International Diabetes Federation

Taking diabetes to heart

Global survey on CVD awareness and knowledge among people with type 2 diabetes

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International Diabetes Federation

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Abbreviations

AFR	Africa
CVD	cardiovascular disease
EUR	Europe
HDL	high density lipoprotein
HIC	high-income country
IDF	International Diabetes Federation
LIC	low-income country
LMIC	lower-middle income country
MENA	Middle East and North Africa
NAC	North America and Caribbean
SACA	South and Central America
SEA	South East Asia
T2D	type 2 diabetes
UMIC	upper-middle income country
WP	Western Pacific

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Foreword

This Taking Diabetes to Heart report presents the distressing situation of CVD awareness and knowledge among people with diabetes, from around the world. All the 425 million people with diabetes worldwide are at increased risk of developing cardiovascular disease (CVD). CVD is a major cause of death and disability in people with diabetes. However, the findings of this research showed that about one in ten participants did not know about CVD and its associated risk factors.

Despite two in three respondents indicating that they had CVD risk factors — such as high blood pressure, uncontrolled blood glucose levels and high cholesterol — one in four had never discussed their risk with a health professional. The majority of the people surveyed however recognised their need for further information on the signs and symptoms of CVD, CVD risk factors, self-management of diabetes and ways to avoid CVD through diet and exercise to better understand the association between T2D and CVD in order to prevent it.

This new report facilitates evidence-based decision-making and encourages intersectoral collaboration to strengthen health systems and implement cost-effective interventions. A series of recommendations are proposed from the patient, health provider and government perspectives. These include increasing health promotion activities with a focus on common risk factors for CVD and diabetes; informing health professionals of their critical role in increasing awareness and knowledge of CVD among people with type 2 diabetes; and implementing CVD monitoring systems.

Investing in measures to detect type 2 diabetes early and ensuring that health professionals are trained to guide individuals and families to make positive changes to their lifestyle, will help better manage diabetes and reduce the burden of CVD and its associated risk factors.

IDF is committed to working with its partners to achieve this and to improve health outcomes for the millions currently affected and the many more at risk.

Prof. Nam H. Cho
President, International
Diabetes Federation

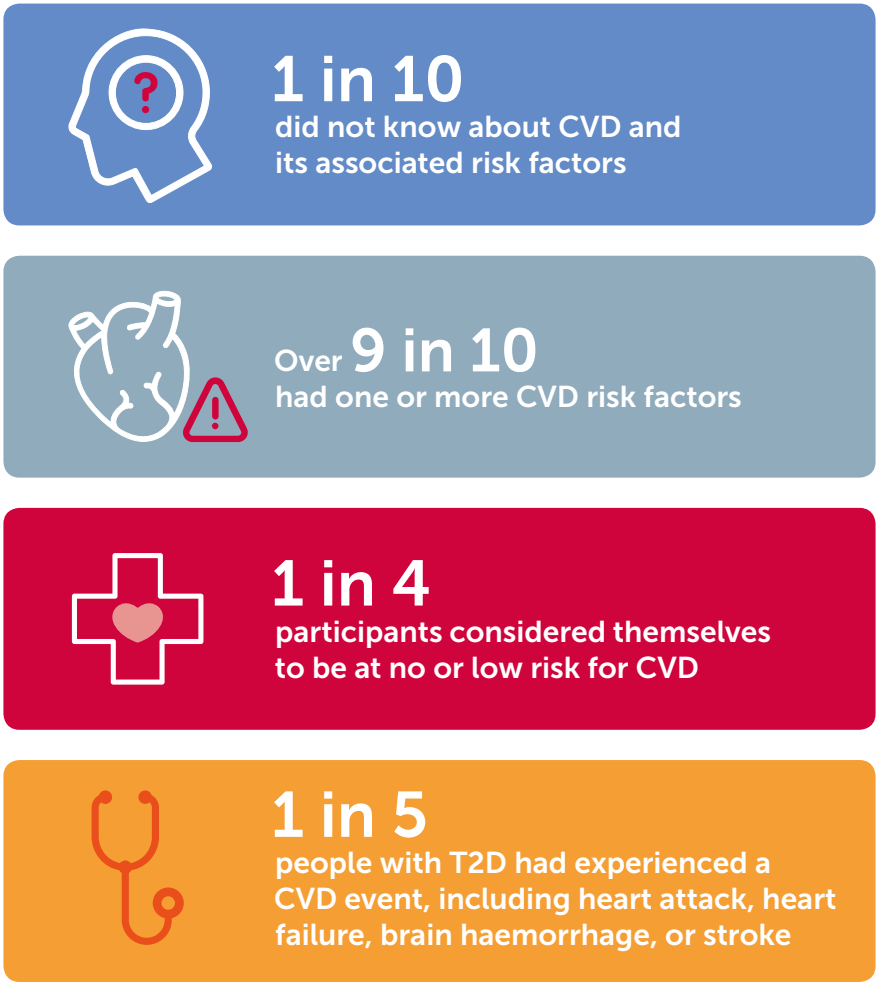
Executive summary

People with diabetes are at increased risk of developing cardiovascular disease (CVD). CVD is a major cause of death and disability in people with diabetes, and a barrier to sustainable development. Preventing CVD among people with diabetes can reduce diabetes morbidity and mortality, and consequently decrease the economic impact of CVD-related complications. CVD can be prevented or delayed by controlling blood glucose levels, blood pressure and cholesterol, as well as by addressing unhealthy lifestyle habits such as smoking, poor diet, and physical inactivity.

Action must be taken to decrease the impact of CVD in people with diabetes. This requires an environment that promotes healthy lifestyle choices. Furthermore, health systems with routine surveillance mechanisms are needed to better manage diabetes and CVD.

The Taking Diabetes to Heart study was designed to assess knowledge and awareness of CVD among people with diabetes. The data was collected between September 2017 and May 2018 through an online questionnaire in 32 languages. A total of 12,695 participants from 133 countries across all seven IDF regions took part in the research. The questionnaire comprised 17 questions which were divided into the following sections: demographics; CVD risk knowledge; CVD risk awareness; education on CVD by health professionals; and CVD information sources.

The main findings of the survey were as follows:



1 in 4
participants with T2D had never discussed or could not remember having discussed their CVD risk with a health professional

Only
1 in 4
had discussed their CVD risk with a health professional at the time of their T2D diagnosis

2 in 5
considered that T2D would not increase their CVD risk as long as they took medication

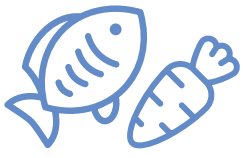
3 in 4
relied on CVD information from health professionals

...yet
1 in 6
were unsatisfied or very unsatisfied with the information received from health professionals

2 in 3
felt they needed more information on the signs and symptoms of CVD

1 in 2
felt they needed more information about CVD risk factors

2 in 3
felt they needed more information on the self-management of diabetes



2 in 3
reported that they needed advice on how to reduce CVD through diet and exercise

Introduction

Introduction

Diabetes is a life-threatening condition that affects more than 425 million people worldwide[1]. It is a major risk factor for cardiovascular diseases (CVD), and CVD is the leading cause of death in people with diabetes. Four million people die each year as a result of diabetes, and a high proportion of these deaths are attributable to CVD complications such as heart attack and stroke[2].

Given that people with diabetes are at greater risk of CVD, increasing their knowledge and awareness of CVD at the right time can reduce the chances of developing diabetes complications and thus help to reduce diabetes morbidity and mortality[3,4].

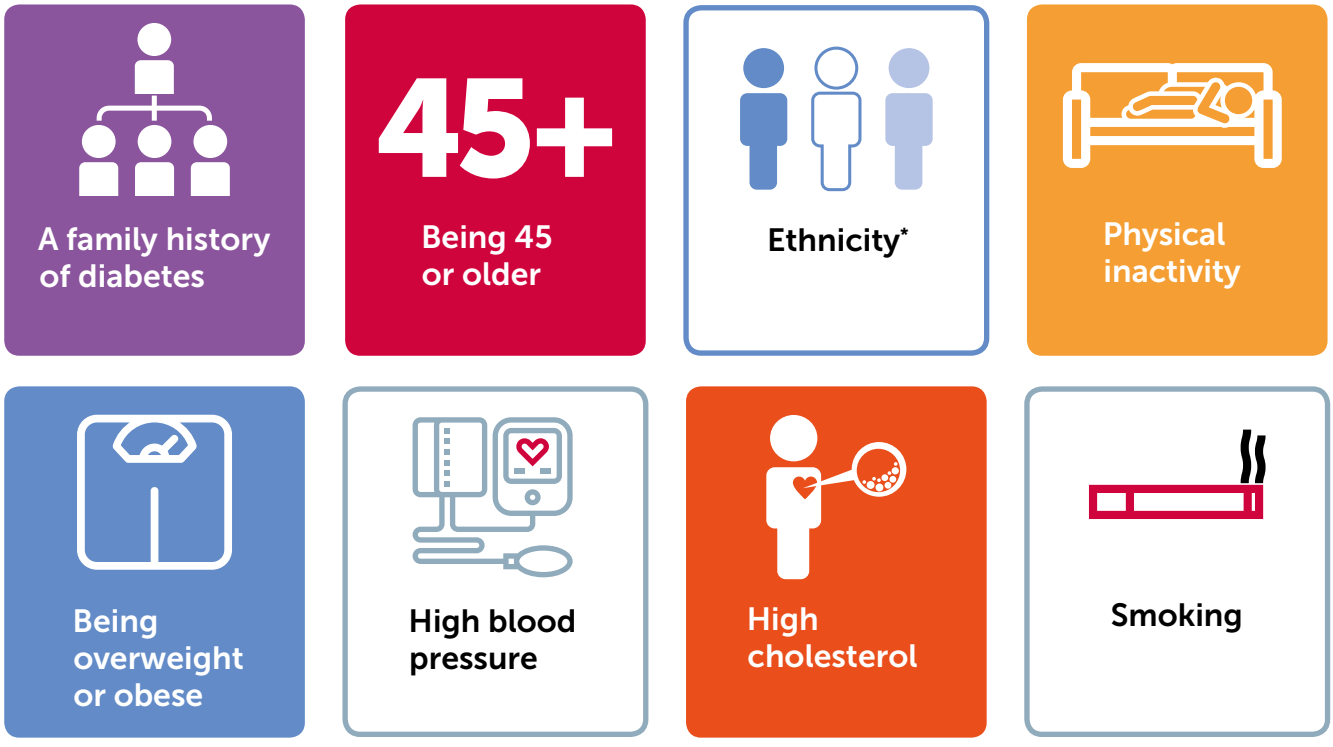
Unfortunately, there is little information available about knowledge and awareness of CVD among people with diabetes at a global level. To address this gap, the International Diabetes Federation, in partnership with Novo Nordisk, initiated the Taking Diabetes to Heart study in September 2017.

