

# Literature review: The self-management of diet, exercise and medicine adherence of people with type 2 diabetes is influenced by their spiritual beliefs

Natasha Duke, Wendy Wigley

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## Article points

1. The spirituality and religious beliefs of people with type 2 diabetes have profound effects on their self-management of the condition.
2. Positive effects of spirituality include improved coping and incentives towards healthful behaviours; however, negative effects include fatalism and the use of complementary medicine and/or practices instead of prescribed medicines.
3. Clinicians should be prepared to discuss a patient's spiritual beliefs without trying to change them, in order to give the best targeted, individualised care.

## Key words

- Diet and exercise
- Medicines adherence
- Self-management
- Spirituality and religion
- Type 2 diabetes

## Authors

Natasha Duke is an Advanced Nurse Practitioner in Hampshire and studying towards a Doctorate of Clinical Practice at the University of Southampton. Wendy Wigley is Principal Teaching Fellow, University of Southampton, and academic supervisor of Natasha Duke.

**This article is a literature review on how the spirituality of people with type 2 diabetes can significantly impact their approach to their diabetes treatment plans. The results show that, although spirituality can give people strength to cope with a chronic condition, it may result in poor diabetes care if they abandon self-management because they believe it is fate or the will of a deity for them to have diabetes. Key themes include how spirituality/religion influences the self-management behaviours of diet and exercise; how the use of complementary and alternative medicines and practices affect diet and medicine adherence; how ethnicity and gender impact self-management; and how coping styles affect self-management, including how a “future-orientated focus” may aid self-care. Finally, a model is outlined that can be used in the clinic for spiritual assessment of people with diabetes.**

In the UK, NICE (2015) states that good diabetes care should support people in developing attitudes, beliefs, knowledge and skills to self-manage their diabetes. The UK Nursing and Midwifery Council (2014) also recommends assessment of patients' spiritual beliefs as part of a comprehensive plan. People with diabetes are predominantly managed in primary care, with specialist clinics seeing complex patients. Standards of care are set by the Quality and Outcomes Framework (QOF), which remunerates GP practices for care given. As QOF does not require clinicians to ask patients about their spirituality, this is unlikely to be addressed in practice. In addition, clinicians may feel that they lack enough time to assess spirituality (Brush and Daly, 2000), that they are inadequately trained to discuss it (McSherry, 2010) and that asking about patients' spiritual beliefs may leave them open to criticism (Beckford and Gammell, 2009).

Research shows that the spirituality of people with type 2 diabetes can have a profound influence

on their diet, exercise and medicine adherence (Polzer and Miles, 2007). This is not unique to diabetes, and empirical evidence shows a positive link between spirituality and health (Miller and Thoresen, 2003; Gall and Grant, 2005; Koenig et al, 2012). Unless asked, people with diabetes may not discuss their spiritual beliefs with clinicians, yet these may be a reason why they are not engaging with treatment plans. For some people, their spirituality becomes significant when facing ill health (Royal College of Nursing, 2011).

Recently, interviews at our clinic in primary care have revealed a number of beliefs affecting patients' self-management of diabetes, including the following:

- “Diet and exercise are not a concern as God will not allow me to suffer the complications of diabetes.”
- “It is my fate to have type 2 diabetes; diet and exercise would make no difference.”
- “Diabetes medications can be omitted if I am having complementary treatment (such as hypnosis) that day.”

● “A ‘purging detox diet’ will cure me, so I have stopped my diabetes medications.”

These individuals had not discussed these beliefs with a healthcare professional before, as they did not think they were relevant, thought their healthcare provider might “tell them off”, or felt they would not be understood.

Subsequently, discussion at a local diabetes nurse network meeting revealed that nurses rarely discussed spirituality as they were unaware it could impact patients’ engagement with treatment plans, and because they were concerned as to how to raise this topic.

As a result, this literature review has been undertaken to find out what is known about spirituality and diabetes care. This article outlines the key themes from the literature review, showing that people’s spirituality can influence their diabetes self-management behaviours. Spiritual models are also identified that clinicians can use to address this aspect with their patients.

**Method**

This review includes published and unpublished data, academic books and journals, websites, policy

documents/reports and emails from experts in the field. The Boolean operator “AND” was used in the search to connect the term “type 2 diabetes” with the term “spirituality”. No date restrictions were placed and over 70 databases were accessed. Analysis of these papers began with the creation of a “mindmap” (Figure 1).

