Digitising diabetes education for a safer Ramadan:

Design, delivery, and evaluation of massive open online courses in Ramadan-focused diabetes education

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MyWay digital health | **DaR** Diabetes & Ramadan International Alliance

Background

Ramadan-focused diabetes education makes Ramadan fasting safer for Muslim people with diabetes (1). Yet, access to and engagement with education is variable, and many healthcare professionals (HCPs) lack the confidence or knowledge to deliver it (2,3).

Digitisation can democratise high-quality diabetes education at low-cost (3). We present the design, delivery, and evaluation of two massive open online courses (MOOCs) in Ramadan-focused diabetes education for people with diabetes and HCPs.
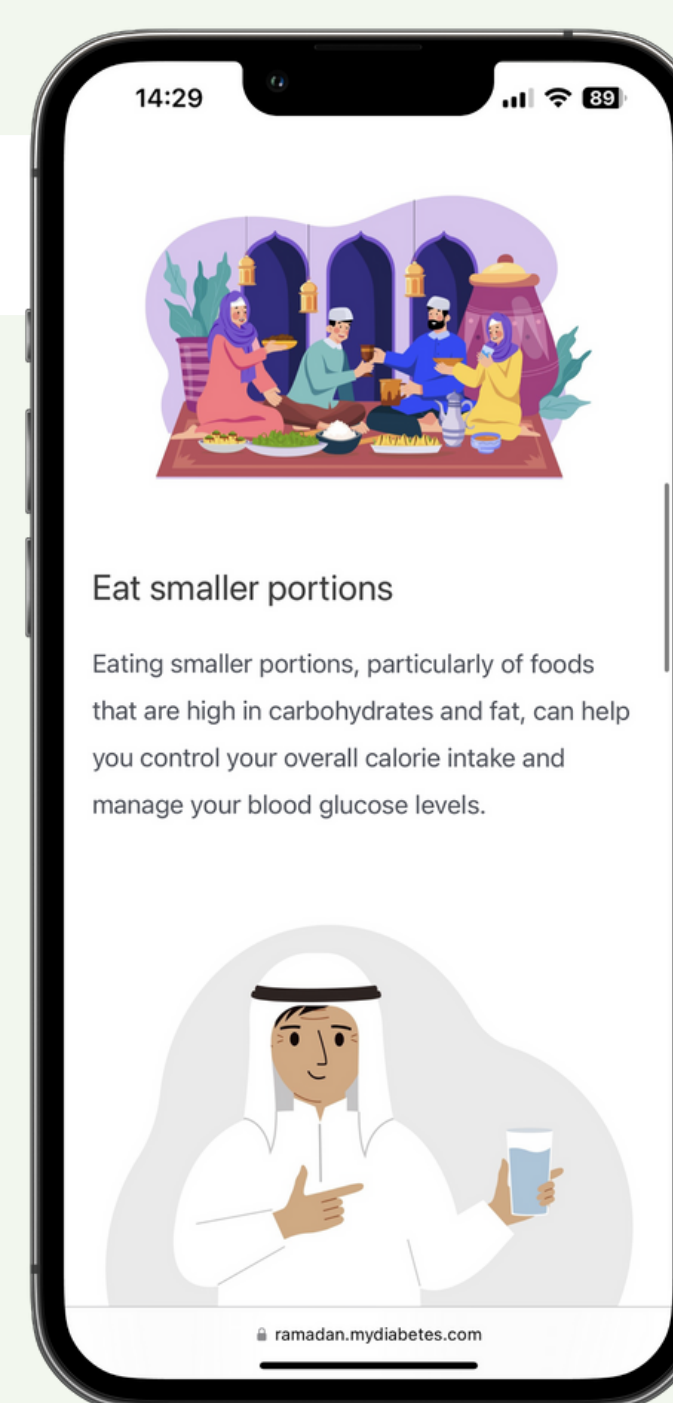
Methods

Two Ramadan-focused diabetes education MOOCs were developed and delivered for Ramadan 2023 by a multidisciplinary group: one for HCPs in English, and another for people with diabetes in English, Arabic and Malay. A user-centred iterative design process was adopted, informed by user feedback from a 2022 pilot MOOC. The MOOCs featured interactive elements, videos, patient stories, and live multilingual Q&A sessions.