Diabetes

Diabetes is a chronic condition that develops when the body either cannot produce the amount of insulin it requires or the insulin produced is ineffective. Insufficient or ineffective insulin leads to increased blood glucose levels, as insulin cannot help the glucose get into cells to be used for energy[5].

Type 2 diabetes (T2D) is the most common type of diabetes, accounting for around 90% of all cases. In T2D, the body is unable to produce adequate insulin and can also be resistant to insulin. This can prompt the body to increase insulin production to counter rising glucose levels. Over time, this can lead to inadequate levels of insulin production[6,7,8].

Several risk factors play an important role in the development of T2D, including[9]:



*e.g., African American, Alaska Native, American Indian, Asian American, Hispanic/Latino, Native Hawaiian, or Pacific Islander.

These risk factors contribute to an increased risk of developing CVD in people with T2D. Evidence shows that adults with diabetes are at a higher risk (two to four times) of dying from heart disease than adults without diabetes[10].

Although T2D and its associated complications can be managed using appropriate treatment and management strategies[11], it imposes a great financial burden both on the individuals living with it, their families and the health system. It is therefore important that people with T2D are knowledgeable about their condition and have access to reliable sources of information.

Cardiovascular diseases (CVD)

CVD is a group of disorders of the heart and blood vessels. It is the leading cause of death and disability worldwide. CVD includes[12]:

Coronary heart disease

Disease of the blood vessels supplying the heart muscle.

Cerebrovascular disease

Disease of the blood vessels supplying the brain.

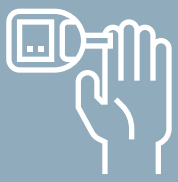
Peripheral arterial disease

Disease of blood vessels supplying the arms and legs (diabetic foot).

Several risk factors can increase the chances of developing CVD. These include associated conditions, metabolic risk factors, behavioural risk factors, modifiable factors and non-modifiable risk factors[13].

Associated conditions and metabolic risk factors include:

Hypertension



Diabetes

Chronic kidney disease

Obesity

Abnormal blood lipids

Pre-eclampsia

Behavioural risk factors are those that can be changed and include:

Smoking

Physical inactivity

Unhealthy eating habits

Excessive alcohol consumption

Other modifiable factors include:

Life-course risks such as low birth weight and preterm births

Environmental risk factors such as exposure to ambient air pollution and particulate matters

Low socioeconomic status, stressful life, social isolation, anxiety and depression

Lack of awareness

Non-modifiable risk factors cannot be changed and include:

Age

CVD risk increases with age

Sex

Before the age of 60, men are at greater risk of developing CVD than pre-menopausal women. Post-menopausal women have similar CVD risk to men

Family history

The risk may be greater if close blood relatives have experienced an early CVD event

Ethnicity

Individuals with African or Asian ancestry and indigenous populations are at higher risk of CVD

Methods

Methods

Questionnaire development and data collection

Taking Diabetes to Heart was designed to examine levels of knowledge and awareness of cardiovascular disease (CVD) and related risk factors in people with type 2 diabetes (T2D) via an online questionnaire. The questionnaire was made up of 17 questions divided into the following sections:

- Demographics
- CVD risk knowledge
- CVD risk awareness
- Education on CVD by health professionals
- CVD information sources

The questionnaire was available in 32 languages: Amharic, Arabic, Bulgarian, Chinese, Croatian, Czech, Danish, Dutch, English, Filipino, Finnish, French, Georgian, German, Greek, Hindi, Indonesian, Italian, Japanese, Korean, Macedonian, Polish, Portuguese, Russian, Serbian, Spanish, Swahili, Swedish, Thai, Urdu, Uzbekistan, and Vietnamese.

Scientific experts from International Diabetes Federation (IDF) and Novo Nordisk reviewed the draft questionnaire and made changes as required. It was then piloted in 10 people with T2D and improved before being used for the final data collection. The translated questionnaires were proofread by native speakers of each specific language.

Data collection was conducted between September 2017 and May 2018 and anyone with T2D and above 18 years was eligible to take part. The purpose of the study was stated in the introduction to the questionnaire.

Survey open September 2017–May 2018

12,695 responses received

133 countries participated

Data was collected anonymously, although participants were able to include their email addresses if they wished. A privacy statement was available on the website. IDF's contact information was included so that participants could get in touch to request further information if they wanted.

In most cases, participants filled in the survey unaided. In cases where they could not access the internet or survey website, data collectors either printed the questionnaires and collected written responses, or carried out interviews and transcribed the responses on behalf of the participants. In these instances, national ethical clearance was sought by using generic research protocol. In China, data was collected via an alternative survey platform created in Chinese. Ownership of the data remains with IDF.

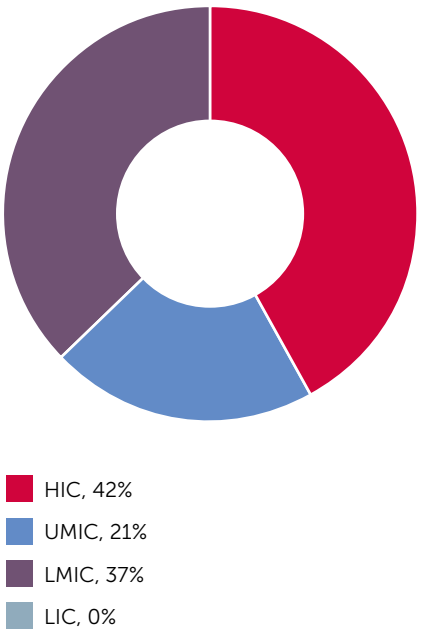
Data analysis

All data analyses were pre-specified and described in a statistical analysis plan that was agreed in advance. This plan defined the approach that would be taken to examine and present the data collected.

Following completion of the questionnaires, the source data existed in separate files and different languages and had to be merged into a single, homogeneous format. A data dictionary was created based on the questionnaire, and the coding was aligned with the dictionary. Duplicate records were identified and discarded. Metadata was included in the merged dataset in order to track the source data files. Having been aggregated and cleaned, the merged dataset was analysed. The programs used for the data merging and cleaning were Excel and Stata.

All categorical variables are shown as numbers and percentages. Pearson's chi-square test and Fisher's exact test were used to assess the association between categorical variables. The extended Mantel-Haenszel test was used to determine the association between categorical variables, adjusted for potential confounders. Statistical significance was defined as $p<0.05$ and all statistical analyses were performed using Stata (version 15, College Station, TX: StataCorp LLC).

Figure 1: Answers per income category



In general, when a response to a question was missing, it was treated as missing and excluded from summaries of that question. Therefore, the denominators for summaries were the number of non-missing responses to each question, and frequencies and percentages were calculated from the non-missing values.

Global and regional summary statistics were prepared, along with summary statistics from the seven countries that generated the highest number of responses, namely: Japan, Bulgaria, Denmark, India, Brazil, China and Pakistan. All statistics were prepared in the form of structured tables. Key results have been presented using figures, such as histograms and pie charts, to facilitate interpretation of the data.

Limitations

The Taking Diabetes to Heart study had a number of limitations. Although the sample size was large (12,695 respondents) and provided useful information at a global level, the number of participants varied considerably by region and especially by country. Thus, the analysis performed at a global level was heavily weighted in favour of those countries with the greatest number of respondents. The results at regional and country levels should therefore be interpreted with caution. Although the number of respondents at country levels were generally too small to draw any definitive or significant conclusions, they are useful in showing broader trends.

The participants were largely recruited through IDF patient and civil society organisations, and health professionals' practices, so were likely to be more engaged in care than others with diabetes. Consequently, their knowledge, awareness and experiences may differ from those of others.

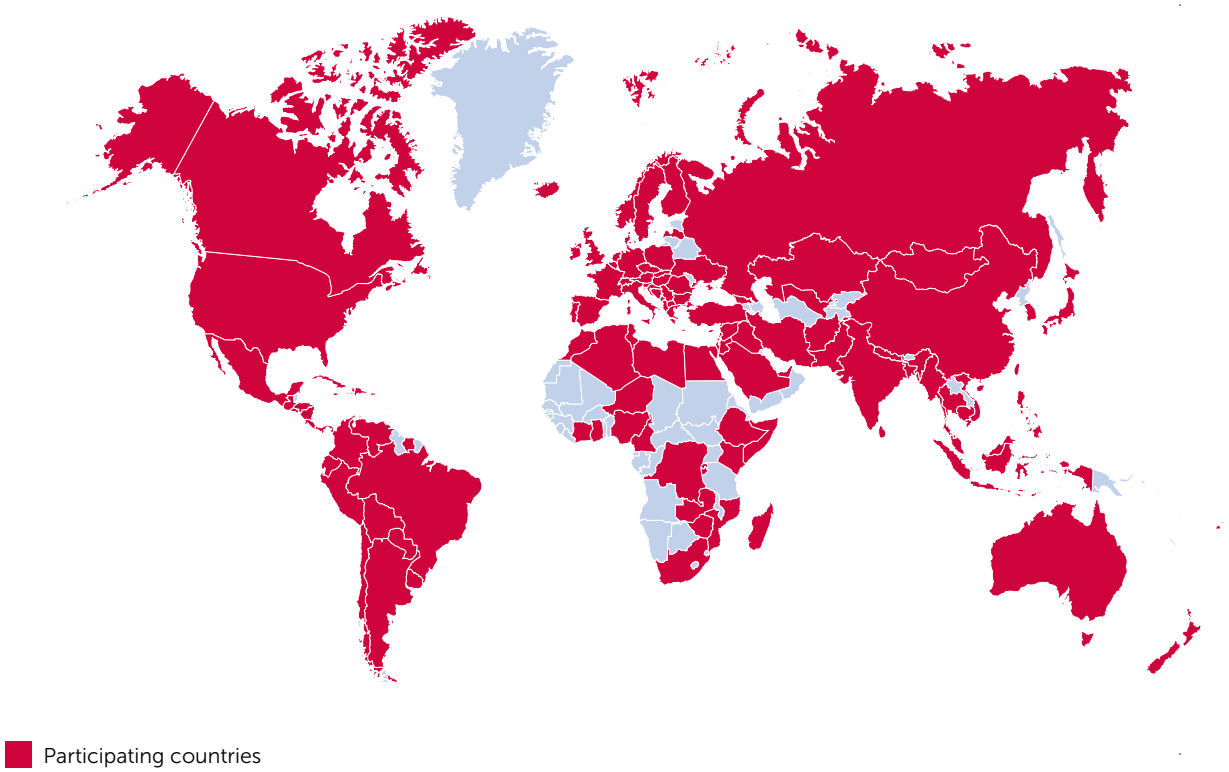
The consistency with which information was provided varied between respondents, resulting in missing data and implausible responses to some questions. When illogical answers were submitted, such as female respondents indicating male gender as their risk factor, some questions or answer options had to be excluded from the analysis. Variations in the consistency of the information collected may reflect different levels of understanding of the terminology, as well as cultural differences regarding the language used within the survey.

