community, economics.

III. Finding common ground

The process through which the patient and clinician reach mutual understanding and agreement in three key areas.

a) Defining problems and priorities

b) Establishing goals of treatment and/or management

c) Identifying roles to be assumed by both patient and clinician

IV. Incorporating disease prevention and health promotion

a) Disease prevention

b) Health promotion

V. Enhancing the clinician-patient relationship

Each consultation is considered an opportunity to improve the clinician–patient relationship.

a) Facilitating communication

b) Growing compassion, building trust, sharing of decision-making and power

VI. Being realistic

This involves being realistic about:

a) time and timing

b) teamwork and team-building

c) wise stewardship of resources

specific beliefs, such as diabetes is caused by eating sugar,^{15,19,23,36} a strict diet is required to control/cure diabetes,^{18,19,36} only people with diabetes need to eat a healthy diet,^{18,19,36,39} diabetes is like a 'cold' (it will just go away if ignored),^{14,15,17-19,23,27,29,35,36} diabetes is the same for everyone,^{19,24} resignation to the diagnosis of diabetes,^{15,23,24,29} symptoms as motivators (if there are no symptoms, then there is no need to take action),^{15,18,19,21,23,29,32,33,35,36,39} diabetes is 'uncontrollable' (trouble coping),^{15,20,31,34,39} they only need to take insulin if blood glucose is high,³⁵ and diabetes seen as a punishment.¹⁵

- ii. **Cultural beliefs:** There were both overly positive and negative beliefs about modern health care that could act as barriers,^{15,17,28,29,36,39} such as 'Western drugs' are chemicals to be avoided,^{17,19,36,39} and modern 'Western medicine' will do everything (there is no need to make lifestyle changes).^{17,24,27,29} Specific cultural beliefs as barriers have been described for Māori,¹⁹ Bangladeshi,²³ South Asian,²⁴ Samoan,¹⁸ Korean,³⁰ and Cambodian³⁶ people.

c) Effects on functioning

- i. **Disease-imposed barriers:** These included resentment of the routine imposed by diabetes,^{13,14,16-21} medication side effects that restrict your life,¹⁹ impact on the family (including separate meals),^{19,21} and imposed dietary change.^{28,30,34,36}
- ii. **Disabilities as barriers:** Disabilities included diabetes-related complications (e.g. amputation and blindness),^{17,29,39} non-diabetes related physical disabilities,^{17,24,26,29,30,37,39} and mental health disabilities (e.g. depression and alcoholism).^{16,24,30,34,37}

d) Expectations

- i. **Communication barriers:** Besides poor communication in general,^{12,13,17,19,22,27,34,36,39} use of jargon^{19,22,24} and little knowledge transfer to the patient,^{14,17,19,21,22,24,28,31,34,35} were specifically identified.

- ii. **Time barriers:** Short consultations due to time pressure.^{14,17,19,23,28,29,33-36}
- iii. **Relationship barriers:** Barriers included patients being too deferential^{24,35,36} or even not trusting their clinician,^{18,22,27,36} and clinicians being judgmental,^{19,27,32} and having unrealistic expectations of patients.³⁴

II. Understanding the whole person

a) Person

- i. **Personality barriers:** Diabetes self-management may be more difficult for some people, such as those with an 'external locus of control', described as passive, dependent, having low self-efficacy and being more reliant on others.^{14,17,22,29,39}
- ii. **Gender barriers:** Males were described as poor attendees,^{28,30,32} and South-east Asian females in one study indicated they would like gender-specific education sessions.²⁴
- iii. **Biopsychosocial barriers:** Some patients have complex health needs, which make diabetes care more challenging.¹²

b) Proximal context

- i. **Family barriers:** These included other family members being given priority,^{15,17,19,30,39} and the family being unsupportive.^{13,17,18,21,26,37,39}
- ii. **Financial barriers:** These included costs related to clinician visits and drugs,^{12,17,19,25-29,31,32,35,39} 'healthy' foods,^{13,19,23,26,29} travel to access care,^{28,33,39} group education sessions,^{31,33} time away from work to attend appointments,²⁸ as well as fluctuating personal financial situations.^{19,28}
- iii. **Education/health literacy barriers:** These included poor literacy/education,^{12,16-19,21-23,25,27,28,32,33,35-37,39} lack of diabetes self-management education,^{30,37,38} and that knowledge is not sustained over time.^{14,21}
- iv. **Employment barriers:** These related to insulin use, including inflexibility around breaks and meals with shift work,^{19,21} lack of privacy to give injections,¹⁹ missing doses to avoid hypoglycaemia with physically demanding jobs,¹⁹ and declining insulin as a treatment option because they drove for a living.²¹