**Results**

The adapted PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses; Moher et al, 2010) diagram summarises the papers identified (Figure 2). In total, 37 articles were read and 13 were viewed as key papers. The vast majority of studies were from the US, with two from Australia, five from the UK, four from south-east Asia and one from Sweden.

The key themes identified are listed in Table 1 and will be analysed in further detail here.

**The terms “spirituality” and “religion”**

Chuengsatiansup (2003) has stated that “health and policy experts lack common language in addressing spirituality”, and this was evident in this literature review. The term “spirituality” was

**Page points**

1. This literature review was undertaken following reports of a number of beliefs that were negatively affecting people’s management of their type 2 diabetes at the author’s clinic.
2. A total of 37 articles were reviewed, of which 13 were viewed as key papers. Twenty-five articles were from the US, with the remainder from Australia, the UK, south-east Asia and Sweden.

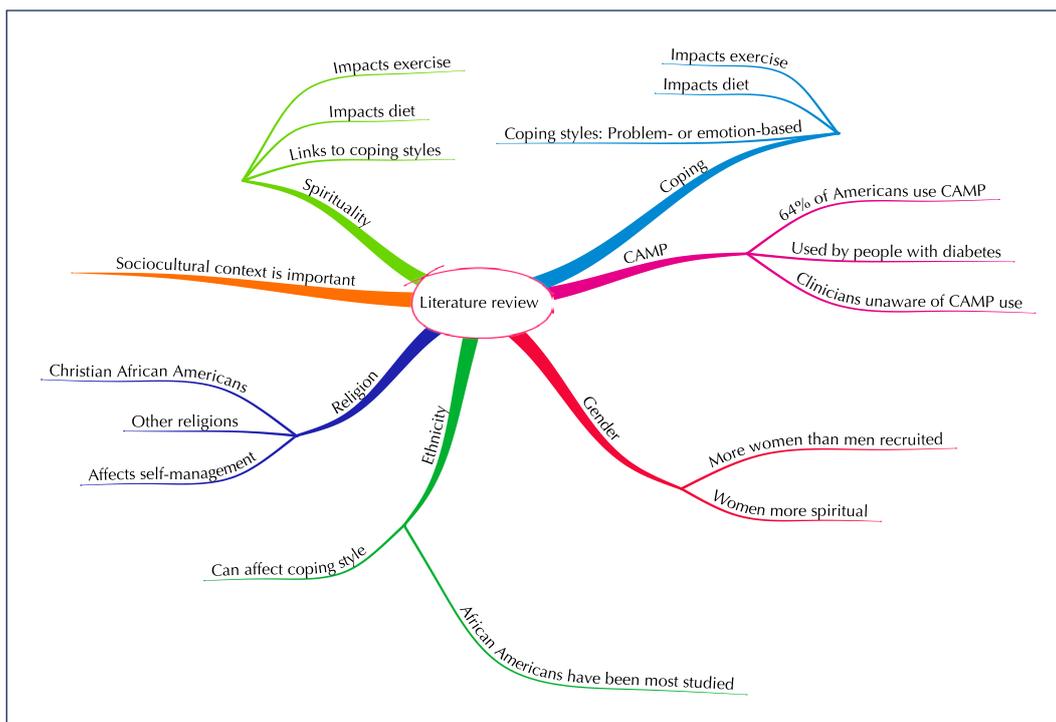


Figure 1. Mindmap of the themes revealed by the literature search. CAMP=complementary and alternative medicine and practices.

<b>Factors that influence spirituality</b>	<b>Mechanisms by which spirituality affects type 2 diabetes self-management</b>
Race	Diet
Ethnicity	Exercise
Gender	Medicine adherence
	Ability to cope with type 2 diabetes
	Adding complementary and alternative medicines and practices to prescribed treatment

defined and analysed differently in each study. Investigators may claim to analyse spirituality in general, but really they are focusing on one religion owing to the participant sampling

methods employed. The papers reviewed were separated into concepts of “spirituality” and “religion” (see *Figure 1*), but 24 of them showed that, while these concepts may differ, they are most often inter-related. Although being religious (“religiosity”) involves spirituality, spirituality does not necessarily involve religiosity (Swinton, 2010). In the literature, spirituality was broadly defined as the awareness of the inner self that was shaped by human experience and practice, sometimes highlighted at times of difficulty, and which might include awareness/worship of a higher power or deity (Hjelm et al, 2005; Polzer and Miles, 2007; Harris, 2009; Cordova, 2011). In this review, the term spirituality is used to incorporate any spiritual or religious belief and/or practice.

