

## Research: Education and Psychological Aspects

# Time to question diabetes self-management support for Arabic-speaking migrants: exploring a new model of care

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### Abstract

**Aim** The objective of this study was to explore a new model for diabetes self-management support in Arabic-speaking migrants.

**Methods** Two qualitative methods were used: face-to-face semi-structured individual interviews and focus groups. Interviews were audio-taped, transcribed verbatim and coded thematically. Arabic-speaking migrants with Type 2 diabetes were recruited from several primary, secondary and tertiary healthcare settings in metropolitan Melbourne, Australia. These settings were purposefully selected to obtain a diverse group of participants. Data collection continued until saturation was reached. This is the first study that involved members of Arabic-speaking communities in Australia in a formal process of consumer and public involvement to inform research design and recruitment in order to provide evidence for a new model of diabetes self-management for Arabic-speaking migrants.

**Results** No self-management support was offered to Arabic-speaking migrants beyond the initial diagnosis period. Significant knowledge gaps and skills deficits in all self-management domains were evident. The provision of tailored self-management support was considered crucial. When asked about preferred structure and delivery modalities, a strong preference was reported for face-to-face storytelling interactions over telephone- or internet-based interventions. Gender-specific group education and self-management support sessions delivered by Arabic-speaking diabetes health professionals, lay peers or social workers trained in diabetes self-management were highly regarded.

**Conclusions** A patient and public involvement approach allows genuine engagement with Arabic-speaking migrants with diabetes. There is urgent need for a new model for self-management support among Arabic-speaking migrants. Findings yielded new recommendations for diabetes health professionals working with these migrant communities to support behaviour change.

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### Introduction

For most people living with diabetes, the range of required self-management activities is complex, demanding and often perplexing. Without appropriate self-management support, patients' motivation for self-care may be impaired and most feel frustrated, overwhelmed and discouraged [1]. Members of many minority ethnic groups face even more challenges with diabetes self-management and are less likely to achieve and maintain desirable HbA<sub>1c</sub>, blood pressure and LDL cholesterol goals compared with White Europeans [2]. Significant evidence exists demonstrating the benefits of self-management support (defined as activities that assist the

person with diabetes in implementing and sustaining the behaviours needed to manage his or her condition on an ongoing basis beyond or outside of formal self-management training) in improving health behaviours, clinical outcomes, self-efficacy and patient satisfaction [3–5]. Similarly, the provision of culturally appropriate self-management support has the potential to better support minority ethnic groups to gain the necessary knowledge base and skill set, learn how to live and cope with diabetes in their social world, and enable active participation in their own care [6,7]. However, the success and impact of self-management support among minority ethnic groups vary.

It has been posited that for minority ethnic groups, self-management is highly constrained by social, cultural, emotional and economic factors, and therefore self-management

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**What's new?**

- This is the first study to report preferences for the content, structure and delivery modalities of diabetes self-management support in Arabic-speaking migrants with diabetes.
- The interview guide was developed based on an evidence-based review.
- The study used co-design methodology in which the stakeholders from the Arabic-speaking communities gave advice about the study methods.
- The study uncovered a preference for a novel method of delivering diabetes self-management information, namely face-to-face storytelling interactions over telephone- or internet-based interventions.
- The findings can be applied directly to the way diabetes health professionals work with these migrant communities to support behaviour change.

support that is directed mainly to biomedical goals at the expense of addressing contextual factors does not work. With continued poor glycaemic control, inappropriate self-management practices and worse clinical outcomes among minority ethnic groups, it is time to determine the most appropriate designs and structures for self-management support to be used in minority ethnic groups. Lay-led community-based peer support sessions are popular among minority ethnic groups and are well attended, compared with technology-based self-management support [8,9]. Similarly, over the last decade, storytelling has attracted increasing interest among diabetes educators as an effective method to deliver culturally tailored education and support. Group-based complex intervention, focused on storytelling to promote behaviour change and conducted among South Asian people with diabetes, for example, suggests that key lifestyle changes were attributed to the impact of stories told by other members of their community [10].