The MOOC was delivered on a custom platform from 7th March–24th April 2023 and promotion occurred through diabetes organisations, health authorities, and media outlets. Evaluation included platform usage analysis and mixed-methods evaluation of pre- and post-course user surveys.

The MOOCs were featured in TV and print media

Fig 1. Course format.

Results

The MOOCs engaged a diverse group of users from around the world.

① < 10 | 10–50 | 50–100 | 100–200 | 200–400 | ≥ 400

50 countries
1571 registrants
908 starters
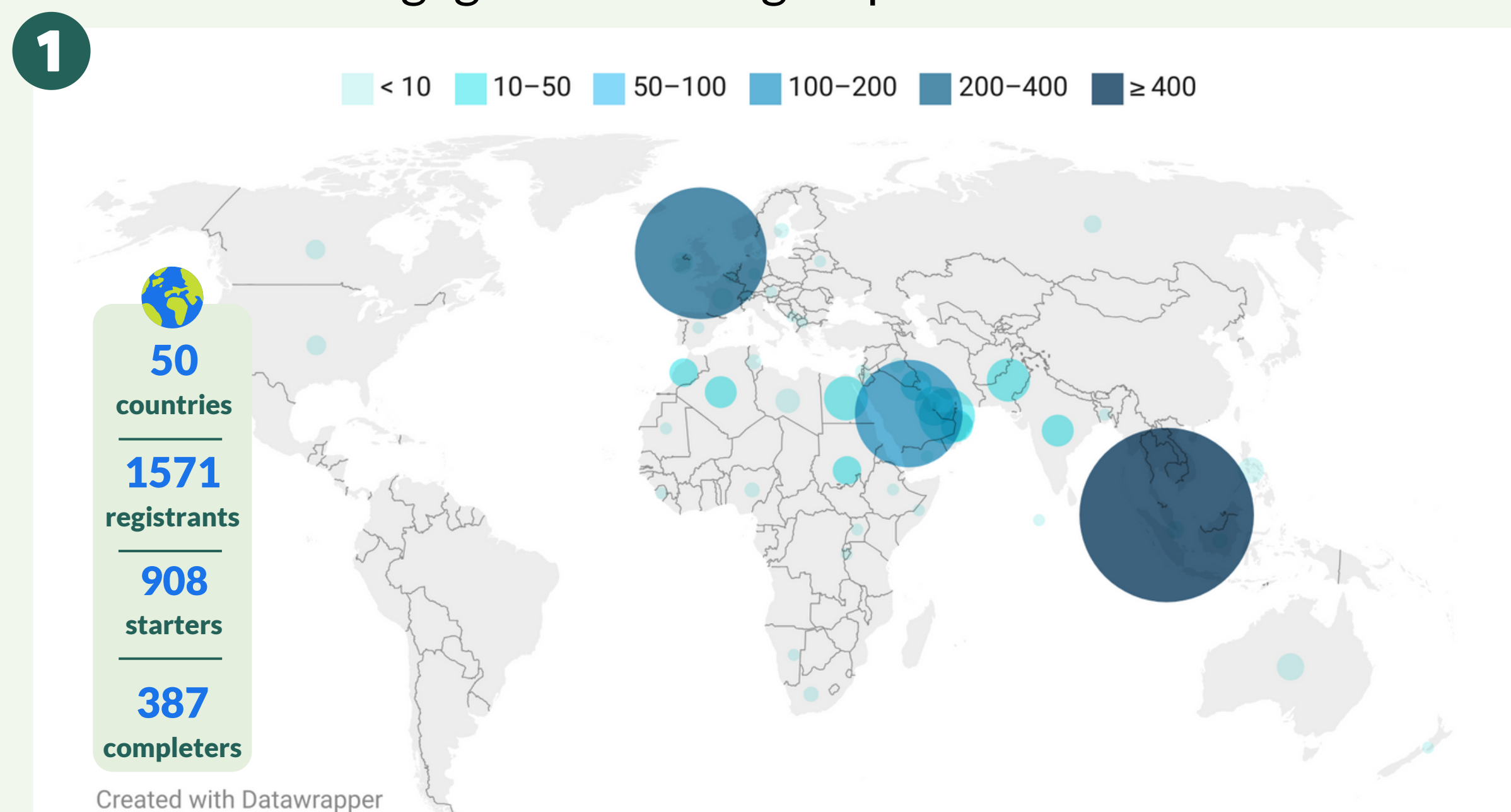**387 completers**

Created with Datawrapper

Fig 2. Plot of global registrations (n=1234).