- v. **Leisure barriers:** These included restricting exercise because of the fear of exercise causing hypoglycaemia¹⁹ (see also section Ia-i. Fear or distress) and the inconvenience of always having to plan ahead.¹⁹
- vi. **Social support barriers:** These included the public stigma of injecting insulin (see also sections Ia-iv and IIb-iv), being ‘bullied’ about food choices,^{19,21} and being socially isolated.^{19,21,27,37,38}

c) *Distal context*

- i. **Cultural differences as barriers:** These include cultural beliefs (see section Ib-ii), inappropriate cultural messages,^{17,39} cross-cultural gaps (including language differences) between patient and clinician,^{13,22-25,29,32,34-36,39} and that participating in sports as exercise may have no cultural meaning.^{23,35,36}
- ii. **Health care system barriers:** These include a poor knowledge of available health care services,^{17,31,32,39} difficulty accessing health care services (such as lack of a public bus service),¹⁷ long travel times,^{17,28} lack of ramps,^{17,21,39} no evening or weekend clinics,^{17,21,39} restricted rural services,^{17,37} health workforce shortages,^{17,28,38,39} lack of availability of health education,^{17,23,27,29,31,32,38} restricted availability of drugs and tests (e.g. haemoglobin A1c [HbA1c]),²⁸ long waiting times for secondary care,²⁸ diabetes care being a low priority to funders,^{17,33} lack of clinical recall systems,^{29,33} poor remuneration for chronic disease management,^{33,38} and inadequate patient education.^{27,29,33,38}
- iii. **Community barriers:** These include a lack of public transport,¹⁷ lack of healthy food availability,^{17,39} and unsafe streets for walking as exercise.²³

III. Finding common ground

a) *Mutually defining problems and priorities*

- i. **Health beliefs as barriers:** Patients’ beliefs differing from those of clinicians (see sections Ib-i and Ib-ii).

b) *Establishing goals of treatment*

- i. **Relationship barriers:** This includes goals that are imposed by clinicians,^{13,18,19,31,34} and goals that are not individualised (i.e. the same recommendations for everyone).^{13,19,31,34}

IV. Incorporating disease prevention and health promotion

a) *Disease prevention*

- i. **Health beliefs as barriers:** Symptoms act as motivators, with patients only taking action when symptoms occur (see section Ib-i).

b) *Health promotion*

- i. **Education barriers:** Preventive health care being poorly understood by patients.^{23,33}

V. Enhancing the clinician–patient relationship

a) *Facilitating communication*

- i. **Gender differences as barriers** (see section IIa-ii)
- ii. **Cultural differences as barriers** (see sections Ib-ii and IIc-I)
- iii. **Communication barriers** (see section Id-i): Additional barriers include clinicians not asking about patients’ decision-making processes,^{22,27} and inappropriate use of external motivators (e.g. trying to ‘shock’ the patient with the fear of complications) to motivate patients.²⁷
- iv. **Time barriers** (see section Id-ii).
- v. **Relationship barriers** (see section Id-iii).
- vi. **Conflicting clinician advice as a barrier.**^{24,31}

b) *Growing compassion, building trust, and sharing decision-making and power*

- i. **Clinician attitude barriers:** These include the clinician being perceived as judgmental and having unrealistic expectations of the patient (see section Id-iii), paternalism (compliance assumed, patient autonomy ignored, patients blamed for poor outcome),^{13,15,17,19,27,28,31} and ‘forced

responsibility' (patient held responsible for outcomes but not allowed to choose management).^{14,15,34}