The current standard mechanisms by which people with diabetes are identified and referred to receive self-management support rely heavily on physician referral, declining clinical status and, to a lesser extent, individual self-selection as triggers [11]. These triggers are less likely to result in self-management support referral among minority ethnic groups who are in greatest need of these interventions. Those with low health literacy, who experience poor communication in clinical settings, have difficulties navigating health systems, and have limited knowledge of available health services and interventions, are especially likely to miss out [12,13].

There remains a lack of health service research in diabetes among Arabic-speaking migrants, despite the alarmingly high prevalence of diabetes in this group. Uptake of self-management support and preferences regarding content,

structure and delivery modality of this minority ethnic group remain unknown. This is the first Australian study to explore such preferences among Arabic-speaking migrants with Type 2 diabetes in Melbourne, Australia.

**Methods****Research design**

Two qualitative methods were used: face-to-face semi-structured individual interviews and group interviews. Pre-determined, open-ended questions were used to gain in-depth understanding about each participant's preferences with regard to structure, content and delivery modality for diabetes self-management support. This is the first study that allows members of Arabic-speaking communities to contribute to the research beyond being participants. We sought feedback regarding proposed recruitment strategies, study design and data collection from two senior Arabic social workers and one lay-led community group coordinator within Arabic-speaking communities in Melbourne, Australia. More details about this co-design process are published elsewhere [14].

Ethics approvals were granted by the Monash University Human Research Ethics Committee and the human research ethics committees at participating hospitals. Prior to interview commencement, written informed consent was obtained from each participant.

**Setting and recruitment**

The study was conducted in diverse healthcare settings in the metropolitan area of Melbourne, and the methods have been described previously [15]. Recruitment occurred at diabetes outpatient clinics in two tertiary referral hospitals, three primary care practices and two community centres. Different settings were targeted to ensure recruitment of a diverse sample of first-generation Arab immigrants with a wide range of sociodemographic and clinical characteristics. Recruitment continued until data saturation was achieved (the point of no new data, no new themes and no new coding). Participants were eligible to take part in the study if they met the inclusion and exclusion criteria (Table 1). A total of 14 face-to-face individual semi-structured interviews and 8 group interviews involving 46 participants were conducted ( $n = 60$ ). During the data collection period, eligible participants recruited at primary care practices and outpatient clinics were identified by local healthcare personnel from computerized medical record databases. At community centres, participants were approached and screened for eligibility by a researcher. Verbal and written information about the study and involved procedures were provided in Arabic or English based on each participant's preference. Written informed consent was obtained from each participant prior to commencement of the study.

**Table 1** Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Diagnosed with Type 2 diabetes mellitus. Arabic-speaking group: Self-identified as Arabic-speaking background immigrants; defined as someone whose first language is Arabic, born in any of the following countries: Iraq, Kuwait, Bahrain, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen, Jordan, Lebanon, Syria or Egypt.	Diagnosed with Type 1 diabetes. Older than 75 years.  Diagnosed with any form of malignancy (cancer). Newly diagnosed (< 6 months) with Type 2 diabetes. This was because it was felt that participants needed time to gain the necessary experience of diabetes self-management.

### Data collection and analysis

Sociodemographic and clinical information was gathered from consenting participants before commencement of interviews using a self-completed questionnaire (researcher-administered if required). Contact details for each participant's doctor and permission to obtain clinical data were obtained. The interview guide was developed following an extensive literature review. Participants were asked to reflect on their journey with diabetes since point of diagnosis with a focus on when and how they had been receiving diabetes education (if any), and whether or not they had received any self-management support after the diagnosis period. Participants were also asked if they were to receive a culturally appropriate diabetes self-management support, what would be the preferred content and delivery modality. All interviews were conducted in private rooms at the various sites. Two Arabic-speaking healthcare providers were consulted to ensure cultural relevancy of proposed questions. Duration of interviews ranged between 30 and 110 min. Data collection continued until data saturation was reached (when we reached the point of no new data, no new themes and no new coding). All interviews were conducted in Arabic without an interpreter by a male bilingual researcher (HA) who had received extensive training in qualitative methods. Audio-recorded interviews were transcribed verbatim in Arabic. A certified professional translation service was used to translate Arabic transcripts into English. To validate the translation process, a lay translator of Middle Eastern descent with an extensive knowledge of colloquial Arabic independently translated 30% of the Arabic transcripts. The two versions were compared for any discrepancies and these were resolved through mutual agreement by the research team. Field notes

