

A qualitative study of healthcare professionals' perceived trust in and willingness to recommend alternative medicines for the management of diabetes mellitus

M F Mahomoodally, C D Ruhee, and T F M Holmes

Abstract

This small qualitative study, conducted through the University of Mauritius, examined healthcare professionals' engagement with and willingness to recommend alternative therapies (AT) for adjunctive management of diabetes, particularly type 2 diabetes. Fifteen (15) healthcare practitioners were selected to participate, completing a questionnaire regarding their opinions about the appropriateness of AT to support type 2 diabetes patients. The results highlight nutritionists' and dieticians' relative familiarity with AT, for personal use and with clinic patients. However, nurses and medical doctors were often sceptical, unwilling to discuss or recommend AT, and knew little about potential benefits. There appears an emerging need to improve training of Mauritian healthcare professionals regarding AT, to improve their ability to provide up-to-date clinical information to the many diabetic patients in the community who often use AT.

Introduction

The prevalence of diabetes is increasing worldwide, and sub-Saharan Africa including Mauritius is no exception. Recently, 14.2 million people were estimated to be living with diabetes in Africa, projected to increase to 34.2 million by 2040.¹ According to the International Diabetes Federation (IDF), over two-thirds of African people with diabetes remain undiagnosed, representing the highest global percentage of undiagnosed diabetes, placing patients at risk of developing harmful and costly complications.¹

The tropical island Mauritius has an extremely high prevalence of diabetes mortality by global standards, causing an alarming economic burden. Use of alternative therapies (AT) is anchored in local Mauritian culture in a community with moderate ongoing poverty, and persists

as cornerstone therapy for the management of many diseases. Nonetheless, there is a dearth of literature describing healthcare professionals' perceived trust in and willingness to recommend AT to support diabetic patients.

In Mauritius, the majority of diabetics suffer from type 2 diabetes. With its rapid urbanisation and prevalent Asian genetic background, combined with today's sedentary lifestyle and obesity epidemic, Mauritius is at the forefront of this scourge.² Managing diabetes is a primary goal of patients, and many turn to AT to assist with symptom management. Studies show widespread use of AT among diabetic patients, gaining momentum in many countries. Indeed, bioactive components from natural products have become popular therapeutic agents to manage diabetes and related complications.³

Health professionals are in an optimal position to influence AT use among patients. However, it is unclear to what extent the knowledge and attitudes of health providers are useful to guide those with diabetes in relation to AT. As far as could be established, as yet no qualitative studies have been geared toward investigating the views of healthcare professionals with respect to their trust in and willingness to recommend AT to manage diabetes in Mauritius. This qualitative study was designed to gather descriptive data to promote understanding of the perceptions of health professionals regarding recommending AT. It is anticipated that by improving knowledge and familiarity with relevant AT, especially herbal medicines, healthcare professionals may improve their relationships with patients, allowing them to capitalise on ATs' therapeutic actions to manage diabetes symptoms and mitigate associated complications.

Methods

A qualitative research method was adopted to obtain descriptive data that build an understanding of the reasons healthcare professionals are willing to recommend or are uncomfortable recommending AT products. The questionnaire was designed to gather opinions of a particular cohort, within a limited time scale, some of whom would be unreachable using interviews or focus groups

M F Mahomoodally and C D Ruhee, Department of Health Sciences, University of Mauritius, Mauritius and T F M Holmes, School of Social and Political Sciences – Anthropology, University of Melbourne, Australia. Correspondence to: Dr. M Fawzi Mahomoodally. Email: f.mahomoodally@uom.ac.mu

alone. The questionnaire could be given to respondents at their own convenience, to answer questions out of order, allowing sufficient time to write constructive comments.

Design and content of the questionnaire and research

The 27-item questionnaire focused on topics regarding herbal medicines, functional foods – i.e. foods with medicinal properties – and dietary supplements, these being the most commonly used ATs among diabetic patients in Mauritius. The questionnaire contained five sections, exploring broad topics of interest including personal use of AT, level of education, comfort in discussing AT with patients and families, and attitude regarding AT use. An enclosed short paragraph was intended to familiarise participants with the research topic and trigger discussion, and also described herbal medicines, functional foods, and dietary supplements. Participation was entirely voluntary, and informed written consent was obtained from participants. Data were treated with confidentiality and processed anonymously. Clearance to conduct the research was granted by the Department of Health Sciences, University of Mauritius.