As the data was collected from 133 countries (Map 1; see also full country list on page 83) and in 32 different languages, it is reasonable to assume some variation in the translation and understanding of medical and health terms. In some cases, the data collectors might have also influenced the responses.

The reasons why data was missing were mostly unknown and therefore it was not clear whether bias was introduced into the analysis as a result. In some cases, data was absent due to an inability to interpret handwritten responses in foreign languages during the transcription process. Where bias does exist, the impact is likely to be greatest in analyses involving a small number of observations.

For some questions, respondents were able to select multiple answers. Whilst this provided broader insights from participants, it also posed a challenge when interpreting the results, as the total number of responses for some questions was greater than the total sample size.

Map 1: Origin countries of participants



Participating countries

Global findings

Global findings

Participant characteristics

A total of 12,695 participants completed the questionnaire, of whom 52% were men. A large proportion (39%) had undertaken tertiary level education (Bachelor's, Master's or PhD) (Figure 2). Roughly 60% of participants had participated in lower levels of education, namely primary and secondary education.

The majority of the participants (91%) were aged 40 years and older. Of the remainder, only 1% were aged below 20 (Figure 3).

A majority of participants (60%) reported that they had been living with diabetes for more than six years. Just under half (44%) had had the condition for over nine years. Fewer than one in five (2,208 participants; 18%) had been living with diabetes for three to six years, and a similar proportion (22%) had had diabetes for fewer than three years (Figure 4).

Figure 2: Highest level of education achieved – global

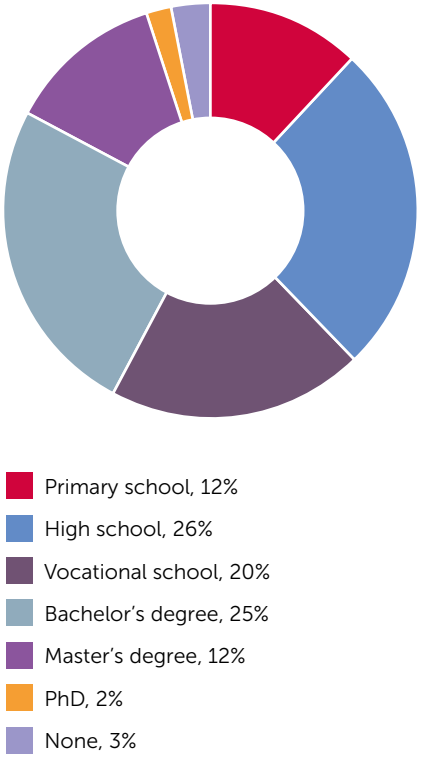
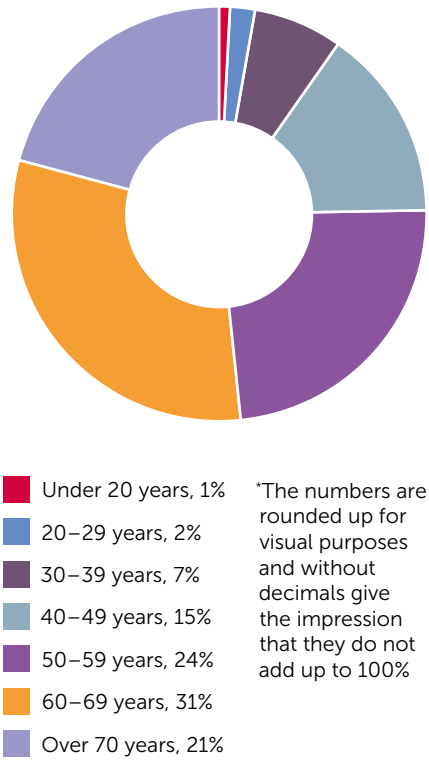
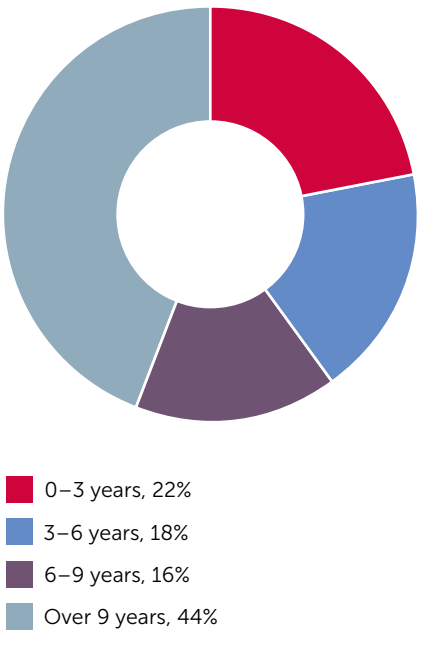


Figure 3: Age distribution – global*



*The numbers are rounded up for visual purposes and without decimals give the impression that they do not add up to 100%

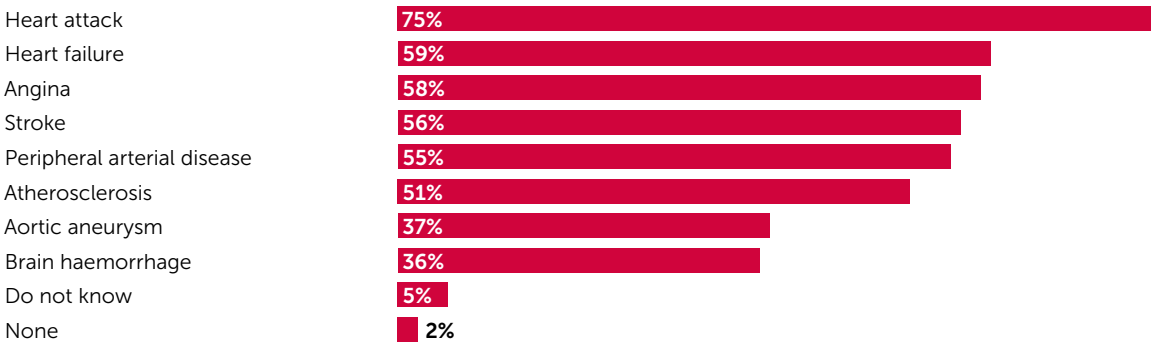
Figure 4: Time living with type 2 diabetes (T2D) – global



Knowledge of CVD and risk factors

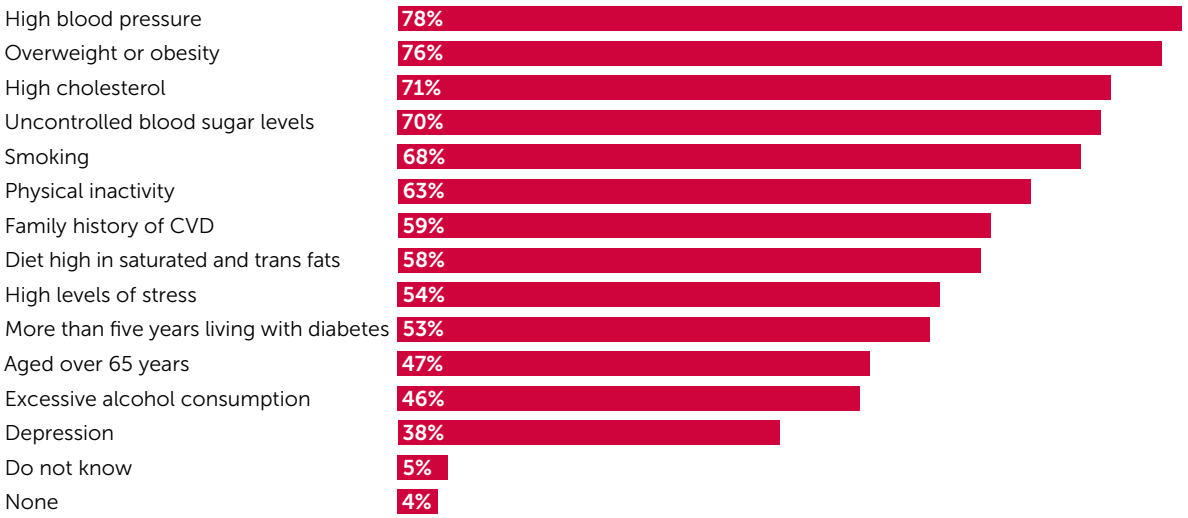
Heart attack was identified as a CVD event by 75% of participants. A big proportion recognised heart failure (59%), angina (58%), stroke (56%), peripheral arterial disease (55%) and/or atherosclerosis (51%) as types of CVD. Roughly one in three identified aortic aneurysm (37%) and/or brain haemorrhage (36%) as a CVD event (Figure 5).