were documented immediately following each interview. A female Muslim researcher was present to help with logistics and to make sure that female participants were comfortable. De-identified transcript data was coded using NVivo software (QSR NUD\*IST Vivo: version 8.0) and a thematic analysis framework used to organize data into themes that best described participants' views [16]. Initial coding was conducted by HA and the appropriateness of the coding and resultant themes was confirmed by two other researchers.

### Results

Overall, 60 participants were recruited and they identified themselves as first-generation Arabic-speaking immigrants. The sociodemographic and clinical characteristics of participants are shown in Table 2. The majority of participants were female (63%). Mean duration of diabetes was 8 years; 14 participants were diagnosed in the Middle East. Only three participants (5%) attained the recommended HbA<sub>1c</sub> target concentration of  $\leq 53$  mmol/mol ( $\leq 7\%$ ). It became apparent over the course of the interview that many participants did not disclose their comorbidities at the outset. The majority of participants self-reported having limited English proficiency, and directly indicated having poor health literacy through their acknowledgement of problems learning about their diabetes and its management due to difficulty understanding written materials, even when they were available in Arabic. Findings that emerged from exploration of participants' preferences with regard to structure, content and delivery modality for diabetes self-management support are presented within three main themes (no differences in responses were found between the group and individual participants with regard to preferences for self-management support). Some illustrative participant quotations are presented under each theme (more quotations are presented in Table 3).

#### Theme 1: reflections on the journey with diabetes

Having diabetes was perceived as a predicament with no solution. In participants' minds, and based on their life experiences prior to migration, a person with diabetes is 'doomed' with a life-long condition and 'granted' a very poor quality of life. Negative connotations were used by participants to describe diabetes and many discouraging stories about self-management were shared. They reported receiving the majority of diabetes self-management information (oral and written) at the time of diagnosis only. This initial self-management information was poorly understood and forgotten over time. They consequently reported having significant deficits in their knowledge of diabetes and its management. This poor knowledge appeared to make participants less confident in their ability to self-manage.

Participants' poor knowledge about diabetes self-management was compounded by a reluctance to voice their

**Table 2** Participants' sociodemographic and clinical characteristics

Characteristic	Percentage or mean (number or range)
Arabic-speaking participants ( <i>n</i> = 60)	
Gender	
Female	63% (38)
Male	37% (22)
Mean age, years (range)	57 (35–68)
Mean number of years since diabetes diagnosed (range)	9 (1–17)
Mean number of years in Australia (range)	8 (3–18)
Diabetes status (HbA <sub>1c</sub> )	
Excellent (42–52 mmol/mol; 6–6.9%)	5% (3)
Good (53–63 mmol/mol; 7–7.9%)	46% (28)
Indifferent (64–74 mmol/mol; 8–8.9%)	20% (12)
Poor (75–85 mmol/mol; 9–9.9%)	22% (13)
Exceptionally poor (> 87 mmol/mol; > 10%)	7% (4)
Comorbidity*	
Hypertension	27% (16)
Dyslipidaemia	37% (22)
Retinopathy	15% (9)
Other cardiovascular disorder	21% (13)
Prescribed medication	
None	3% (2)
Oral hypoglycaemic medications	80% (48)
Insulin	10% (6)
Both, oral and insulin	7% (4)
Family history of diabetes mellitus	35% (21)
Workforce participation	
Working part-time	32% (19)
Working full-time	15% (9)
Housewife	37% (22)
Pensioner	5% (3)
Unemployed	11% (7)
Living arrangements	
Married and living with spouse and/or children	97% (58)
Living alone	3% (2)
Proficiency in English (self-rated)	
Little or none	35% (21)
Moderate	47% (28)
Excellent	18% (11)
Country of birth	
Lebanon	38% (23)
Jordan	7% (4)
Iraq	18% (11)
Syria	5% (3)
Egypt	32% (19)