**Spirituality/religion affects self-management of diet and exercise**

A number of studies demonstrate how spirituality impacts type 2 diabetes. Polzer and Miles (2007) found that Christian African Americans with type 2 diabetes could be categorised into three groups:

- Group 1 took responsibility for self-management and viewed God as a collaborative supporter “in the background”. An equal power balance was perceived between the person and God, with the person as the major actor and God assisting them to take responsibility and perform good self-management.
- Group 2 saw “God in the forefront” as the major actor and themselves as submissive to his authority. Positive outcomes in health were viewed as God’s will rather than a result of self-management, and faith was believed to be more important than self-management. The authors have found this belief to be evident in some British people with type 2 diabetes.
- Group 3 saw “God as the Healer”, believing that, if they had enough faith, self-management was irrelevant because God would heal them.

The study by Polzer Casarez et al (2010), also conducted among Christian African Americans, also showed that spirituality may reduce efforts towards self-management, attention to diet, exercise and taking antidiabetes medications. Jones et al (2006) found similar typologies among Christian African Americans with type 2 diabetes using complementary and alternative therapies.

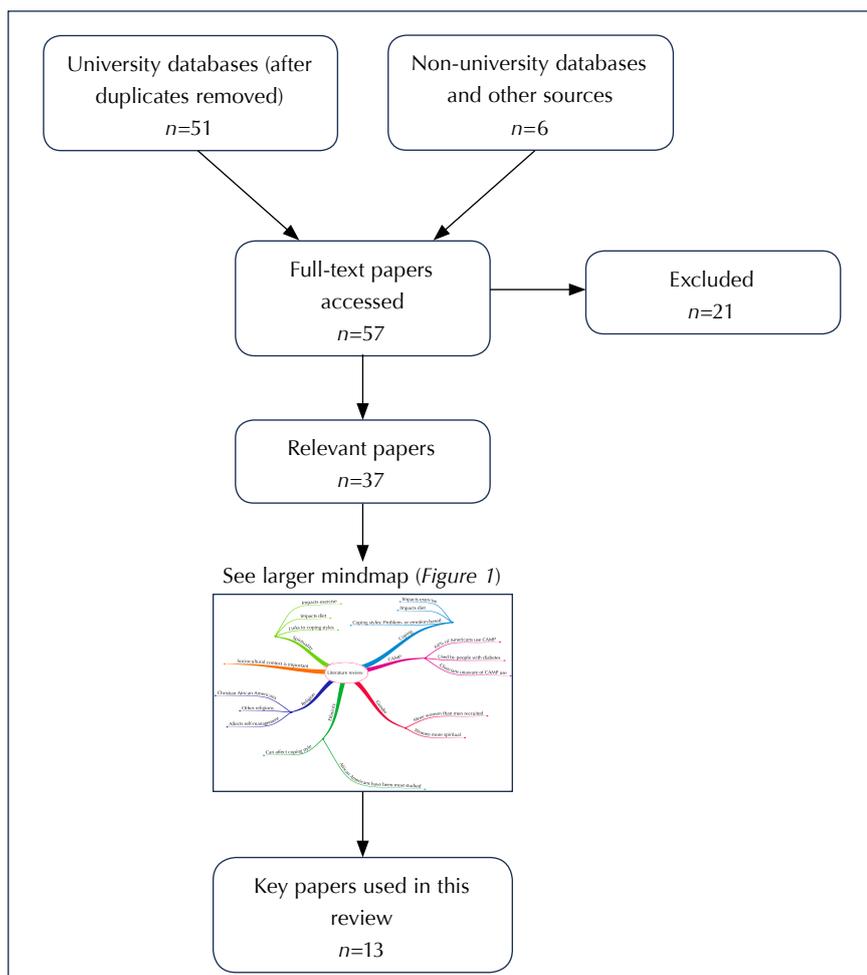


Figure 2. Adapted PRISMA diagram summarising the articles used in this review. PRISMA=Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

One group used prayer and faith as coping mechanisms, the second believed that God assists healthcare providers and the third believed in links between faith and treatment support. However, none abandoned treatment and relied on God alone, as in the study by Polzer and Miles (2007).

Research in Muslim and Buddhist women also showed that religion aided coping, spiritual practices aided diet and exercise, and support from family helped. However, some would ignore medical advice in favour of spiritual practice, such as fasting during Ramadan for Muslim women (Lundberg and Thrakul, 2013). Additionally, illness is viewed as atonement for sin in Islam and a result of behaviour in a previous life in Buddhism. The authors found that, while some endeavoured health-promoting behaviour despite these beliefs, others were resigned to their fate.