Figure 5: Knowledge of CVD – global



High blood pressure was correctly recognised as a risk factor for CVD by 78% of participants, followed by overweight or obesity (76%). In addition, two in three correctly recognised high cholesterol (71%), uncontrolled blood sugar levels (70%), and smoking (68%) as CVD risk factors. More than half identified physical inactivity (63%), family history of CVD (59%), diet containing high amounts of saturated and trans fats (58%), high levels of stress (54%), and living with diabetes for more than five years (53%) as CVD risk factors. Other CVD risk factors that were classified were being aged over 65, and excessive alcohol consumption. A minority of participants (527; 4%) did not identify any of the CVD risk factors (Figure 6).

Figure 6: Knowledge of CVD risk factors – global



Awareness of CVD and risk factors

About a quarter of participants considered themselves to be at no risk or low risk of CVD, while 36% (4,488 people) rated themselves as being somewhat at risk. A large number (4,553 people; 37%) reported that they were at moderate or high risk of CVD (Figure 7).

The self-reported risk of CVD was not significantly related to participants' age, gender or level of education. However, living with T2D for a shorter period of time was significantly associated with a higher self-reported risk of CVD.

Participants' self-reported CVD risk was not significantly associated with their age, sex, or education level. However, living with T2D for a shorter period was significantly associated with a higher self-reported risk of CVD.

All but six participants reported having at least one CVD risk factor. Living with T2D for more than five years (61%); being overweight or obese (56%); and high blood pressure (55%) were the main risk factors that participants considered relevant to themselves. About half also identified physical inactivity (49%), uncontrolled blood sugar levels (49%), high cholesterol (46%), family history of CVD (45%), and high levels of stress (44%) as other CVD risk factors that applied to them (Figure 8).

Figure 7: Self-evaluation of CVD risk – global

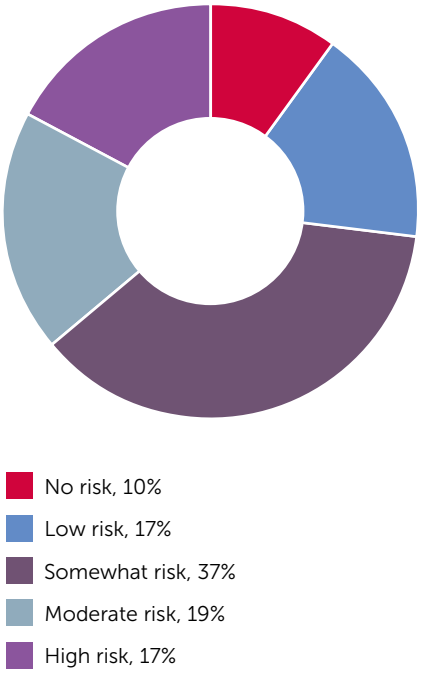
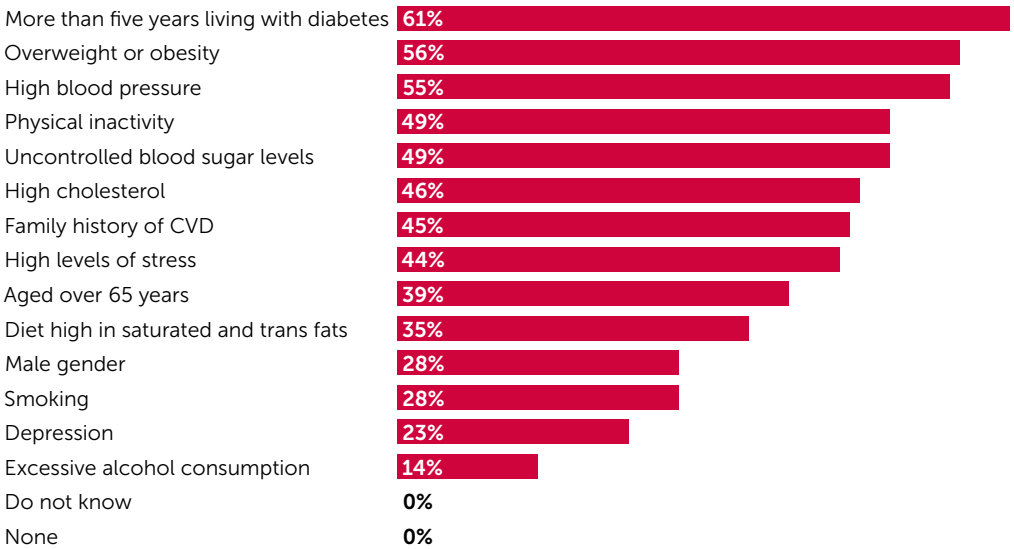
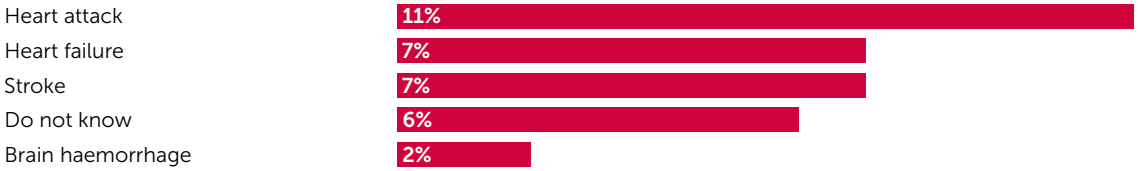


Figure 8: Existing CVD risk factors – global



Heart attack was the most common CVD event experienced, reported by 11% of participants (1,421 people). This was followed by heart failure (900; 7%), and stroke (853; 7%). In addition, 289 people (2%) reported that they had experienced a brain haemorrhage (Figure 9).

Figure 9: Experienced CVD events – global



Age was significantly associated with both the duration of living with T2D and the number of CVD events experienced. Those who were older reported more CVD events than younger ones, the most common of which were stroke and heart attack. This was true for both genders and in participants with all educational backgrounds.

Education about CVD

Among those who reported that they had had a conversation with a health professional regarding T2D and CVD, positively one in ten had had the discussion before their T2D diagnosis. One in four (25%) had done so at the time of their T2D diagnosis and 1,630 (13%) had discussed CVD soon after being diagnosed with T2D. However, 875 (7%) had discussed CVD several years after their T2D diagnosis. In addition, 7% had had a discussion with a health professional after already being diagnosed with CVD. Moreover, one in four (28%) had never discussed or could not recall having discussed CVD with a health professional (Figure 10).

Figure 10: Discussion(s) with a health professional about T2D and CVD – global

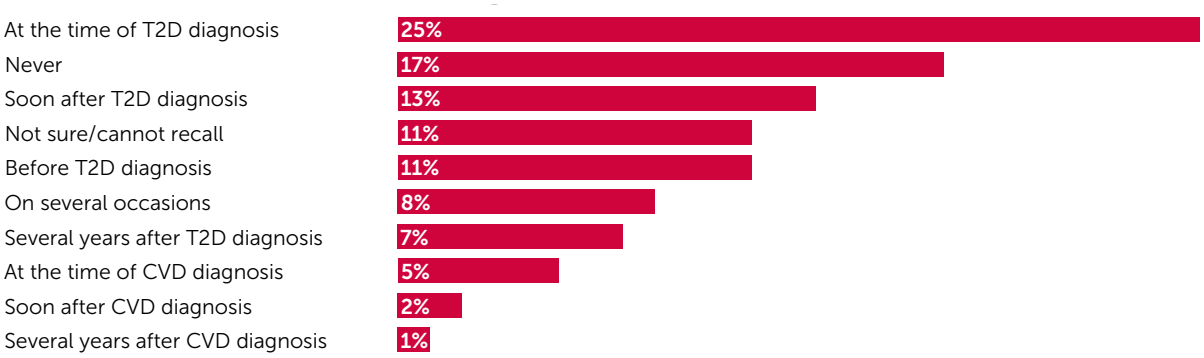
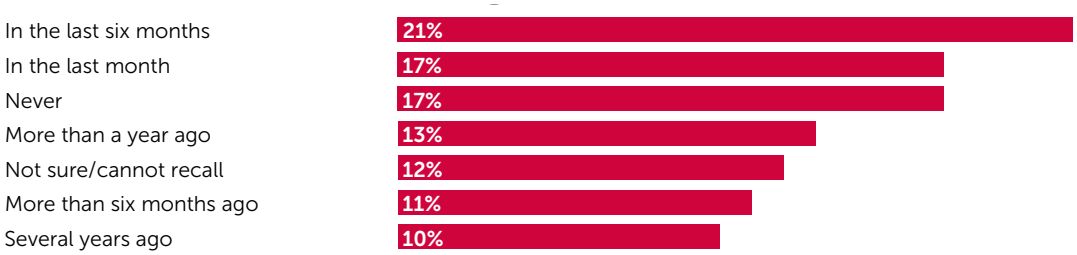


Figure 11: Last time discussing CVD risk factors with a health professional – global



About 40% of participants had discussed CVD risk factors with a health professional within the previous six months (4,541 participants), while 11% had done so more than six months beforehand, and 13% reported that they had had such a discussion more than a year previously. A considerable number (2,020 participants; 17%) had never discussed CVD risk factors with a health professional, while another 12% (1,399 people) were not sure or could not remember if they had discussed it or not (Figure 11).