② **68% HCP users**

HCPs were 40% diabetes specialists, 54% muslim and included doctors (32%), pharmacists (23%), dieticians (18%) and nurses (16%).

HCP pre-course goals: Understanding risk, improving confidence, glucose management, weight management, fasting & diet, medication management

Taking care of patients

Knowledge

③ **Among users with diabetes:**

22% T1DM, 57% T2DM

- 48% previously had diabetes/Ramadan education
- 62% of those who fasted previously found it difficult
- 43% of those who fasted previously felt unsupported by the HCP

Pre-course goals: **Knowledge**

Glucose management | Fasting & dieting

④
A. HCP MOOC

I understand the principles of fasting during Ramadan
I understand how fasting can impact diabetes control during Ramadan
I understand which patients with diabetes are considered high risk regarding fasting during Ramadan
I feel able to support a person with diabetes to make an informed decision regarding if they should fast during Ramadan
I feel confident in advising patients on how to manage their diabetes during Ramadan
I feel I have time to support my patients with diabetes on how best to manage their diabetes during Ramadan

B. Patient MOOC

I know enough about managing diabetes during Ramadan
I am confident in my ability to manage diabetes during Ramadan
I worry about managing diabetes during Ramadan

0%   20%   40%   60%   80%   100%

■ Strongly agree ■ Agree ■ Somewhat agree ■ Neutral ■ Somewhat disagree ■ Disagree ■ Strongly disagree
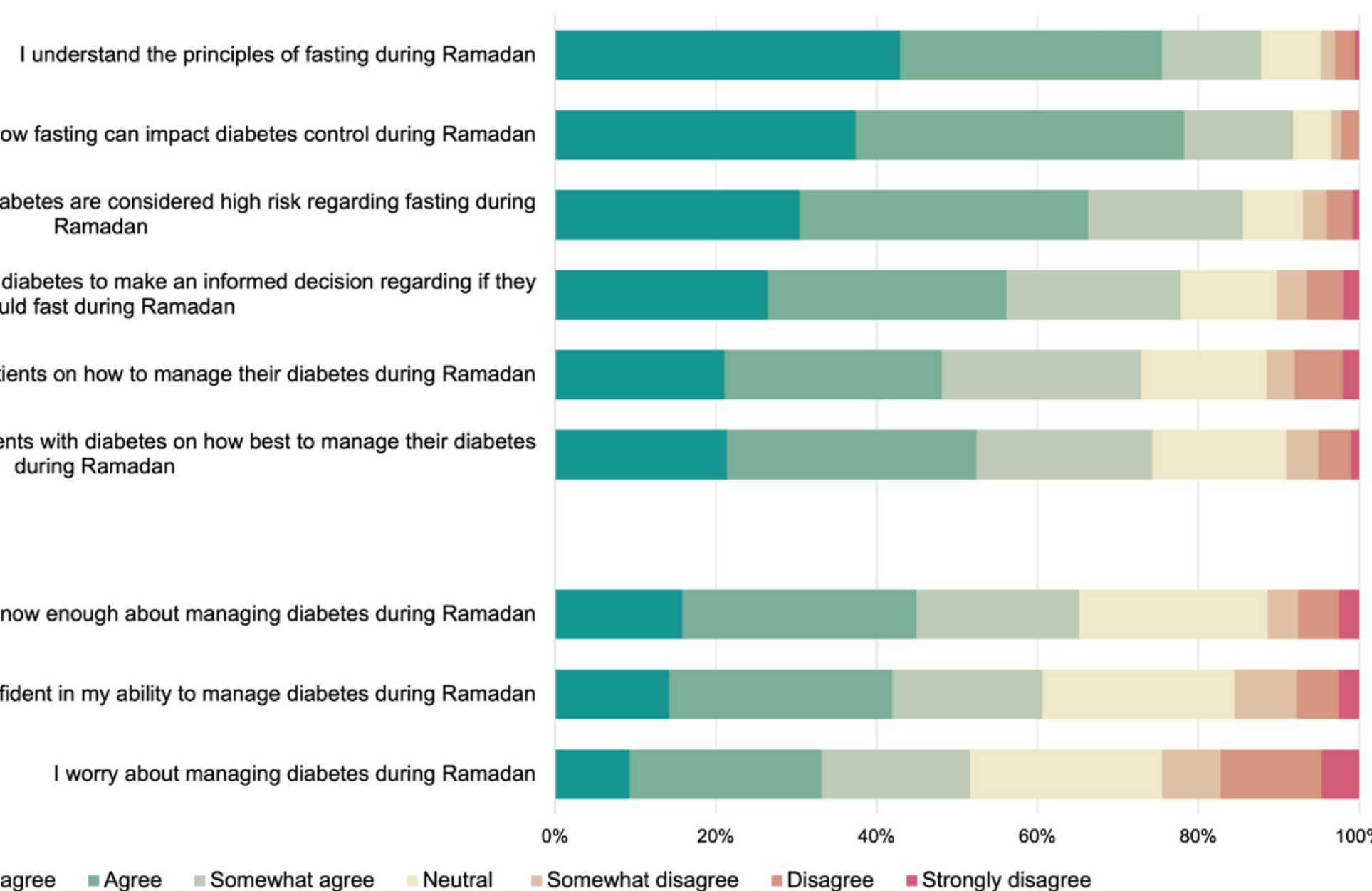
Fig 3. Pre-course self-reported agreeability to Ramadan knowledge, impact and management statements among users in the A. HCP MOOC (n=397–404) and B. Patient MOOC (n=151–158).

