



## **Chapter 6.** **Pre-Ramadan education**

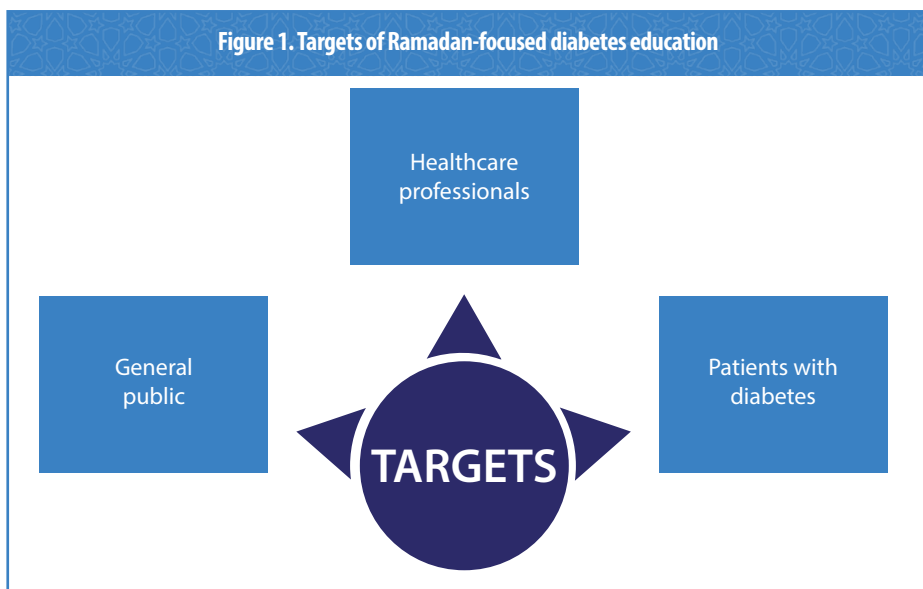
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## 6.1 Education as a cornerstone for Ramadan diabetes management

Structured diabetes education is about giving patients the knowledge to make informed decisions regarding their behaviour and enabling them to effectively selfmanage their condition [1]. Ramadan-focused diabetes education is an extension of this process. The pivotal Epidemiology of Diabetes and Ramadan (EPIDIAR) study demonstrated that only around two-thirds of patients with diabetes received recommendations from their healthcare professionals (HCPs) regarding management of their condition during Ramadan, and highlighted a need for more intensive education prior to fasting [2]. In the more recent CREED study, 96% of physicians provided advice to fasting patients, although only 63% used guidelines or recommendations to do so [3]. In addition, only 67% of physicians used a Ramadan-focused educational programme [3]. The objective of Ramadan-focused education is to raise awareness of the risks associated with diabetes and fasting, and to provide strategies to minimise them. Education should be simple, engaging, and delivered with cultural sensitivity by well informed individuals. In studies, Ramadan-focused educational programmes have been successful in enabling patients with diabetes to maintain and improve glycaemic control during and after fasting [4, 5].

## 6.2 Targets of Ramadan-focused diabetes education

Ramadan-focused diabetes education should primarily be targeted to patients with diabetes, but also directed to the HCPs who manage these patients, and more widely to the general public who may support them (*Figure 1*).



## 6.2.1 The general public

Educational campaigns that target the general public should aim to raise awareness of the issues and misconceptions that surround diabetes and Ramadan fasting, and emphasise the importance of maintaining good diabetes management during fasting. In addition to medical advice, religious regulations should be included. For example, it should be made clear that individuals may be exempt from fasting during Ramadan if they are ill, and they can either make up for missed fasting days when they are better or donate food or money to the poor as an alternative (fidya). In particular, campaigns should be aimed at religious and community leaders as they are valued and trusted members within the target community and may be turned to for advice in place of or in addition to HCPs [6, 7]. It is important, therefore, that these individuals are themselves well-informed. Providing clear advice that aligns with both medical and religious perspectives can improve and encourage communication between healthcare services and the Muslim community.