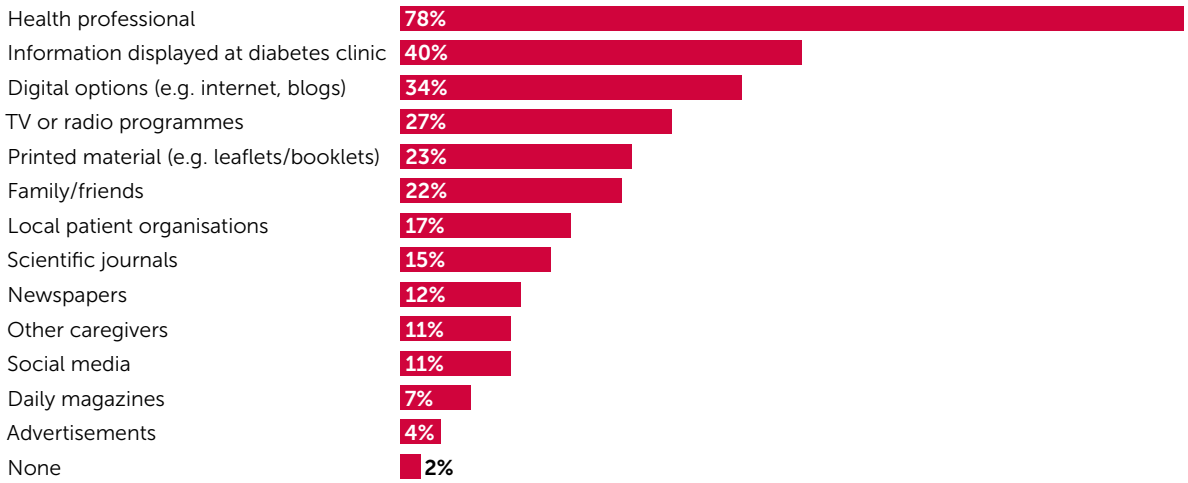
The majority of participants believed that it was possible to lower their risk of CVD through healthy diet and physical exercise (82%), or by reducing stress (82%). Half (6,297) believed that men and women are at equal risk of CVD. A large number (5,419) thought that diabetes would not increase their risk of CVD if they took their medication as prescribed. Interestingly, 23% of participants (2,888) reported that only overweight or obese people were at risk of developing CVD and one in ten felt that they were too young to worry about CVD.

Two thirds of participants said that they needed information on how to reduce their risk of CVD through diet and exercise (68%), diabetes self-management (67%) and general information on CVD (65%). More than half reported that they needed information on risk factors associated with the development of CVD (60%); advice on how to control and self-manage hypertension (54%); and advice on how to lose weight or maintain a healthy weight (54%).

Information about CVD

The majority of participants (78%) reported that a health professional was their main source of information about CVD, followed by information displayed at the diabetes clinic (40%). About a third cited digital media (34%) as their main source of information, followed by TV or radio programmes (27%), printed materials (23%), and family or friends (22%). Only a small number selected daily magazines and advertisements as their source of information about CVD (7% and 4% respectively) (Figure 12).

Figure 12: CVD information sources on which the participants rely – global



Age was significantly associated with the type of information source used by participants, with older participants citing health professionals as their main source of information, in contrast with younger respondents. The majority of respondents were satisfied or very satisfied with the quality of CVD information provided by a health professionals (64%) and diabetes clinic (45%). On the other hand, a large number indicated that they were unsatisfied or very unsatisfied with the information from advertisements (69%), daily magazines (65%), newspapers (59%), social media (55%), and local patient organisations (54%).

Regional findings

Africa

Participant characteristics

Of the 183 respondents from IDF's Africa Region, 54% were women. A majority of those who completed the questionnaire (55%) were aged under 60, and 15% were under 40. Over a third (38%) had been living with diabetes for more than nine years. A similar proportion (31%) had been living with diabetes for fewer than three years, while 14% had had the condition for three to six years. The majority (58%) had tertiary level education, 21% had secondary level education and 16% had primary school education.

Knowledge of CVD and risk factors

Respondents had a good knowledge of what constituted CVD, with more than half identifying stroke (56%), heart attack (55%) and/or heart failure (50%) as types of CVD. A smaller proportion listed peripheral arterial disease (39%), atherosclerosis (36%), and angina (35%). Fewer mentioned brain haemorrhage (23%) and aortic aneurysm (22%) as CVD events. Overall, more than 60% correctly identified at least one type of CVD (Figure 13).

Figure 13: Knowledge of CVD – AFR

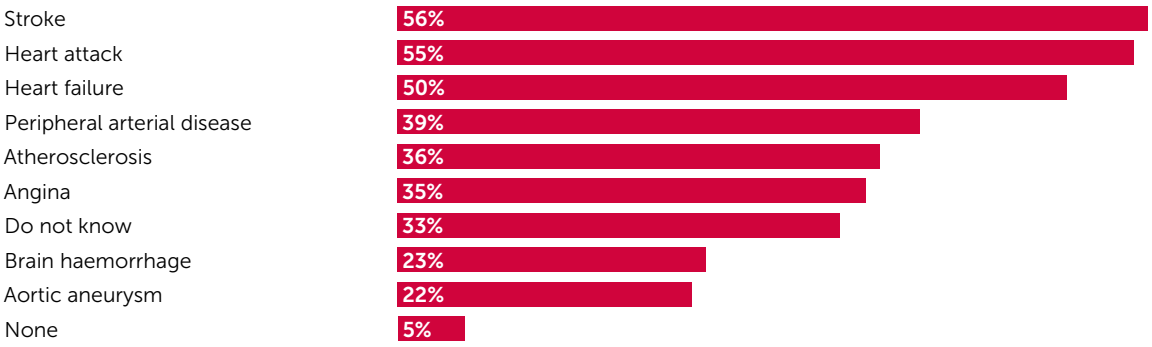
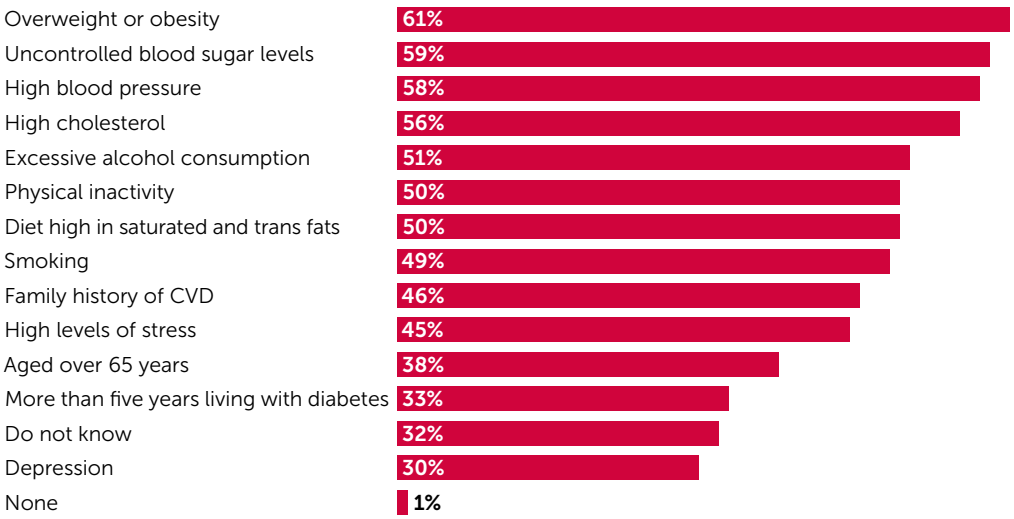


Figure 14: Knowledge of CVD risk factors – AFR



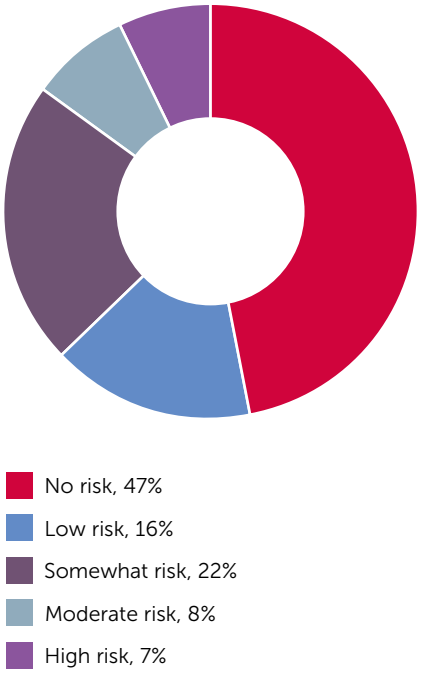
Being overweight or obese was selected as a risk factor by 61%, with more than half identifying high blood pressure (58%), high cholesterol (56%), physical inactivity (50%), and smoking (49%) as risk factors. Additionally, many people recognised that uncontrolled blood sugar levels (59%) and a diet containing high amounts of saturated and trans fats (50%) contributed to CVD risk. Non-modifiable risk factors such as family history of CVD (46%); having lived with T2D for more than five years (33%); and being over 65 (38%) also resonated with respondents. Furthermore, they were aware that high levels of stress (45%), excessive alcohol consumption (51%) and depression (30%) all contribute to the risk of developing CVD (Figure 14).

Awareness of CVD and risk factors

When asked about their self-rated risk of CVD, the majority (63%) of respondents considered themselves at either low or no risk. Thirty percent characterised themselves as being either somewhat at risk or at moderate risk. Seven percent rated themselves at high risk of CVD (Figure 15).

When asked what CVD risk factors they had, participants most often noted lifestyle-related factors. Physical inactivity and high levels of stress were both identified by 33% of respondents, followed by high blood pressure (32%) and being overweight or obese (32%). A family history of CVD was identified as a risk factor by 30% of participants. Maintaining healthy blood sugar levels was a challenge for 28%, with 25% citing a failure to maintain a healthy cholesterol level as a risk. Twenty-two percent noted that their diet contained high amounts of saturated and trans fats. A further 19% said they had experienced depression, while 16% smoked and 15% consumed alcohol excessively. Of those who responded, 47% stated they had not experienced a CVD event, or were not sure if they had. Stroke and heart failure were the most frequently mentioned CVD event experienced by 5% of the participants for each.

Figure 15: Self-evaluation of CVD risk – AFR



Education about CVD

When asked if they had previously talked about diabetes and CVD risk factors with a health professional, 52% reported that they had either not done so, or were not sure if they had. Only 6% said they had had several conversations about CVD risk factors. Of those who had spoken with a health professional, 6% had discussed risk factors prior to their diabetes diagnosis; 14% had had the conversation at the time of their diabetes diagnosis; and 15% had done so soon after. Two percent first spoke with a health professional about diabetes and CVD risk factors at the time of their CVD diagnosis, or soon after.