### Complementary therapies are linked to spirituality and affect diet and medicine adherence

This review reveals that the use of complementary and alternative medicine and practices (CAMP) is common in American people with type 2 diabetes. The US National Institutes of Health (2016) report that more than 30% of Americans use CAMP, including new-age practices, meditation, acupuncture, chiropractic, naturopathy, herbs, diet-based therapy, guided imagery, hypnotherapy and many others. If prayer is included in CAMP, this rate rises to 62% (Barnes et al, 2004; Jones et al, 2006). Reasons for using CAMP are complex, but may involve costs and traditional beliefs. Eleven studies have specifically researched the use of CAMP, including prayer, diet-based therapies, spiritual healing, massage, meditation and vitamins, in people with diabetes (Jones et al, 2006). CAMP was found to be used more by people with diabetes than those without the condition (Egede et al, 2002), and more by women than men (Jones et al, 2006).

Amirehsani (2011) found that 69% of Latinos/Hispanics with type 2 diabetes used herbs or plants alongside prescription medicines; of these, 77% did not advise clinicians of this (despite the potential for herbs/plants to interact with medicines), and 73% of those who were using a combination of CAMP and prescription

medicines did not advise clinicians accordingly. In addition, some altered their prescription medicines on the days they took plants/herbs. Around 30% believed that combinations of faith and medicines were effective and 71% wanted doctors to use or prescribe prayer. These participants believed that prayer helped prescribed/alternative medicines to work, that God guided their doctors and, in particular, that prayer/God helped them to cope.

Meetoo and Meetoo (2005) also observed this phenomenon in British people in their clinic, with 16 of the 25 Asians surveyed fusing prescribed treatment with bitter gourd, okra or grapefruit, without informing clinicians. This is particularly important as grapefruit juice may interact with the statins and calcium channel blockers that many people with type 2 diabetes will be taking (NHS Choices, 2015).

### Ethnicity and gender

Most studies were conducted in the US, targeting African Americans, who are considered a spiritual population (Polzer and Miles, 2007). In addition, Hjelm et al (2005) analysed the contrasting beliefs of Swedish, Arabic and Yugoslavian men with diabetes living in Sweden. Good health was generally defined as being able to work, to be economically independent and to function sexually. The non-Swedes claimed that supernatural factors and stress had negative health effects. Some participants from Arabic countries believed that having diabetes may be Allah's will, but they also recognised the importance of healthy diet, exercise and avoiding smoking. Although the Yugoslavians described health as "the most important thing in life", their diet was worse, they exercised less and smoked more than the Arabs and Swedes.

A number of studies have identified women as more likely to use spiritual practices (DeCoster and Cummings, 2004; Jones et al, 2006).

### Coping

Spirituality sometimes impacts coping mechanisms in complex ways, affecting self-management of diet and exercise. This was evident in American Christians (Cordova, 2011), Thai Buddhists (Thinganjana, 2007) and Arab Muslims in Sweden (Hjelm et al, 2005). Some studies showed

### Page points

1. Religion has been found to aid coping with diabetes, encourage healthful behaviours and increase support; however, conversely, it can cause some people to ignore medical advice in favour of religious advice, or to accept the condition as fate or the will of a deity rather than attempting to manage it.
2. Complementary and alternative medicine and practices are commonly associated with spirituality and can cause patients to modify or omit their prescribed medication.
3. Spirituality is associated with ethnicity; however, most studies into spirituality and diabetes have been conducted in African Americans.
4. Women are more likely to use spiritual practices than men.

### Page points

1. Compared with problem-focused coping, emotion-based coping styles tend to involve prayer and faith in God, and were more common in women and African Americans; however, they were also associated with worse diabetes control.
2. Fatalism, the belief that events are fixed in advance and that humans are powerless to change them, is associated with worse diabetes self-management and higher HbA<sub>1c</sub>.
3. Future time orientation – focusing on the long-term rather than short-term consequences of one's actions – leads to better diabetes control; however, its association with spirituality and religiosity is inconsistent.

that spiritual coping resulted in reduced HbA<sub>1c</sub> and reduced depression (Newlin et al, 2003; Lynch et al, 2012). Rovner et al (2013) found that spirituality was correlated with increased exercise, and Newlin et al (2003) found positive associations between spirituality and lower diastolic blood pressure.

### Emotion-based coping versus problem-based coping

DeCoster and Cummings (2004) analysed coping strategies, with regard to gender and race, and identified two types of coping strategy: emotion-based and problem-based. Emotion-focused coping (which aims to reduce stress and anxiety) involved prayer and faith in God, was associated with worse type 2 diabetes control and was primarily utilised by women and African Americans. Problem-focussed coping (which aims to change the situation rather than adapt to it) was more likely to be used by white Americans and men.