Participants

Representatives of health professions from various clinical settings were recruited using purposive sampling. Registered dietitians, nutritionists, doctors, and nurses were recruited from public hospitals, private clinics, and regional healthcare centres under the auspices of the Ministry of Health and Quality of Life (MoHQL). Selection was based on professional involvement, providing clinical treatment and/or nutritional support and education for people with diabetes, and willingness to participate. The heterogeneity of the sample enabled comparison of different settings, persons, and situations, resulting in a broad, diverse array of data for understanding the research concepts.⁴

Analysis of data

Interviews were transcribed verbatim and content analysed as described elsewhere.^{4,5} Transcribed texts were read several times and relevant content of sentences and paragraphs was identified. After line-by-line analysis of the interview transcripts, meaning units were grouped into themes and sub-themes. These classifications were discussed and validated by the research team in each case, to ensure consistency. The main emergent themes focused on 'Personal use of AT', 'Sources of information', 'Trust in AT', and 'Need for AT'. Sub-themes were categorised as 'Formal learning of AT', 'Willingness to recommend AT without scientific documentation', 'Knowledge of the possible limitations of AT', 'Comfort recommending AT', 'Need for AT and possible barriers encountered', and 'Regulatory body and laws pertaining to AT'.

Results

The sample of 15 healthcare professionals agreed to

participate and willingly completed the questionnaire. Participants comprised two dietitians (13%) recruited from a private clinic, three nutritionists (20%), six doctors (40%) and four nurses (27%). In Mauritius, dietitians have a 4-year training programme, and usually work in clinical settings. Nutritionists train for three years and work in a variety of settings (including, for example, food companies, public health, fitness centres, etc.). Participants were categorised into four age groups, being 21–30, 31–40, 41–60, and over 60 years; and were also listed by the type of organisation they were sourced from – either a private clinic, a public hospital, or MoHQL healthcare centre. Data from five themes and sub-themes identified from participant interviews, of specific relevance for this paper, are summarised in the following sections.

1. Personal use of AT

Nutritionists and dietitians claimed to have used AT. They were comparatively less sceptical about such products, and some regularly included AT in their daily lives, and described ways of using ATs, and their purported health benefits. The most commonly consumed herbal medicines were green tea (*Camellia sinensis*), Ayapana (*Ayapana triplinervis*) leaves, and *Aloe vera*. Among dietary supplements, vitamin and mineral supplements were most commonly mentioned, and among functional foods, yoghurts with probiotics, fortified cereals, and juices were popular.

One nutritionist stated: 'I drink green tea every day before going to bed and at work. I try to convince colleagues and patients to do the same. I have used supplements during my pregnancy and lactating period. As for functional foods, cereals are part of my daily breakfast as well as orange juice. It helps boost my energy in the early morning and helps normalise my blood sugar.' (Nutritionist, age band 31–40 years, public hospital.)

Of six doctors who participated, only one used no AT. Most had used AT primarily as a means to treat wounds, upset stomach, and fevers. They recalled taking herbal medicines in their childhood as used by their parents and grandparents. One doctor commented: 'I have been taking vitamin and mineral supplements during my pregnancy and to cope with gestational diabetes. I do like drinking grapefruit juice everyday for my breakfast. I still remember my mother and my grandparents used to make me drink fresh ginger and turmeric in milk when I was suffering from sore throats. The biggest advantage of living in a tropical island is that we get lots of exotic fruits rich in antioxidants. I also like to drink coconut water which is very refreshing.' (Doctor, age band 41–60 years, public hospital.)

Among the nurses, most lacked extensive knowledge about usage of AT. One had never heard of functional foods. From these results, it was obvious that nurses experience difficulty discussing AT, due to limited knowledge of the subject. One nurse recalled: 'My mother and grandmother used to give me decoctions prepared to

normalise blood sugar, with leaves that I don't know, but they were very beneficial and definitely had better taste compared to medicines.' (Nurse, age band 21–30 years, public hospital.)

2. Trust in AT

Nutritionists and dieticians were more supportive of AT use compared with the other healthcare professionals. They mentioned health benefits associated with AT and commented on the substantial research being conducted on such products, for example: 'Yes, its efficacy has been proven in clinical trials. Moreover, substantial research is carried out in this field.' (Nutritionist, age band 21–30 years, MoHQL.)

Both doctors and nurses expressed varied opinions of AT. Some nurses were positive, supporting the use of AT while others were reluctant. One doctor for instance said: 'Only if they are necessary as may help in cases of mild illnesses. ... I mostly advise my patients to take calcium and vitamin D supplements in cases of osteoporosis. Or I guess pregnant women will definitely need folic acid supplements. However it should not be mistaken that you can treat diabetes with only these therapies.' (Doctor, age band 31–40 years, public hospital.)