- ii. **Health targets as barriers:** Clinician focused on meeting their 'targets' (e.g. HbA1c <53 mmol/mol).^{14,27}

c) Clinician self-reflection

- i. **Clinicians unaware of their own deficiencies as barriers:** Clinicians may have knowledge gaps in chronic disease knowledge, skills and attitudes,^{14,16,28,29,33,38,39} have poor communication skills,^{22,33,34,38} (also see sections Id-i and Va-iii) and may be unaware of how social and cultural gaps between the patient and clinician can impact on care.^{13,22,32}
- ii. **Clinician emotional responses as barriers:** These relate to either lack of clinician motivation due to perceived lack of respect,^{27,28} or to clinician frustration and anger impacting on the relationship due to perceived patient non-compliance.^{17,27,34}

VI. Being realistic

a) Time and timing

- i. **Workload barriers:** This includes limited time in the consultation (see section Id-ii).

b) Teamwork and team-building

- i. **Workforce barriers:** This included workforce shortages.^{17,28,38}
- ii. **Multidisciplinary team barriers:** This included poor collaboration,^{27,33,35,38} and limited local support.^{27,28,31,33}

Implications for practice

To the authors' knowledge, this is the first paper to use the PCM clinical framework (Table 1)¹¹ to illustrate the wide range of barriers to care for people with Type 2 diabetes. Not only does this help clinicians appreciate the large number of potential barriers faced by their patients with Type 2 diabetes, but it also provides a practical framework within which to examine these barriers in the clinical setting.

Medical training focuses on diagnosing and managing disease, with less emphasis placed on understanding the illness experience of patients, now recognised as an integral component of successful chronic disease management.¹⁰ However, all clinicians need to be aware of, and to explore, the emotional responses patients may have to their diabetes (such as distress or fear¹⁴⁻²⁵). Similarly, all clinicians need to be aware of, and to explore, patients' poor understanding of diabetes¹⁴⁻¹⁹ and non-scientific beliefs about their diabetes (such as diabetes is caused by eating sugar,^{15,19,23,36} diabetes is an acute illness that will resolve,^{14,15,17-19,23,27,29,35,36} no symptoms means no disease^{15,18,19,21,23,29,32,33}). These may negatively impact on patient self-management if not explored and discussed.

PCM¹¹ provides a clinical framework to enable all clinicians to explore barriers to care. Investigating both the disease and illness experience (see Table 1, section I) requires the clinician to understand the disease process, as well as the need to work with each patient's unique illness experience. Clinicians focusing only on diabetes disease management ignores the significant impact that a person's feelings, beliefs and expectations about their illness will have on their self-management. *Section II: Understanding the whole person* further expands a clinician's understanding of the patient's illness experience by providing the context of the patient's life experience, such as educational, financial, and family/work constraints and the impact they may have on diabetes self-management. Similarly, *Section III: Finding common ground* requires the clinician to establish trust and respect within the therapeutic relationship, so that mutual understanding and agreement can be reached regarding problem definition, goals of treatment, and respective roles. *Section IV: Incorporating disease prevention and health promotion* reminds the clinician to broaden the discussion beyond diabetes control. *Section V: Enhancing the clinician-patient relationship* can also be viewed as a reminder to clinicians that every encounter is an opportunity to build on their relationship with a patient; while *Section VI: Being realistic* reminds the clinician to be aware of their own limitations, as well as those of their patients and the health care system. Being realistic may help

to provide a better appreciation of, and focus on, those barriers that can be changed.

By following these six interactive components of the patient-centred process, the clinician and patient can together explore and identify what is truly meaningful for that patient, so that glycaemic control becomes as much a patient priority, as a clinician priority. Table 2 presents some questions from a PCM perspective that could assist health care providers to more fully explore each patient's barriers to diabetes self-management.