### Fatalism leads to poorer diabetes control

Meetoo and Meetoo (2005) found that British Asian and Caucasian participants believed stress and hereditary factors were the main causes of type 2 diabetes, beliefs that are linked to fatalism. Egede and Ellis (2010) developed a diabetes fatalism scale to assess spiritual coping, self-management of diabetes and despair. Those who, as in Polzer and Miles (2007), saw God as controlling their diabetes, or who looked to him for healing from the condition, had poorer diabetes self-management and higher HbA<sub>1c</sub>.

### Future focus results in better diabetes control

Rovner et al (2013) used surveys to analyse African Americans with type 2 diabetes, assessing the associations of present time orientation and future time orientation with religiosity and self-care behaviours. Time orientation relates to a person's focus on short- or longer-term consequences, with future-oriented people relating current health behaviours to future disease progression. Overall, 46% of the participants engaged in all three self-management behaviours assessed: exercise, checking blood glucose and reading food labels. Those who read food labels and checked their blood glucose

were more likely to be future-oriented but not more religious. Participants engaging in exercise also had a future time orientation but were significantly more religious, although clear reasons for this were not known.

### Limitations of studies

Caution is needed when comparing outcomes of American and British people with diabetes, owing to the different healthcare models in each country. American healthcare is funded by employers, individual insurance, or Medicaid (a Government-funded, means-tested programme). Poorer American people may have no insurance, and so may have been more likely to use the cheaper CAMP alongside or as an alternative to prescribed medicines (Popoola, 2005; Utz et al, 2006; Amirehsani, 2011; Bhattacharya, 2012). In contrast, British people receive free healthcare, and so may feel less need to use CAMP.

### Discussion

This review found that spirituality in people with diabetes could result in reduced self-management of diet, exercise and medicine adherence, leading to worse diabetes control. On the positive side, belief in God gave some people greater resilience and strength to cope with having type 2 diabetes. Just as people cope with disease processes differently, likewise a spiritual response to illness is likely to be individual and multifactorial.

### Addressing spirituality in clinical practice

Clinicians may be anxious about addressing their patients' spirituality for fear of offending them. However, they can facilitate discussion with patients about how their spirituality influences their health management by asking open-ended questions (see *Box 1*; Royal College of Nursing, 2011). It is also important for clinicians to reflect on how their own spirituality (which may range from atheism to strong religious beliefs) can influence their understanding of patients' spirituality. Appropriate discussions will not involve clinicians promoting their own spiritual beliefs to their patients.

Most patients will appreciate clinicians seeking to understand their world and will make it clear if they are comfortable (or not) to talk about

their beliefs. A good rapport is necessary, with the clinician listening and responding in a compassionate manner. There are a variety of simple models available, including the following:

- **FICA:** Faith or beliefs; Importance and influence; Community; Address (Puchalski and Romer, 2000).
- **SPIRIT:** Spiritual belief system; Personal spirituality; Integration with a spiritual community; Ritualised practices and restrictions; Implications for medical care; Terminal events planning (Maugans, 1996).
- **HOPE:** Sources of Hope, meaning, comfort, strength, peace, love and connection; Organised religion; Personal spirituality and practices; Effects on medical care and end-of-life issues

(Anandarajah and Hight, 2001).

The adapted HOPE model in *Figure 3* is useful because of its simplicity and can be used to address facets of diabetes care.

### Implications for research

This review reveals that the spirituality of people with type 2 diabetes influences their self-management behaviours of diet, exercise and medicine adherence. However, most studies were conducted in white or black American Christians. Further research needs to explore how the spirituality of other racial, religious and cultural groups may affect their diabetes self-management. Quantitative and qualitative data will assist analysis of how people's spirituality may impact

#### Box 1. Examples of open questions for spiritual assessment.

- "What is it that gives you strength to cope with diabetes?"
- "Are there any particular beliefs or ways of coping that have helped you in the past?"
- "Do you have any significant beliefs or practices that help you cope with the demands of having diabetes?"



Figure 3. Adapted HOPE model (Anandarajah and Hight, 2001).

**“This review reveals that the spirituality of people with type 2 diabetes influences their self-management behaviours of diet, exercise and medicine adherence.”**

self-management, lifestyles, outcomes and the meanings they attach to experiencing and living with a chronic illness. This will assist clinicians to think broadly in terms of patients’ lives when giving targeted, individualised care. ■

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