## 6.2.2 Healthcare professionals

A lack of knowledge and awareness about fasting and diabetes means advice and guidance provided by HCPs may be inappropriate or lacking, especially in Muslim-minority countries. For example, in a survey of HCPs in the US, only one-third of physicians actively enquired whether their Muslim patients intended to fast during Ramadan, and many did not feel comfortable managing these patients [8]. Similarly, in France, a lack of medical knowledge surrounding Ramadan fasting and diabetes led to inappropriate advice being given to patients, together with inadequate patient education [9]. Ensuring HCPs are knowledgeable and adequately trained is therefore vital for the provision of appropriate advice and optimal diabetes care. Cultural competency is essential for effective education and patient care, impacting how both are given and received [10].



**HCPs should be trained to deliver Ramadan-focused diabetes education in a culturally sensitive manner**

HCPs should be trained to recognise and understand the different cultural and religious aspects of fasting and how these may impact on the management of diabetes [11]. For example, they should understand the religious feelings of patients who insist on fasting despite having an illness that could potentially exempt them. Among patients with type 2 diabetes (T2DM), culturally appropriate health education has proven more effective than 'usual' health education in improving glycaemic control and knowledge about diabetes and its management in the short-to-medium term [12]. HCPs should have the skills and confidence to deliver advice in a culturally sensitive manner in order to encourage communication, improve the patient-doctor relationship, and provide better overall care [13, 14].

## 6.2.3 Patients with diabetes

Pre-Ramadan education can greatly benefit patients with diabetes in terms of maintaining glycaemic control and preventing weight gain [4, 5]. Education programmes can provide the knowledge and tools for individuals to effectively manage their condition during Ramadan by making key changes to their behaviour and lifestyle in order to minimise the risks [4, 5]. Educational programmes may be provided as group sessions or one-to-one consultations, given in a medical or community setting by physicians, dietitians and/or community link workers. The main areas of diabetes education that should be provided prior to Ramadan are discussed below (*Figure 2*).

**Figure 2. Key components of a Ramadan-focused educational programme**



## 6.3 Key areas of pre-Ramadan diabetes education

Although multiple approaches may be taken to increase awareness of the issues of diabetes management during Ramadan, education is fundamental for the provision of optimal care when fasting. Patients should have a clear understanding of how, by changing their behaviours, they can minimise potential risks.

### 6.3.1 Risk quantification

All patients with diabetes should attend a pre-Ramadan assessment with their HCP 6–8 weeks before the start of Ramadan. In the assessment, the risks to patients who intend to fast should be quantified. Factors that contribute to the risk include

the type of diabetes, current diabetes medication, individual social and work circumstances, individual hypoglycaemic risk, self-management capabilities and the presence of any complications and/or comorbidities. Patients can then be stratified according to their potential risk and an individualised approach to disease management provided to ensure optimal care is delivered (see Chapter 4). Although existing recommendations advise that patients who fall in the ‘very high’ and ‘high’ risk categories do not fast, it should be acknowledged that many Muslims will still wish to do so and these patients should be provided with the appropriate knowledge and support to minimise the risks they face [15, 16].

### 6.3.2 Blood glucose monitoring

There is a misconception held by some Muslim communities that pricking the skin for blood glucose testing invalidates the Ramadan fast [17]. It should be strongly emphasised in educational programmes that this is not the case. Indeed, checking blood glucose levels is an essential component of diabetes care, and patients should be provided with the tools and knowledge to carry out self-monitoring of blood glucose (SMBG). Having these skills can empower patients to effectively self-manage their disease and better identify and prevent episodes of hypoglycaemia and hyperglycaemia. This is particularly important during Ramadan when changes in diet and lifestyle can increase the incidence of these events. Also, by regularly measuring blood glucose, patients may become more conscious of their eating habits and the impact on their blood glucose levels, potentially curbing damaging behaviours.



**Having the skills to self-monitor blood glucose levels can empower patients with diabetes to effectively self-manage their disease**

The frequency of SMBG depends on many factors including the type of diabetes and current medications but should be carried out regularly by all. For those at moderate or low risk, this may be once or twice a day. Those at high or very high risk should check their blood glucose levels several times a day (see Chapter 8). Similarly, patients on insulin and/or sulphonylureas may choose to monitor their blood glucose levels more frequently because of the increased risk of hypoglycaemia associated with these medications. The data generated are also useful for guiding dose titration (see Chapter 8) [18]. It is important for all patients with diabetes to measure blood glucose levels after iftar to detect postprandial hyperglycaemia. Also, patients should check blood glucose levels whenever they experience symptoms of hypoglycaemia, hyperglycaemia or feel unwell, and understand when they should immediately break the fast (see *Figure 3*). Regular monitoring of blood glucose levels formed a vital component of the successful educational programmes implemented in the studies described in section 6.4 [4, 5].