All of the barriers related to the first and third components of PCM (*Section I. Disease and illness experience* and *Section III. Finding common ground*; see Table 1) can be explored, understood and/or potentially rectified from within the clinician-patient relationship. Likewise, many barriers in the second component (*Section II. Understanding the whole person*) can be resolved by clinicians working in partnership with their patients (e.g. always including costs when discussing the range of management options so that patients can decide how best to spend their money). Obviously, resolution of some barriers requires the effort of people and agencies outside the clinical team (e.g. lack of ramps into clinics, no after-hours clinics, lack of privacy at workplaces for injecting insulin, social stigma regarding injecting insulin). However, it is entirely within the clinicians' ability to explore the impact of these barriers on individual patients. Furthermore, the onus is clearly on the clinician with regard to overcoming paternalistic attitudes that deny patients their autonomy in decision-making. As pointed out by Rodriguez, 'I may know what is best for another person's health, but I am ignorant and arrogant if I think I know what is best for another person's life.'⁴⁰

Within the 28 papers identified by the authors describing three or more barriers to diabetes care,¹²⁻³⁹ there was only one barrier that did not fit within the PCM framework—that of 'patient non-compliance' (non-adherence). PCM recognises patients as autonomous beings, experts of their own lives, who make the best decisions they can with the knowledge they possess. There is no expectation that they will simply passively comply with expert recommendations and, as

such, within PCM the concept of non-compliance is irrelevant.⁴¹ Indeed, the clinician belief in non-compliance is, in fact, the barrier that needs to be addressed.

Accepting patient 'non-compliance' as an explanation for poor diabetes control allows clinicians to simply attribute blame to the patient,³² and prevents providers from exploring and determining the real barriers to care. The clinician remains ignorant of why their patient has decided to disregard their recommendations, and misses the opportunity to work alongside their patient to identify which of the many barriers are preventing that person from having better diabetes control. Simply attributing blame to patients for perceived non-compliance shows a lack of respect for that person's choices, interferes with the establishment of a therapeutic partnership, and prevents the clinician from becoming a positive change enabler that empowers their patient to self-manage their diabetes.⁴² This critical blind-spot of the biomedical paradigm has been repeatedly identified as a significant barrier to patient self-management.^{4,14,23,27,31,41,43,44}

Informed consent,⁴⁵ like patient-centred medicine, recognises that most clinical interventions involve choice and that an autonomous patient may have very specific reasons for selecting their preferred management option. It also recognises that patients will only succeed in choosing what is the best option for themselves if they are truly well-informed. Thus, to ensure consent is freely given by an informed, competent patient, clinicians are required to provide the information about all treatment options, including the option of no treatment.⁴⁵ This puts the onus on the clinician to communicate effectively.

To date, diabetes management has frequently not met this standard. Some clinicians simply choose what they think is the best treatment for their patient (i.e. no patient choice), or patients may be told only about some treatment options (e.g. only those recommended by disease management guidelines or those that the clinician thinks are best or affordable for the patient). Until recently, diabetes management guidelines have ranked management choices based on the best available evidence, with the goal of producing desirable

Table 2. Exploring a patient's barriers to diabetic control

Components of the patient-centred medicine clinical framework	Questions
General questions	
	If I had never heard of diabetes, how would you explain it to me?
	What do you find the hardest about having diabetes?
	What do you feel gets in the way of your diabetes management?
Illness experience	
a) Fears (distress)	What do you find most distressing about having diabetes? Explore the meaning of hypoglycaemia, treatment escalation, and starting insulin.
b) Ideas (beliefs)	What do you think has caused you to have diabetes? What are the key aspects of taking care of your diabetes? Other than what clinicians have recommended to you, have you tried any other things to help control your diabetes?
c) Functioning	Does diabetes affect your emotions or your body? Do you have other health problems that affect your diabetes control?
d) Expectations	What role would you like me to play? What things could I do that you would find most helpful?
Understanding the whole person	
a) Person	Does your personality/mood affect how you manage your diabetes? Explore depression, dementia, and other psychiatric diagnoses.
b) Proximal context	Do any of the following affect your ability to care for your diabetes: your family, your finances, your job, your hobbies, or your socialising? Explore family views about diabetes; current financial problems; difficulties giving insulin at work. Explore their health literacy: can they read, is English their second language?
c) Distal context	Do you feel any of the following affect your ability to care for your diabetes: your culture, the health care system, or your local community? Explore cultural beliefs about diabetes and treatment; barriers in accessing health care; barriers in the community.
Finding common ground	
Make explicit	As a clinician, my goal is to work in partnership with my patients to help them in whatever way I can to control their diabetes and stay healthy. However, while I may be a disease expert and know a lot about diabetes, you are the expert of your life, and how diabetes and its treatment fits into your life. So we need to agree together on three important areas: a) What do you believe is keeping you from being able to control your diabetes? Of these, what do you think are the top priorities? b) What would you like to achieve with your diabetes management? What are your specific goals and how will we know when we have been successful? c) What do we each need to do to achieve these goals?
Teach back	For you, what has been the most important things we've discussed today, and how will you explain them to your family?