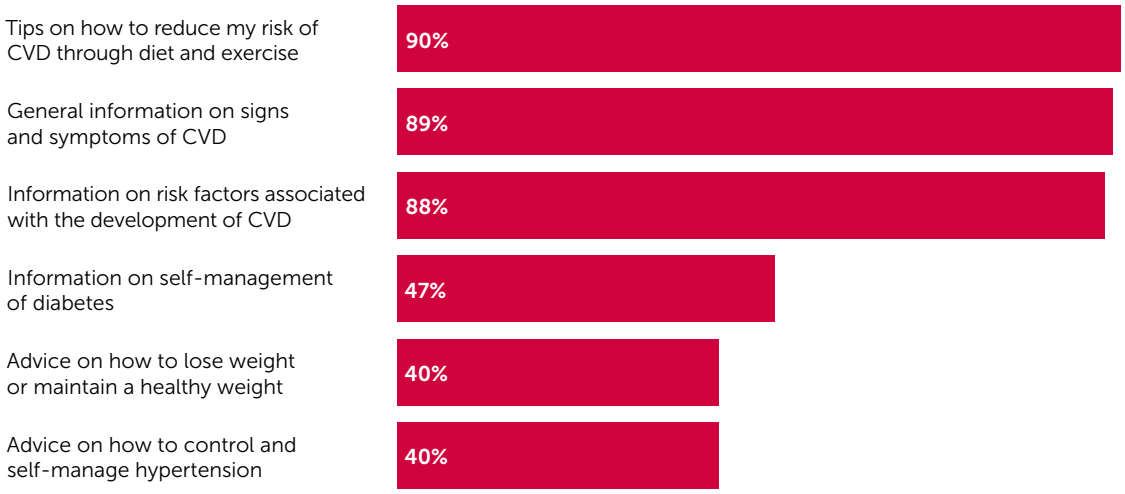
Asked when they had last spoken to a health professional about CVD risk factors, 14% said this had been within the previous six months, while 22% reported that it had been more than six months previously. Fifty-two percent reported that they had never had a conversation with a health professional about CVD risk factors, or were not sure if they had.

Only 38% of respondents recognised that having diabetes increased their CVD risk even if they took their medication as prescribed. By contrast, 92% were aware that a healthy diet and physical exercise could lower their CVD risk. Twenty percent noted that they were too young to be concerned about

CVD. Recognising that CVD risk is often lifestyle driven, 64% stated that there were steps they could take to reduce it. Seventy-one percent appreciated that people of all weights can be at risk of CVD. The link between stress and CVD was noted by 68%.

When asked what information they needed to better understand the risks associated with type 2 diabetes and CVD, 90% said tips on risk reduction relating to diet and exercise would be useful. A similar figure (89%) wanted general information on CVD, while 88% were interested in education on risk factors. Information on diabetes self-management was considered useful by 47% (Figure 16).

Figure 16: Information needed to better understand the risks associated with T2D and CVD in order to reduce them – AFR



Information about CVD

A majority of people (82%) relied on a health professional for information about CVD, followed by information on display at their clinic (61%). Fifty-two percent used information provided by patient organisations, while 34% relied on digital sources. Scientific journals were a valued source of information for 7%. Collectively, family, friends, and other caregivers were named as sources of information about CVD by 9% of participants.

Information about CVD provided a health professional was associated with the highest rates of satisfaction among those surveyed (61%), with information displayed at clinics also widely considered helpful (58%). Most people (58%) were also very satisfied with scientific patient organisations as a source of reliable CVD information. A smaller number (26%) felt satisfied with the digital options available to them. Interestingly, respondents said they felt neutral towards printed material (33%), digital options (30%), and TV or radio programmes (25%). They were most dissatisfied with information from advertisements (54%), daily magazines (52%) and newspapers (41%) as sources of information on CVD.

Europe

Participant characteristics

A total of 5,509 people from IDF's Europe Region completed the Taking Diabetes to Heart questionnaire. The majority (58%) were over 60 years old, with only 5% aged under 40. Just over half (52%; 2,897 people) were male and 44% (1,492 participants) had tertiary level education (Bachelor's, Master's or PhD). Almost half (45%) reported that they had been living with diabetes for over nine years. Only a fifth of respondents had been living with diabetes for fewer than three years and 17% between three to six years.

Knowledge of CVD and risk factors

The majority of participants identified heart attack (82%), heart failure (64%), peripheral arterial disease (62%), angina (59%), and stroke (56%) as CVD events (Figure 17). Most were aware that high blood pressure was a CVD risk factor (84%), as well as overweight or obesity (84%) and high cholesterol (75%).

Figure 17: Knowledge of CVD – EUR

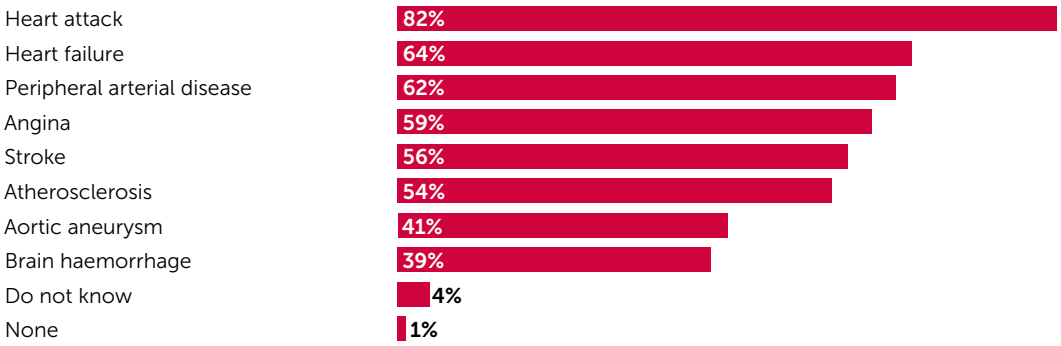
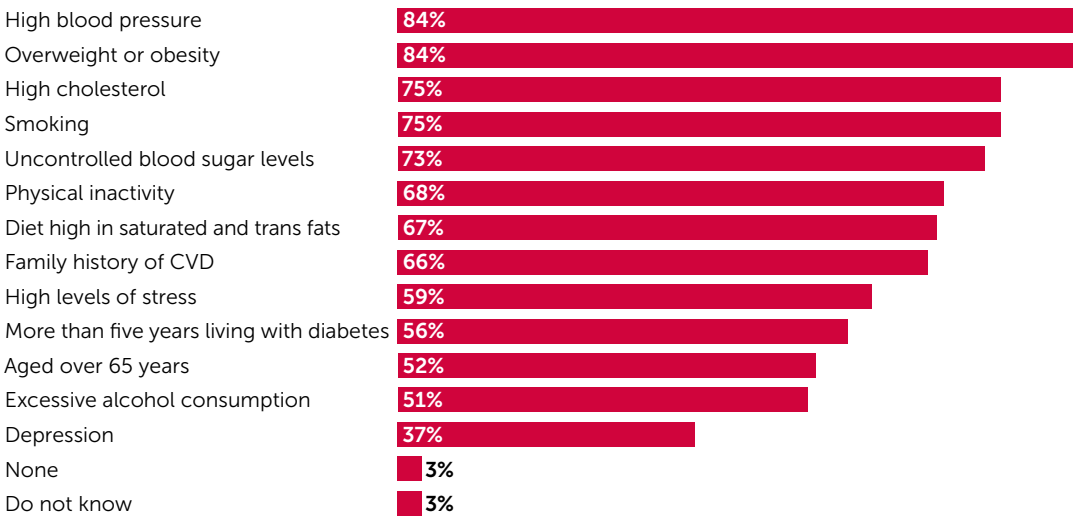


Figure 18: Knowledge of CVD risk factors – EUR



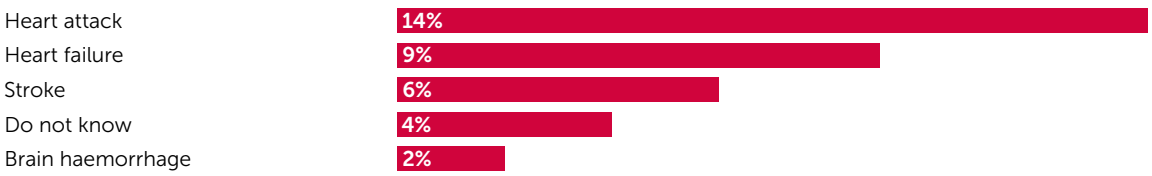
Many people also recognised uncontrolled blood sugar levels (73%), smoking (75%), physical inactivity (68%), diet containing high amounts of saturated and trans fats (67%), and family history of CVD (66%) as risk factors (Figure 18).

Awareness of CVD and risk factors

Just under half of the participants (43%) rated their CVD risk as medium or high. Only 6% (296 people) felt they were not at risk of CVD, while 15% considered themselves to be at low risk. A majority reported the following CVD risk factors: living with T2D for more than five years (3,501 participants; 64%), overweight or obesity (3,248; 59%), and high blood pressure (3,159; 57%). In addition, about half of the participants reported having CVD risk factors including a family history of CVD events (48%); uncontrolled blood sugar levels (45%); high cholesterol (45%); high levels of stress (45%); and physical inactivity (44%).

More than one in ten (14%) of the participants had had a heart attack while 9% had experienced heart failure, followed by stroke (6%) and brain haemorrhage (2%) (Figure 19).

Figure 19: Experienced CVD events – EUR



A quarter (24%) of respondents had never discussed, or could not recall discussing CVD risk, with a health professional. About 41% reported that they had had a conversation with a health professional at the time or soon after being diagnosed with T2D. More than a third (35%; 1.789) had discussed CVD risk factors with a health professional within the previous six months, while 15% had had such a discussion more than a year previously.

Education about CVD

A large number of participants (81%) believed that it was possible to lower their risk of CVD through healthy diet and physical exercise. Half (49%) thought that diabetes would not increase their risk of a CVD event as long as they took their medication as prescribed. Furthermore, 4,571 participants (83%) stated that stress is associated with a higher risk of CVD. Exactly a quarter believed that CVD is genetic, and as a result there was nothing they could do about their risk. Just under half (45%) stated that men and women are at the same risk of developing CVD.