### 6.3.3 Fluids and dietary advice

The fasting and feasting nature of Ramadan can encourage the consumption of large, carbohydrate-heavy meals, and sugary drinks and treats that can impact blood glucose levels potentially increasing the risk of complications in patients with diabetes [19]. Providing dietary advice and meal planning can help patients with diabetes to follow a healthy balanced diet during Ramadan, reducing the likelihood of these complications. It may also lead to lifestyle changes that favour weight loss that may continue once fasting has stopped. Key dietary advice that should be followed during Ramadan is shown in **Table 1** and discussed in detail in Chapter 7.

**Table 1. Dietary advice for patients with diabetes during Ramadan**

- Divide daily calories between suhoor and iftar, plus 1–2 snacks if necessary
- Ensure meals are well balanced
  - 45–50% carbohydrate
  - 20–30% protein
  - <35% fat (preferably mono- and polyunsaturated)
- Include low glycaemic index, high fibre foods that release energy slowly before and after fasting
  - E.g. granary bread, beans, rice
- Include plenty of fruit, vegetables and salads
- Minimise foods that are high in saturated fats
  - E.g. ghee, samosas, pakoras
- Avoid sugary desserts
- Use small amounts of oil when cooking
  - E.g. olive, rapeseed
- Keep hydrated between sunset and sunrise by drinking water or other non-sweetened beverages
- Avoid caffeinated and sweetened drinks

### 6.3.4 Exercise

Although rigorous exercise is not recommended during fasting because of the increased risk of hypoglycaemia and/or dehydration, patients with diabetes should be encouraged to take regular light-to-moderate exercise during Ramadan. Patients should be reminded that the physical exertions involved in Tarawih prayers, such as bowing, kneeling and rising, should be considered part of their daily exercise activities.

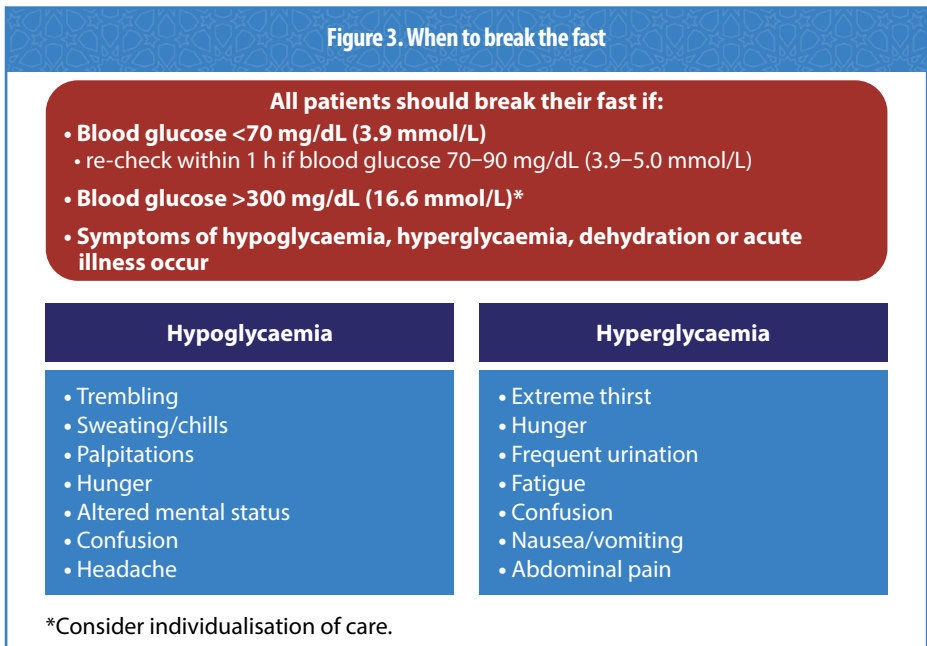
### 6.3.5 Medication adjustments during fasting

The change in lifestyle and eating patterns during Ramadan places patients with diabetes at an increased risk of hypoglycaemia during the daytime and hyperglycaemia at night. The type of diabetes medication can also impact this risk. In the pre-Ramadan assessment, the HCP may adjust the dose, timing or the type of medication to minimise the risk to the patient. Recommendations on treatment modifications are discussed in detail in Chapter 8.