\*Data as report for baseline statistics. It became apparent during subsequent interviews that some participants under-reported comorbidities.

questions or concerns to diabetes health professionals, largely due to their fear of wasting a health professional's time, appearing ignorant and by a perceived need to maintain personal dignity. Many reported having unanswered questions and uncertainties about self-management practices subsequent to medical encounters. Only after experiencing serious diabetes-related complications, did participants capitalize on strong social networks within Arabic-speaking

communities by seeking out and having ongoing discussions with their peers and friends about self-management issues and concerns, and to access information. For example, based on advice received from peers and friends within the Arabic-speaking community about the best course of action for diabetes management, some reported replacing prescribed oral hypoglycaemic agents with herbal treatments without informing health professionals.

Irrespective of whether diabetes was diagnosed in the Middle East or Australia, all participants spoke about feelings of being unsupported after their initial medical diagnosis with diabetes. Those diagnosed in Australia, reported that health professionals, particularly Arabic-speaking general practitioners, with whom they interacted the most, had only a limited role in providing self-management support. High levels of diabetes-related stress were reported. Many felt powerless in dealing with diabetes and described feelings of being anxious and overwhelmed. Participants' main concern was that their diabetes-related emotional distress is not being adequately discussed during medical consultations. They spoke of cultural, religious and political factors that compounded their general feelings of distress and anxiety about diabetes, and how these negatively impacted on their self-management practices. There was no intent to determine diabetes-related stress, however, as participants spoke about their journey with diabetes, they reported a great deal of diabetes-related distress. A strong preference to have an opportunity to discuss emotional distress, particularly related to diabetes, with an Arabic-speaking social worker, Arabic-speaking general practitioner and/or diabetes educator was reported.

I'm sure most of the Arabic-speaking people with diabetes, don't know much about what we should do to best manage our illness [diabetes]. (Pt-13)

Having diabetes is a terrible thing ... You know how things are back in the Middle East. If a girl is known to be sick, she would end up with fewer opportunities to get married. I wouldn't allow my son to marry a girl who has diabetes. I would just be concerned about his future kids; they might have it [diabetes] if their mother has it. (Pt-46)

... I remember how little the doctor told me about diabetes. I felt I was all alone with this awful disease. I knew nothing and I was overwhelmed. (Pt-51)

They [healthcare professionals] assume that we can remember everything they tell us! But actually, we [patients] forget most of the information and we [Arabic-speaking people] need a continuous reminder, particularly, about how we should manage our diabetes. (Pt-8)

I'm sure most of the Arabic-speaking people with diabetes, don't know much about what we should do to best manage our illness [diabetes]. (Pt-13)