3. Knowledge of physiological effects of AT in the management of diabetes

Nutritionists and dieticians were proficient in providing nutritional advice and at ease discussing the physiological effects of AT. They understood the potential health benefits provided by such products and mentioned various mechanisms of action, such as insulin-mimicking properties or hypoglycaemic activity. Moreover, they demonstrated an adequate interest and knowledge of products that exhibit anti-diabetic effects, such as bitter melon (*Momordica charantia*), onion (*Allium cepa*), garlic (*Allium sativum*), turmeric (*Curcuma longa*), mango (*Mangifera indica*), Aloe vera, babhul (*Cassia fistula*), and bel (*Aegle marmelos*). A nutritionist stated: 'Many herbal products obtained from natural products, such as garlic, onion, and aloe vera, are known to lower blood glucose levels as well as cholesterol levels. They block glucose uptake and absorption. Mango is used among Nigerian folk people to lower blood glucose levels. Bitter melon is a well-known anti-diabetic agent in India. Omega-3 fatty acids marketed as tablets and capsules, have been found to assist in lowering blood glucose levels, increasing insulin sensitivity and glucose metabolism. However, it should be accompanied by a balanced lifestyle.' (Nutritionist, age band 31–40 years, MoHQL.)

Doctors were less familiar with the physiological effects of AT for management of diabetes. Two doctors (from public hospitals), believed AT had no physiological effects compared with conventional medicines. Doctors were more sceptical about possible health benefits of AT, and unaware of mechanisms by which AT could help reduce blood glucose. Plant ingredients, bioactive

compounds, and even whole plants that provide anti-diabetic activity were less evidently in use by doctors, and were perceived as complex. On the other hand, nurses also rarely mentioned the physiological effects of AT, due to lack of knowledge and being unaware of associated physiological mechanisms. Most believed AT products could help patients lose weight easily; however, they were occasionally confused regarding precise physiological effects.

4. Knowledge of possible limitations of using AT

Nutritionists and dieticians appeared well informed about possible limitations of AT use. They mentioned various side-effects, unknown dosage which may lead to toxicity, drug-herb interactions, allergies, suspicious health claims, expensive prices, and lack of scientific evidence for some products. One dietician claimed: 'There is usually a lack of dosage instructions to guide patients to avoid toxicity. Moreover, herbal medicines may not entirely be used to treat diabetes. Drug-herb interactions are also possible... Many companies claim to be selling herbal medicines but these may be just marketing strategies to increase sales. It is important to be able to read labels correctly so that patients are not misguided. They should not be used as an alternative to treat diabetes and thus avoid taking their medications.' (Dietician, age band 21–30 years, private clinic.)

The majority of doctors were aware of the limitations of AT, and cited side-effects, safety issues, and the presence of artificial substances or chemicals that are not natural. A private-clinic doctor voiced this opinion: 'I personally do not believe in using herbal medicines only for management of diabetes. Diabetes is poorly controlled in AT users. Patients are fooled to believe herbal medicines can help. Any product labeled as 0% sugar free usually contains aspartame which is related to other health issues.' (Doctor, age band 21–30 years, private clinic.)

Doctors equally stated that companies may mislead consumers with unreliable health claims and distrustful publicity. In addition to doctors, nurses also claimed to have insufficient knowledge about the limitations of AT products. A public health-service doctor said: 'Herbal medicines contain artificial products, not much natural and healthy. They may result in potential side effects and may not be adequate for elderly persons with a fragile immune system. It is better to change lifestyle and consume more healthy foods than these blood glucose-lowering and cholesterol-lowering products. They are just here as marketing traps by companies to convince patients to buy them.' (Doctor, age band 21–30 years, public hospital – MoHQL.)

5. Level of comfort recommending AT, and possible informational barriers encountered

The study findings demonstrated that all the nutritionist and dietician participants were comfortable recommending and discussing AT with patients, for instance: 'Yes, I

am comfortable recommending AT. They are more natural and accessible to patients who report side-effects with conventional medicines. Compared to drugs, AT products have more taste and are appealing to patients. Some of them are cheaper and are known to provide benefits.' (Nutritionist, age band 31–40 years, MoHQL.)