disease-oriented outcomes. However, recognising patient participation as key to successful diabetes management, the 2012 consensus guideline from the American Diabetes Association and the European Association for the Study of Diabetes acknowledges that there is little evidence to support one treatment option over another for HbA1c reduction, and that patient participation in medical decision-making ‘constitutes one of the core principles of evidence-based medicine’.¹⁰ Accordingly, these guidelines have been written to fully inform clinicians of all available treatment options so that they can ‘integrate current evidence with other constraints and imperatives in the context of patient-specific factors’.¹⁰ To adopt a patient-centred approach, clinicians need to eliminate the terms non-compliance/non-adherence from their vocabulary, and instead embrace a respectful curiosity about why patients make certain decisions, that to some providers may seem like ‘wrong’ decisions. Thus, successful disease outcomes will depend more on clinicians changing their approach to diabetes management, than on patients changing.

Patient-centred care has been included as one of the six core attributes of a quality health care system by the Institute of Medicine in the United States.⁹ The patient-centred paradigm combines the best of biomedical and social science research, and applies it to the human interaction that is patient care. The patient-centred paradigm has subsumed the biomedical paradigm, by borrowing theory and research findings from the social sciences⁴⁴ to account for the anomaly of non-compliance. Changing paradigms within science is difficult, and sometimes scientists and clinicians never change. As Max Planck said:

A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.⁴⁶

Hospital-based clinicians may find the change particularly challenging, as the expanded theoretical framework embraces social sciences research and methodologies⁴⁴ with which many will be unfamiliar, and was introduced into medicine by family doctors who are frequently not highly regarded within the medical power hierarchy.

Final comments

Using the PCM clinical framework to identify barriers to care in Type 2 diabetes not only allows a better appreciation of the large range of potential barriers, but also provides a practical framework with which to explore these barriers with patients. Behavioural change is difficult, but patients may become better self-managers of their diabetes when clinicians shift from a directive, paternalistic approach (‘Do what I say’), to a collaborative, respectful partnership, where they jointly identify and attempt to eliminate or minimise barriers. This collaborative approach also eliminates the clinician barrier of labelling patients as non-compliant, which effectively prevents clinicians from exploring the real barriers to care. Clinicians will undoubtedly discover just how difficult behavioural change is, once they see that it is they themselves, not their patients, who really need to change.

References

1. UK Prospective Diabetes Study (UKPDS) Group. Effect of intensive blood-glucose control with metformin on complications in overweight patients with type 2 diabetes (UKPDS 34). *Lancet*. 1998;352(9131):854–65.
2. Spenceley SM, Williams BA. Self-care from the perspective of people living with diabetes. *Can J Nurs Res*. 2006;38(3):124–45.
3. Baxter J. Barriers to health care for Māori with known diabetes: a literature review and summary of issues. Prepared for the New Zealand National Working Group on Diabetes: Te Ropu Rangahau Hauora a Ngai Tahu. September; 2002.
4. Campbell R, Pound P, Pope C, Britten N, Pill R, Morgan M, et al. Evaluating meta-ethnography: a synthesis of qualitative research on lay experiences of diabetes and diabetes care. *Soc Sci Med*. 2003;56(4):671–84.
5. Nam S, Chesla C, Stotts NA, Kroon L, Janson SL. Barriers to diabetes management: Patient and provider factors. *Diabet Res Clin Pract*. 2011;93(1):1–9.
6. Schmittiel JA, Uratsu CS, Karter AJ, Heisler M, Subramanian U, Mangione CM, et al. Why don't diabetes patients achieve recommended risk factor targets? Poor adherence versus lack of treatment intensification. *J Gen Intern Med*. 2008;23(5):588–94.
7. Haynes RB, Ackloo E, Sahota N, McDonald HP, Yao X. Interventions for enhancing medication adherence. *Cochrane Database Syst Rev*. 2008;(2):CD000011.
8. Odegaard PS, Capoccia K. Medication taking and diabetes: a systematic review of the literature. *Diabetes Educ*. 2007;33(6):1014–29.
9. Institute of Medicine Committee on Quality of Health Care in America. Crossing the quality chasm: a new health system for the 21st century. Washington DC; 2001.
10. Inzucchi S, Bergenstal R, Buse J, Diamant M, Ferrannini E, Nauck M, et al. Management of hyperglycemia in type 2 diabetes: a patient-centered approach. Position Statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes Care*. 2012;35:1364–79.