⑤ General course evaluation statements with likert-style responses were combined between both MOOCs.

Over 95% of users who completed the course (n=182–206) agreed:

- the course was useful,
- the course was easy to follow,
- the course had the information they expected,
- the course helped them to improve their knowledge of managing diabetes during Ramadan,
- the course helped them achieve their preset goals and
- their learning was enhanced by sharing information with people with diabetes or listening to their stories.

Baseline survey responses showed high baseline agreeability to survey statements among users of the HCP and patient MOOCs.

Notably, non-Muslim HCPs reported lower knowledge and confidence compared to Muslim HCPs

Among users with paired post-course responses Fig. 3 statements, post-course improvements in median response were observed across all HCP MOOC statements and for questions on knowledge and management confidence in the patient MOOC (p<0.01), but not in the statement on diabetes worry.

⑥ Text based responses to course course feedback questions were qualitatively analysed using NVivo 1.7.1. Key points:

Users liked the presentation of the courses which made it 'easy to understand'

The course was seen as an authoritative resource by many participants; users acknowledged the credibility of the course as a reliable and up-to-date source of information and guidance.

Non-Muslim HCPs generally lacked confidence in delivery of Ramadan-focused self-management education and did not feel their advice was authoritative

Embedded video content was well-received by users, who appreciated the personal stories and connections relayed through patient incorporation in video content

Many HCPs chose to take the patient course, and many expressed the desire to repeat the course, although would prefer it had formal accreditation

Patients would appreciate more in-depth discussions of medications, hypo management, diet, meal planning and blood sugar

Discussion

- There is an interest in Ramadan-focused diabetes education, and a need for it particularly amongst non-Muslim HCPs.
- Sequential impact including on clinical outcomes is difficult to determine due to scaled, real-world delivery.
- The MOOCs participatory approach enables harnessing of the peer-support of the online diabetes community, whilst reducing misinformation risk through active moderation and assured quality.
- Many users who registered did not start the course, and many who started did not complete the course.
- High pre-course Ramadan and diabetes knowledge suggest a highly motivated cohort. Strategies to maximise accessibility to those who could benefit most are important for future delivery.

Summary

We demonstrate the potential of MOOCs to deliver scalable Ramadan-focused, culturally tailored, high-quality, interactive, multilingual diabetes education to both HCPs and people with diabetes. Our evaluation demonstrates that the Ramadan MOOC can be highly useful in educating diverse communities in the UK and across the globe aiming to improve diabetes care.

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