Table 3 Participants' quotes

Themes	Quotes		
Reflections on journey with diabetes	He [GP] told me lots of stuff about diabetes and gave me some written information about self-management in Arabic. But that was a long time ago; around when I was first told that I have diabetes. I forgot most of the stuff.	Pt-3	
	I don't know how should I deal with my diabetes?	Pt-11	
	To be honest with you, I adopted 'trial and error' approach in managing my diabetes. My best friend told me to use herbal medicines and I stopped using my medicines! Two years later my diabetes was very bad and my kidney was damaged ... Now, I listen only to my GP's advice.	Pt-19	
	I started using herbs, special tea; made of seven tree leaves boiled in hot water I was told it is very good for diabetes. I tried it for six months. I could feel that I wasn't OK, but I kept using it! Meanwhile, I stopped my diabetes pills. I was very ill, they took me to a hospital and they gave me insulin as my blood sugar level was very high. They [the healthcare providers] told me that my kidneys were affected. After that, I stopped the herbs and used the prescribed pills [oral hypoglycaemic agents] only. It was a bit late though.	Pt-23	
	When I was told that I had diabetes, I had no idea about the illness [diabetes]. I learnt about it over the years. I wasn't informed much at all. I learnt about diabetes mainly by trial and error and from my peers.	Pt-11	
	Diabetes is perceived as a serious disease, like a 'disaster'. When a male is diagnosed with it at a young age, people may look at him as a 'sick person' or 'weak'. This illness doesn't come alone, many other illnesses accompany it.	Pt-44	
	When I talk with my friends, I feel relieved. We understand each other very well. We don't need to be wise or to plan what we have to say! We get to talk about all our real concerns. Even when we all don't have an answer for a question about our diabetes, at least we get to feel we are all in the same boat! We support each other, and we get to learn from one another!	Pt-58	
	I was embarrassed to ask what she [diabetes educator] meant; I didn't want to look stupid. I think for us [Arabic-speaking patients], it's really hard to admit that we don't know. So, if we are asked a question like 'Do you know what I mean?' or 'Did you understand?' the answer would always be 'Yes'.	Pt-3	
	Preferred delivery modalities	... It doesn't matter even if the reading materials were in Arabic, I still prefer for someone to demonstrate things in front of me rather than looking at pictures in the pamphlets. We like to listen to verbal information.	Pt-6
		It would be of great help if they [Arabic-speaking diabetes nurse educator] can teach us self-practices in a more interesting ways, like do a live class where a group of us come and learn. Food preparation class with live demonstration would be of great help and fun at the same time.	Pt-19
We [Arabic-speaking people] are hopeless when it comes to the use of technology. I don't know how to use computer, let alone the new phones and tablets. All these things are way too complicated for most of us!		Pt-60	
Preferred content	I don't know how these medicines [oral hypoglycaemic agents] work! Nor do I know how they may help me with my diabetes. It would be great if my pharmacist gave me more information about my diabetes pills.	Pt-33	
	I need more information about my diabetes medicines. I feel like I don't know much about these tablets. I think that she [GP] worried that if she tells me more about side effects of my diabetes pills, I would stop using them! But, it is the opposite! When first I started using them, I hold lots of negative thoughts about these pills and I imagined them causing more harm than good! So I used them less than what I was told for years! But, now I have a better understanding about them [oral hypoglycaemic agents]! If I knew what I know now I would have used these pills as the doctor told me!	Pt-42	

### Theme 2: preferred delivery modalities

Participants describe current diabetes education programmes, typically hospital-based and healthcare provider-led, as neglecting their sociocultural context. A strong preference for face-to-face story-sharing interactions rather than telephone counselling or internet-based interventions was reported by all participants. When asked about preferred personnel to deliver diabetes self-management support, the vast majority of participants expressed a strong preference for gender-specific lay-led group educational sessions delivered by Arabic-speaking peers or social workers trained in diabetes management. In addition, having an Arabic-speaking physician or diabetes nurse educator to discuss medical aspects of self-management in an interactive group medical visit was also

preferred by a few participants. This preference was not just because of language, but also because the Arabic-speaking professionals understood the cultural context on which to base the patient–carer relationship. The vast majority of participants reported having difficulties accessing internet-based programmes and expressed a strong preference for verbally delivered information. They did not wish to use technology-based devices, such as smart phones, or tablet-based applications to support their diabetes management. Nor did they want to read diabetes information produced in Arabic or English, as they were not necessarily literate in either language.

I think for me, and perhaps many of the Arabic-speaking people with diabetes, the best way for us to learn about self-management is to have a group session and have one



‘trusted’ or ‘experienced’ Arabic-speaking friend with diabetes to be trained by a doctor about best ways to manage diabetes, then that person come and talk to us in simple language . . . you know like a story-telling. I think many people would understand better this way. (Pt-59)

I think we [Arabic-speaking people] understand better verbally, honestly I never read any of those materials, which I was given. And if I have a question I usually ask my friends but if it was something serious then I ask my doctor or pharmacist. (Pt-18)

If I was told diabetes self-management information with a group of friends, like in this group, we [Arabic-speaking people] can remind each other. That would be most useful. (Pt-31)

### Theme 3: preferred content

A clear desire for more information about stress management was expressed by participants, who reported high levels of diabetes-related stress. They perceived being diagnosed with diabetes as a ‘disaster’, the ‘worst disease one can have’ and ‘misfortune’. Participants reflected on the poor quality of life for people back in the Middle East once they are diagnosed with diabetes – this was reported by both those who experienced diabetes themselves and from second-hand information. Within this context, participants spoke of the expected lifestyle changes the person with diabetes has to make and described these changes as ‘overwhelming’ and ‘dreadful’. Others reflected on negative stereotypes regarding people with diabetes held in people’s minds back in the Middle East and how those stereotypes increased their stress and emotional burden. Participants requested more emotional support and better education about coping strategies from their treating physician to deal with high stress levels on a daily basis.