11. Stewart M, Brown J, Weston W, McWhinney I, McWilliam C, Freeman T. Patient-centered medicine: transforming the clinical method. 2nd ed. United Kingdom: Radcliffe Medical Press; 2003.
12. Dalewitz J, Khan N, Hershey CO. Barriers to control of blood glucose in diabetes mellitus. *Am J Med Qual.* 2000;15(1):16–25.
13. Vijan S, Stuart NS, Fitzgerald JT, Ronis DL, Hayward RA, Slater S, et al. Barriers to following dietary recommendations in type 2 diabetes. *Diabetes Med.* 2005;22(1):32–8.
14. Gillibrand W, Flynn M. Forced externalization of control in people with diabetes: a qualitative exploratory study. *J Adv Nurs.* 2001;34(4):501–10.
15. Hornsten A, Sandstrom H, Lundman B. Personal understandings of illness among people with type 2 diabetes. *J Adv Nurs.* 2004;47(2):174–82.
16. Lerman I, Diaz JP, Ibarguengoitia ME, Perez FJ, Villa AR, Velasco ML, et al. Nonadherence to insulin therapy in low-income, type 2 diabetic patients. *Endocr Pract.* 2009;15(1):41–6.
17. Simmons D, Weblemoe T, Voyle J, Prichard A, Leakehe L, Gatland B. Personal barriers to diabetes care: lessons from a multi-ethnic community in New Zealand. *Diabetes Med.* 1998;15(11):958–64.
18. Tapu-Ta'ala S. Making the transition to insulin therapy: the experiences of Samoan people with type 2 diabetes in New Zealand. Wellington: Victoria University; 2011.
19. Janes R, Titchener J, Pere J, Pere R, Senior J. Understanding barriers to glycaemic control from the patient's perspective. *J Prim Health Care.* 2013;5(2):114–22.
20. Chlebowy DO, Hood S, LaJoie AS. Facilitators and barriers to self-management of type 2 diabetes among urban African American adults: focus group findings. *Diabetes Educ.* 2010;36(6):897–905.
21. Gazmararian JA, Ziemer DC, Barnes C. Perception of barriers to self-care management among diabetic patients. *Diabetes Educ.* 2009;35(5):778–88.
22. Peek ME, Wilson SC, Gorawara-Bhat R, Odoms-Young A, Quinn MT, Chin MH. Barriers and facilitators to shared decision-making among African-Americans with diabetes. *J Gen Int Med.* 2009;24(10):1135–9.
23. Greenhalgh T, Helman C, Chowdhury AM. Health beliefs and folk models of diabetes in British Bangladeshis: a qualitative study. *BMJ.* 1998;316(7136):978–83.
24. Stone M, Pound E, Pancholi A, Farooqi A, Khunti K. Empowering patients with diabetes: a qualitative primary care study focusing on South Asians in Leicester, UK. *Fam Pract.* 2005;22(6):647–52.
25. Aikens JE, Piette JD. Diabetic patients' medication underuse, illness outcomes, and beliefs about antihyperglycemic and antihypertensive treatments. *Diabetes Care.* 2009;32(1):19–24.
26. Auslander WF, Sterzing PR, Zayas LE, White NH. Psychosocial resources and barriers to self-management in African American adolescents with type 2 diabetes: a qualitative analysis. *Diabetes Educ.* 2010;36(4):613–22.
27. Wens J, Vermeire E, Royen PV, Sabbe B, Denekens J. GPs' perspectives of type 2 diabetes patients' adherence to treatment: a qualitative analysis of barriers and solutions. *BMC Fam Pract.* 2005;6(1):20.
28. Alberti H, Boudriga N, Nabli M. Primary care management of diabetes in a low/middle income country: a multi-method, qualitative study of barriers and facilitators to care. *BMC Fam Pract.* 2007;8:63.