**i** **Adjustments to the dose and/or timing of some medications may be required during Ramadan to minimise the risk of hypoglycaemia in fasting patients**

### 6.3.6 When to break the fast

Patients should be educated to recognise the symptoms of hypoglycaemia and hyperglycaemia [20], and be advised to test their blood sugar whenever any of these complications (or an acute illness) occur, and be prepared to break the fast if necessary (**Figure 3**). When breaking the fast because of hypoglycaemia, patients should consume a small amount of a fast-acting carbohydrate e.g. a small carton of juice, and retest their blood after 15–20 minutes [21].



## 6.4 Evidence of benefit of Ramadan-focused diabetes education

### 6.4.1 The Ramadan Education and Awareness in Diabetes (READ) study

In this study from the UK, general practitioners based in London attended an educational Ramadan and diabetes workshop to gain understanding of the issues surrounding diabetes and fasting [5]. Participants then provided a 2-hour pre-Ramadan educational programme to patients with T2DM (n=57). Patients attended group sessions (led by an ethnic specialist dietician and a diabetes specialist nurse practitioner) which included both general and Ramadan-specific diabetes information on dietary advice and meal planning, physical activity, blood glucose monitoring, recognising and managing complications, and dosing and timing of medications. Patient weight and the incidence of hypoglycaemic events before and after Ramadan were compared with that of a control group of 54 patients with T2DM who did not attend the educational programme. One month after Ramadan, those who attended the programme demonstrated a significant loss in weight compared with before Ramadan (mean -0.7 kg,  $p < 0.001$ ) whereas there was a significant weight gain in the control group (mean +0.6 kg,  $p < 0.001$ ). There was also a significant decrease in the number of hypoglycaemic events in the group that received diabetes education (from nine events pre-Ramadan to five during Ramadan), compared with an increase (from nine to 36 events) in the control group. The study also demonstrated sustained glycaemic control in patients one year after attending the programme which was not evident in the control group [5].



**The READ programme was associated with weight loss and a significant reduction in hypoglycaemic events during Ramadan**

The authors noted that the success of the programme was in part due to the proactive approach of community link workers who encouraged and motivated individuals within the community to attend the programme. In addition, the involvement of culturally diverse staff and delivery of the sessions in four different languages enhanced accessibility of the programme to attendees.

### 6.4.2 The Ramadan Diabetes Prospective Study

Patients with type 1 diabetes or T2DM (n=110) were recruited to attend two educational sessions held on a one-to-one basis at the outpatient department of the Baqai Institute of Diabetology and Endocrinology in Pakistan [4]. In one session, given by a doctor, the physical well-being and glycaemic control of the patient was evaluated and any necessary adjustments to drug dosing and timing were made. Patients were advised to record their blood glucose readings twice a day for



at least 15 days during Ramadan and were educated about the warning signs of complications. In the other session, the diet and lifestyle of the patient was assessed by a dietician and adjusted for optimal energy consumption during Ramadan. The impact of this programme on the occurrence of diabetes complications during Ramadan was assessed. The study demonstrated a downward trend in symptomatic hypoglycaemic episodes from week 1 to week 4 of Ramadan with only one patient experiencing a severe hypoglycaemic event. No patients developed diabetic ketoacidosis or hyperglycaemic hyperosmolar state. The authors concluded that altering drug dosage, dietary counselling and patient education, together with regular blood glucose monitoring enabled patients to fast without major complications [4].

## Summary

- Education is an essential component of diabetes management during Ramadan.
- Programmes should be aimed at patients with diabetes, the HCPs who manage them and the general public who support them.
- A structured educational programme should include information on risk quantification, blood glucose monitoring, diet, exercise, medication adjustments, recognition of the symptoms of complications and when to break the fast to prevent harm.
- Studies have demonstrated a clear benefit of Ramadan-focused education programmes in terms of glycaemic control, weight loss and a reduced risk of hypoglycaemic events.
- The positive outcomes of these programmes may also extend beyond the month of fasting.

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