When asked about self-management practices, participants reported specific learning needs and required additional support to address their current questions, concerns and knowledge gaps. On dietary behaviours, for example, many expressed a need to be better educated about diabetes-friendly food choices and the appropriate amount of food per day for a person with diabetes. The concept of portion size appropriate for people with diabetes was poorly understood. Participants did not know what one serving, or one portion, of fruit or vegetables meant. They also reported a preference for receiving information about how to eat during social gatherings. Participants wanted to learn specifically about the recommended amount of physical activity they should undertake per week to attain adequate glycaemic control. Some participants criticised health professional’s advice about exercise and physical activity, perceiving it as ‘too general’ and not addressing their personal health limitations

and sociocultural barriers. There was a collective dissatisfaction among participants about information provided on prescribed diabetes treatment – mainly being too brief and lacking the desired level of detail. Participants wanted to receive clearer explanations from community pharmacists about ‘how and when’ to use their prescribed diabetes medicines. Participants wanted to know how their diabetes medicines work and why they were prescribed more than one type of oral hypoglycaemic agent. They also wanted more information about possible side effects of these medicines. Some participants attributed the provision of minimal information about diabetes medications to Arabic general practitioners’ fears that providing such information may lead to patients’ non-adherence to their prescribed treatment. Some participants felt they were not adequately supported to make informed decisions about their medicines.

We [Arabic-speaking migrants] are stressed people . . . It is just part of our lives. We grow-up with cumulative stress! It is part of our culture! It is the way of life back there [Middle East]! We desperately need to learn how we should cope with stress and anxiety. (Pt-30)

She [the diabetes educator] once gave me advice on foods suitable for a person with diabetes. During the entire session she kept repeating ‘should’ and ‘should not’ in reference to food choices. I didn’t pay much attention to what she said, simply because I felt that she should ask me about my eating patterns first. After establishing what my eating patterns are, she could then give me some suggestions about it. But no! It was like a one-way discussion, where she told me what she knew rather than what I needed. (Pt-45)

### Discussion

This is the first study to explore the needs and preferences for diabetes self-management from among Arabic-speaking migrants with diabetes. Findings suggest that there was no ongoing self-management support offered to participants beyond their initial diagnosis. This appeared to contribute to Arabic-speaking migrants’ lack of understanding of diabetes and its management, and poor self-management practices. To achieve optimal outcomes, people with diabetes are required to be effective self-managers [17]. Meeting in groups and sharing stories is a cultural norm is a key feature of the lives of Arabic-speaking migrants. Therefore, it was not surprising that vast majority preferred a story-sharing format to receive diabetes self-management education. The sharing stories model of diabetes self-management education have been tested in African Caribbean, Bangladeshi, Tamil, Punjabi/Urdu and Somali groups. Results demonstrated that storytelling model of diabetes self-management education has the potential to improve health outcomes and has led to major improvements

in the way participants felt about their diabetes but with no sustained improvement in HbA<sub>1c</sub> [18,19].

In this research, the question of preferred personnel to provide self-management support in primary care was explored. Participants wanted a group-based self-management approach to be delivered by peer facilitators trained in diabetes self-management. These preferences are consistent with findings of people with diabetes from other ethnic backgrounds, and the diabetes peer support model has been used successfully among certain minority ethnic groups and has been shown to improve glycaemic control [8,9,19,20]. This model should, therefore, be considered for Arabic-speaking migrants with diabetes.