29. Brown JB, Harris SB, Webster-Bogaert S, Wetmore S, Faulds C, Stewart M. The role of patient, physician and systemic factors in the management of type 2 diabetes mellitus. *Fam Pract.* 2002;19(4):344–9.
30. Song M, Lee M, Shim B. Barriers to and facilitators of self-management adherence in Korean older adults with type 2 diabetes. *Int J Older People Nurs.* 2010;5(3):211–8.
31. Nagelkerk J, Reick K, Meengs L. Perceived barriers and effective strategies to diabetes self-management. *J Adv Nurs.* 2006;54(2):151–8.
32. McCreanor T, Nairn R. Tauwiwi general practitioners talk about Maori health: interpretative repertoires. *N Z Med J.* 2002;115(1167):U272.
33. Elliott DJ, Robinson EJ, Sanford M, Herrman JW, Riesenber LA. Systemic barriers to diabetes management in primary care: a qualitative analysis of Delaware physicians. *Am J Med Qual.* 2011;26(4):284–90.
34. Beverly E, Ritholz M, Brooks K, Hultgren B, Lee Y, Abrahamson M, et al. A qualitative study of perceived responsibility and self-blame in type 2 diabetes: reflections of physicians and patients. *J Gen Med.* 2012;27(9):1180–7.
35. Lee YK, Ng CJ, Lee PY, Khoo EM, Abdullah KL, Low WY, et al. What are the barriers faced by patients using insulin? A qualitative study of Malaysian health care professionals' views. *Patient Prefer Adherence.* 2013;7:103–9.
36. Renfrew M, Taing E, Cohen M, Betancourt J, Pasinski R, Green A. Barriers to care for Cambodian patients with diabetes: results from a qualitative study. *J Health Care Poor Underserved.* 2013;24:633–55.
37. Shaw JL, Brown J, Khan B, Mau MK, Dillard D. Resources, roadblocks and turning points: a qualitative study of American Indian/Alaskan native adults with type 2 diabetes. *J Community Health.* 2013;38:86–94.
38. Holt R, Nicolucci A, Burns K, Escalante M, Forbes A, Hermanns N, et al. Diabetes Attitudes, Wishes and Needs second study (DAWN2): cross-national comparisons on barriers and resources for optimal care—healthcare professional perspective. *Diabet Med.* 2013;30:789–98.
39. Simmons D, Lillis S, Swan J, Haar J. Discordance in perceptions of barriers to diabetes care between patients and primary care and secondary care. *Diabetes Care.* 2007;30(3):490–5.
40. Rodriguez K. Intrinsic and extrinsic factors affecting patient engagement in diabetes self-management: perspectives of a certified diabetes educator. *Clin Ther.* 2013;35:170–8.
41. Funnell MM, Anderson RM. The problem with compliance in diabetes. *JAMA.* 2000;284(13):1709.
42. Balint M. The doctor, his patient and the illness. 2nd ed. New York: International Universities Press, Inc.; 1972.
43. Bauman L. A patient-centered approach to adherence: risks of non-adherence. In: Dorta D, Editor. Promoting adherence to medical treatment in chronic childhood illness. Mahwah, USA: L Earbaum Associates Ltd; 2000. p. 62–81.
44. Fisher L, Glasgow RE. A call for more effectively integrating behavioral and social science principles into comprehensive diabetes care. *Diabetes Care.* 2007;30(10):2746–9.
45. Paterson R. Informed consent in New Zealand: medical myths. *N Z Med J.* 2003;116(1183):U628.
46. Kuhn T. The structure of scientific revolutions. 3rd ed. Chicago: University of Chicago Press; 1996.

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COMPETING INTERESTS

None declared.