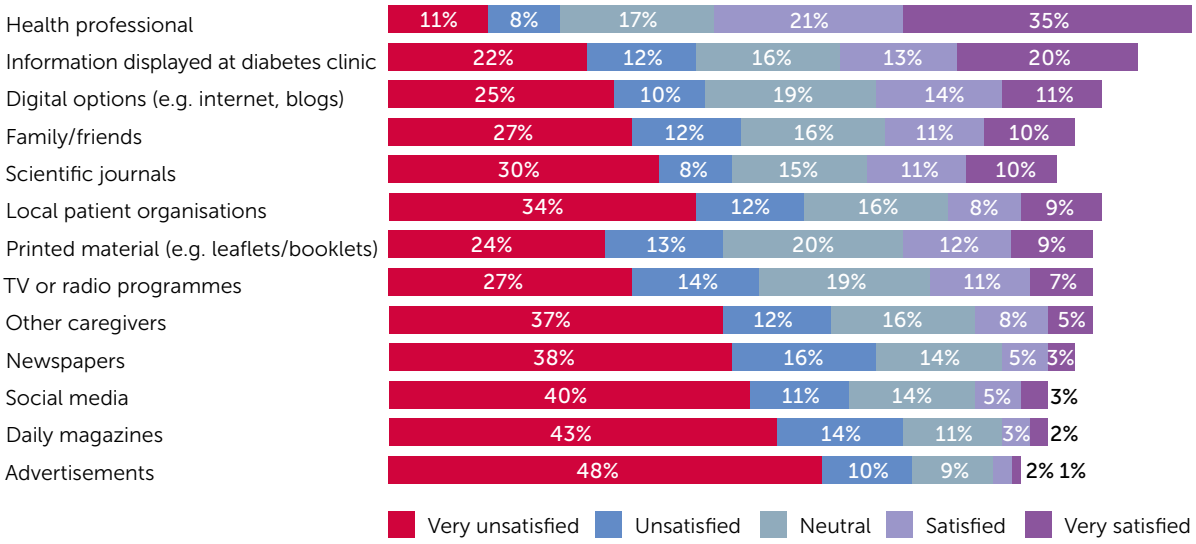
Most participants reported that they needed information about diabetes self-management (65%), along with general information about CVD events, including their signs and symptoms (65%). In addition, 64% (3,541 people) wanted information on how to reduce their risk of CVD through diet and exercise. Exactly half (50%) reported that they needed advice on how to control and self-manage hypertension, and 2,864 (52%) wanted advice on how to lose weight or maintain a healthy weight. A majority of participants (54%) indicated that they needed information about risk factors associated with CVD.

Information about CVD

Most respondents (81%) reported that they relied on a health professional for information about CVD, while a smaller proportion used diabetes clinics (36%) and digital media (35%) as their source of information. Compared with younger participants, older people preferred information provided by a health professional. Only a small number relied on newspapers (11%), social media (7%), daily magazines (7%), and advertisements (2%) for information about CVD.

A third (35%) reported that they were very satisfied with the quality of information on CVD provided by a health professional and a fifth were very satisfied with the information available at their diabetes clinic. By comparison they were most dissatisfied with the information they got from advertisements (48%), daily magazines (43%) and social media (40%) (Figure 20).

Figure 20: Level of satisfaction with the information quality on cardiovascular disease (CVD) – EUR



Middle East and North Africa

Participant characteristics

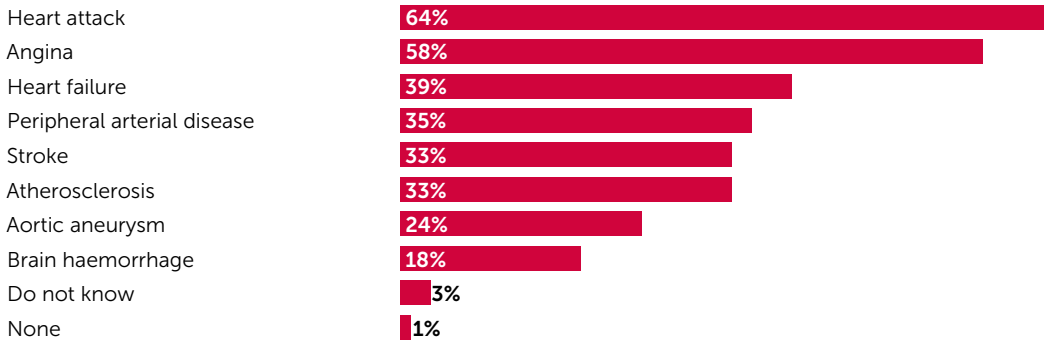
A total of 641 people with type 2 diabetes from IDF's Middle East and North African Region took part in the survey, split almost equally between men and women. Just over a fifth (140 respondents; 22%) were aged over 60 and one in five (20%) were under 40 years old. In total, almost a third had tertiary level education and just under half (44%) had only received primary school education.

Roughly equal proportions of respondents had lived with T2D for fewer than three years (28%); three to six years (26%); and more than nine years (28%). Fewer than a fifth (115 respondents; 18%) had lived with T2D for six to nine years. Those respondents who were older had also frequently lived with diabetes for longer.

Knowledge of CVD and risk factors

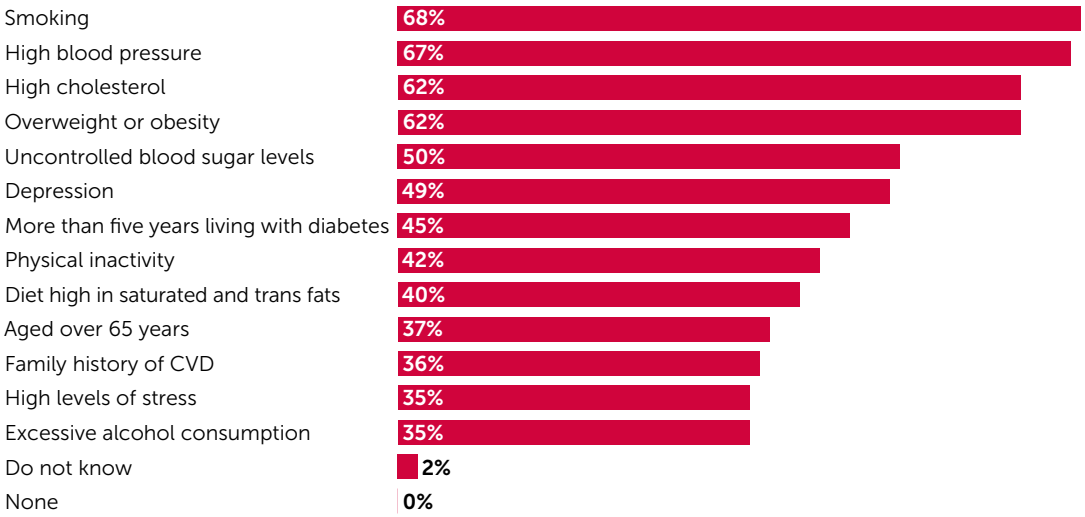
More than half of participants correctly recognised heart attack and angina as CVD events (64% and 58% respectively). Over a third also identified heart failure (39%) and peripheral arterial disease (35%). One in three recognised stroke (33%) and atherosclerosis (33%). Fewer than a quarter knew that aortic aneurysm (24%) and brain haemorrhage (18%) were CVD events (Figure 21).

Figure 21: Knowledge of CVD – MENA



The majority of respondents recognised smoking (68%), high blood pressure (67%), high cholesterol (62%) and overweight or obesity (62%) as risk factors for CVD. Half also correctly recognised uncontrolled blood sugar levels (50%) and depression (49%). More than a third identified a range of other CVD risk factors, namely: living with T2D for more than five years (45%); physical inactivity (42%); diet containing high amounts of saturated and trans fats (40%); family history of CVD (36%); being aged over 65 (37%); high levels of stress (35%); and excessive alcohol consumption (35%) (Figure 22).

Figure 22: Knowledge of CVD risk factors – MENA

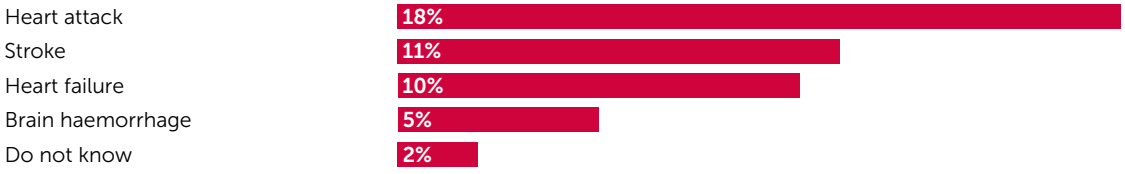


Awareness of CVD and risk factors

One in three (33%) participants reported being at no or low risk of CVD. Almost half (45%) considered themselves as being somewhat at risk or having a moderate risk, while a fifth (22%) categorised themselves as being at high risk. Those in the high-risk category had learned about CVD earlier and had had more CVD events than those who considered their CVD risk to be low.

One in six respondents reported having had a heart attack (18%). One in ten said they had experienced a stroke (11%) and/or heart failure (10%) (Figure 23). Commonly cited CVD risk factors included: poorly controlled blood sugar levels; smoking; high cholesterol; living with T2D for more than five years; diet containing high amounts of saturated and trans fats; physical inactivity; depression; family history of CVD; and high levels of stress. Those who were older also experienced more CVD risk factors.

Figure 23: Experienced CVD events – MENA



Education about CVD

Almost a third (30%) of the participants had never discussed, or could not recall discussing, CVD risk with a health professional. Around a fifth (18%) had had the conversation very late on, for instance when they had already been diagnosed with CVD, when they had already lived with T2D for several years; or several years after their CVD diagnosis. However, almost half (45%) had discussed the risk of CVD either before their T2D diagnosis; at the time of their diagnosis; or soon after T2D diagnosis.