Participants describe current diabetes education programmes, typically hospital-based and healthcare provider-led, as neglecting their sociocultural context. This was of a particular concern because it increases the likelihood of healthcare providers focusing on what they perceive to be important, rather than providing a person-centred intervention [21]. In a study conducted among Puerto Rican immigrants with diabetes in the USA, findings showed that many of the study participants avoided receiving further education when they perceived the advice offered to be at odds with their cultural traditions [22]. In our study, there was a clear mismatch between the diabetes education currently provided and Arabic-speaking immigrants' learning needs and preferences. Participants' educational needs, preferences and their requests for clearer and more tailored information relating to diabetes self-management activities, although not previously reported for Arabic-speaking minorities, were in many areas similar to the findings reported for other minority ethnic groups [23–25].

Participant's dislike of reading educational materials, even when translated into their native language and produced at a low reading level, was also consistent with the findings of research with other minority ethnic groups [24,26]. The potential for learning through oral education settings was highly regarded by participants in this study. This finding is consistent with research among British Bangladeshis with diabetes [27]. After gaining an in-depth understanding about Arabic-speaking migrants' preferences for diabetes self-management, we intend to use these findings and develop culturally appropriate and tailored education and self-management interventions for this vulnerable minority ethnic community. Such interventions would be developed through a co-production process with key Australian researchers and diabetes educators, and would then be tested for their effectiveness in improving patients' knowledge, self-management practices and key health outcomes.

### Strength and limitations

Our study had several strengths. The involvement of Arabic-speaking community social workers and cultural advisors informed the study design, recruitment strategy and overall methodology. This was critical to the successful recruitment

and helped create a non-threatening research environment, which was conducive for participants to share their 'real' insights and personal information. The absence of a cultural difference between the interviewing author and Arabic-speaking interviewees ensured delivery of the interview questions in very clear and cultural-appropriate language, with little opportunity for misinterpretation by participants. Having a large number of participants with different clinical characteristics and sociodemographic backgrounds meant less risk of omitting important lay views. The reported findings represent first-generation migrants and may not be generalizable to those who are in the second, third or more generations. Despite these strengths, the qualitative design and non-probabilistic sample may limit generalisation of the findings. The richness of the collected data and attainment of data saturation, however, may well balance concerns over the extrapolation of findings. This study provided data that has the potential to inform the development of a new diabetes self-management support programme that is tailored to Arabic-speaking communities, filling a significant gap in the existing literature and informing practice.

### Implication for practice

In the busy diabetes healthcare service sector, there is an urgent need for a new model for self-management support among Arabic-speaking migrants. The following are specific recommendations for diabetes health professionals working with these migrant communities to support behaviour change:

1. Explore patient capacity to implement recommendations with the patient. Arabic-speaking people may otherwise indicate agreement with all provided recommendations if they lack self-efficacy as a result of cultural norms, not necessarily because of understanding or willingness to adhere to recommendations.
2. Provide diabetes self-management support through a face-to-face storytelling format in small, interactive, gender-specific groups. This is the preferred model for this ethnic group.
3. Shift the focus of medical encounters from meeting medical targets to person-centred care by incorporating elements of Arabic cultural norms.
4. Educate Arabic-speaking people about problem-solving skills that would enable them to deal with day-to-day concerns, culturally specific situations such as group gatherings for meals and help them to be effective self-managers. Avoid reliance on written information, in any language.
5. Foster the process of shared decision-making and enable Arabic-speaking patients to participate jointly in making self-management decisions.
6. Provide appropriate emotional support and use tools to screen for diabetes-related emotional burden.

7. Ensure active listening and encourage Arabic-speaking people to voice their questions and uncertainties by providing a nurturing environment in which they can share stories about their diabetes self-management challenges.

## Conclusion

Our findings yielded new insights into Arabic-speaking first-generation migrants' preferences for content, structure and delivery modality to receive diabetes self-management education. A tailored model of self-management support is required for this minority ethnic group to improve key health outcomes and facilitate empowerment.

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## Competing interests

None declared.

## Author contributions

HA designed the study, collected and analysed data, wrote, reviewed and edited the manuscript. KM contributed significantly to the discussion, reviewed and edited the manuscript. CB assisted with data analysis and reviewed and edited the manuscript.

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