However, doctors as well as nurses were generally reluctant to recommend AT to patients. Doctors and nurses expressed a need to have access to more information, and for patients to seek medical advice before trying AT products: 'Not really. As a doctor, I have no idea about the real physiological effects of these products. If I do recommend them that would imply that I should be responsible to answer to any question and doubt of my patients.' (Doctor, age band > 60 years, private consultation only.)

Discussion

No prior studies were found concerning healthcare professionals' trust in and willingness to recommend AT for the management of diabetes in Mauritius. The three groups of health professional participants showed divergent perceptions regarding AT. Nutritionists and dieticians were generally supportive and had greater knowledge about AT, such as familiarity with information about physiological effects, as well as limitations and safety issues surrounding AT. In contrast, doctors and nurses demonstrated scepticism and distrust toward AT, and unwillingness to recommend AT products. These findings reflect previous investigations, demonstrating that health professionals' attitudes to AT vary according to educational and professional background. Moreover, doctors and nurses in our study expressed curiosity to learn about AT, suggesting their trust would increase if they could receive appropriate information. They clarified that their training was to prescribe conventional drugs, which were unlike AT. A previous study suggests it may be unreasonable to expect doctors and nurses to communicate and counsel patients with respect to use of AT.⁶ These health providers may be unaware of potential clinical benefits of AT.

A significant gap in the ability of doctors and nurses to offer accurate advice to patients regarding AT use was noted. These practitioners were inadequately prepared to address patient queries or recommend AT. Perceived barriers to healthcare providers' use of AT, corroborating with our findings, have been described previously. In one study, health professionals expressed limited knowledge, lack of experience, and less confidence recommending AT to patients, while another study suggested physicians' perceived barriers were due to lack of time, poor knowledge, and sketchy results when dietary advice is given in medical practice.^{6,7}

Doctors and nurses from the present study were less familiar with physiological effects of AT in the management of diabetes than nutritionists and dieticians. Previous studies

report that doctors believe herbal medicines alone cannot manage diabetes successfully.^{6,7} Some were sceptical about herbal medicine, discouraging patients from taking herbal preparations due to limited clinical evidence. Another study notes medical students reported the lowest educational knowledge of AT, and substantially less acceptance of AT than student peers in other health professions.⁸

Results from the present study imply that a need exists for enhanced educational training of healthcare professionals about AT, to aid them in providing adequate guidance to patients, many of whom use ATs. It appears vital that medical doctors receive up-to-date information about AT to increase their knowledge about these products, through access to professional journals, attending relevant conferences or workshops, liaising with AT practitioners, and improving medical student exposure, in order to increase support and awareness of patient use of AT and possible therapeutic benefits of AT products.

In conclusion, there appears to be a need for improved training of medical professionals regarding AT. If provided with updated clinical information pertaining to AT, they would be better placed to provide adequate counselling to many diabetic patients in the community who regularly consume these products.

Acknowledgement

The authors acknowledge the University of Mauritius, private clinics, public hospitals, and MoHQL, for providing participants for this study. There are no potential conflicts of interest to declare.

Author Declaration

Competing interests: none.

References

1. International Diabetes Federation (IDF). 2015 *Diabetes Atlas: Diabetes by Country – Africa*. '4.1 Africa' PDF, available at <http://www.diabetesatlas.org/resources/2015-atlas.html#>.
2. Mauritius Research Council. Workshop Report: Consultative Workshop on the Collaborative Research Programme on Diabetes (CRPD). 2013. At: <http://www.mrc.org.mu/document2013/DiabetesWRreport.pdf>.
3. Mootoosamy A, Mahomoodally MF. Ethnomedicinal application of native remedies used against diabetes and related complications in Mauritius. *J Ethnopharm* 2014; 151: 413–44.
4. Peytremann-Bridevaux I, Lauvergeon S, Mettler D, et al. Diabetes care: opinions, needs and proposed solutions of Swiss patients and healthcare professionals: a qualitative study. *Diab Res & Clin Prac* 2012; 97: 242–50.
5. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Td* 2004; 24: 105–12.
6. Brown J, Cooper E, Frankton L, et al. Complementary and alternative therapies: survey of knowledge and attitudes of health professionals at a tertiary pediatric/women's care facility. *Compl Ther Clin Prac* 2007; 13: 194–200.
7. Landström E, Sidenvall B, Hursti UK, et al. Health-care professionals' perceived trust in and willingness to recommend functional foods: a qualitative study. *Appetite* 2007; 48: 241–7.
8. Baugniet J, Boon H, Ostbye T. Complementary/alternative medicine: comparing the view of medical students with students in other health care professions. *Fam Med* 2000; 32: 178–84.