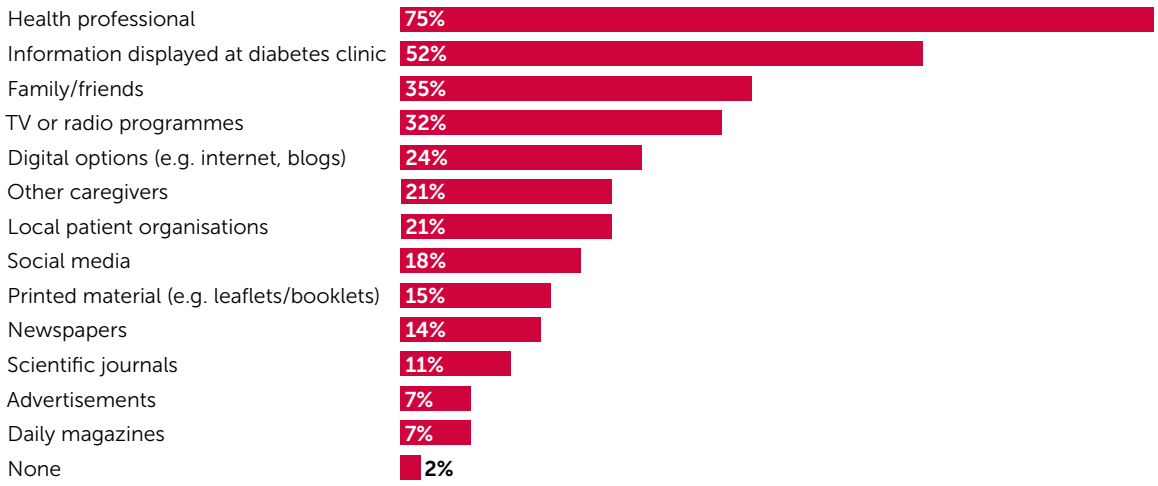
More than one in six respondents (17%) had either never discussed CVD with a health professional or could not recall their last discussion with a health professional about it. Almost a sixth (16%) had had a conversation about CVD several years previously. More than a third (39%) had discussed CVD risk factors with a health professional less than a year prior to being surveyed.

Regarding CVD risk perceptions, 464 participants (72%) considered healthy diet and physical exercise to play an important role in lowering CVD risk. More than half (53%) thought that CVD was only a risk for those who were overweight or obese, and over a third (39%) felt that they were too young to worry about CVD. A large number of respondents (416; 65%) did not think that diabetes would increase their CVD risk if it was managed correctly. As many as 405 participants (63%) indicated a need for more information on diabetes self-management.

Information about CVD

Three-quarters of participants reported that they relied on a health professional for CVD-related information. More than half (52%) said that they valued CVD information from diabetes clinics. Older respondents tended to prefer information from health professionals. About a third relied on CVD information from family or friends (35%) and/or TV or radio (32%). A smaller proportion accessed information from digital sources (24%), local patient organisations (21%) and/or caregivers (21%) (Figure 24).

Figure 24: CVD information sources on which the participants rely – MENA



Participants were typically most satisfied with the quality of CVD information they received from a health professional. The standard of information in daily magazines, advertisements and (surprisingly) scientific journals was rated poorest.

North America and Caribbean

Participant characteristics

Of the 255 people who took part in Taking Diabetes to Heart from IDF's North America and Caribbean Region, 138 (55%) were women. Almost half of the respondents were aged over 60 (124 people; 49%) and one in seven were under 40 (38; 15%). A third (97; 38%) had lived with T2D for fewer than three years. The majority (136; 53%) had had T2D for more than six years, with 97 having lived with the condition for over nine years. The majority (68%) had tertiary level education, 28% had been educated to secondary level and 2% had primary school education.

Knowledge of CVD and risk factors

Most participants correctly identified heart attack (90%), peripheral arterial disease (81%), heart failure (79%), atherosclerosis (75%), stroke (73%) and/or angina (69%) as types of CVD. Approximately half were also aware that aortic aneurysm (54%) and brain haemorrhage (51%) were forms of CVD (Figure 25).

Figure 25: Knowledge of CVD – NAC

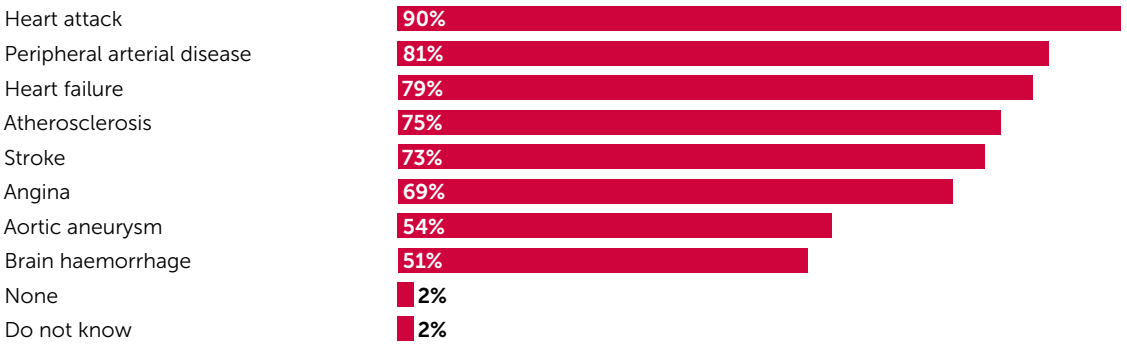
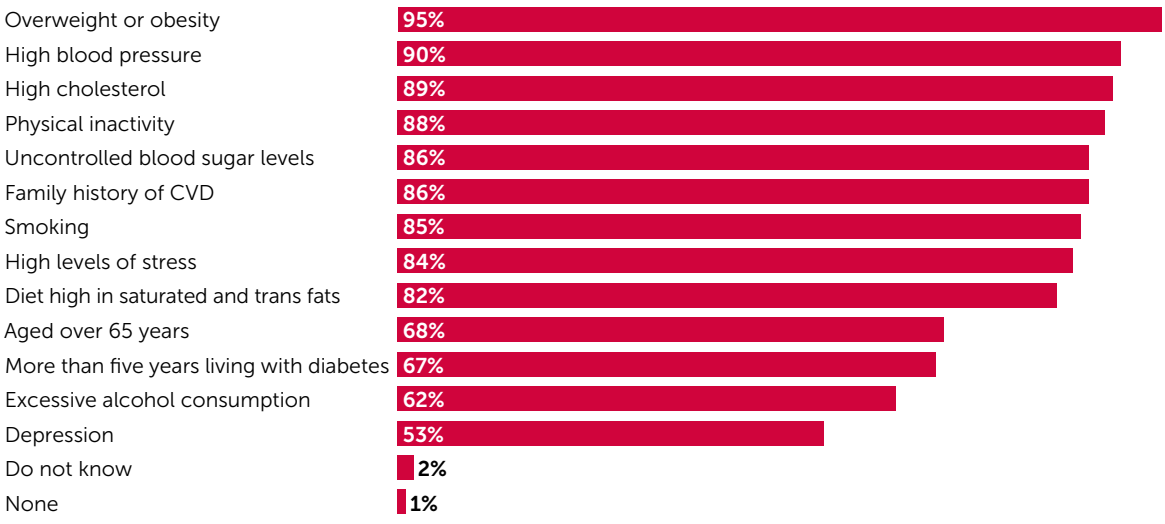


Figure 26: Knowledge of CVD risk factors – NAC



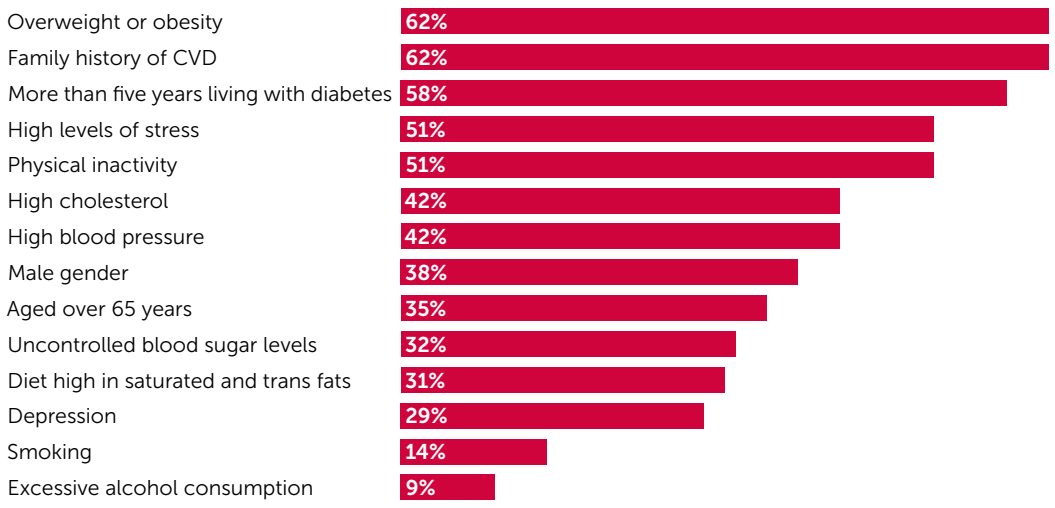
Several CVD risk factors were also correctly identified by the majority of respondents, including overweight or obesity (95%); high blood pressure (90%); high cholesterol (89%); physical inactivity (88%); uncontrolled blood sugar levels (86%); family history of CVD (86%); high levels of stress (84%); smoking (85%); and/or a diet containing high amounts of saturated and trans fats (82%). More than half recognised a number of other risk factors including: being aged over 65 (68%); having lived with T2D for more than five years (67%); excessive alcohol consumption (62%); and/or depression (53%) (Figure 26).

Awareness of CVD and risk factors

Over a quarter of participants (69; 27%) considered themselves to be at no or low risk of CVD. More than half (57%) thought they were either somewhat at risk or at moderate risk. A minority (16%) considered themselves to be at high risk.

More than half reported that being overweight or obese (62%); having a family history of CVD (62%); living with T2D for more than five years (58%); experiencing high levels of stress (51%); and/or a lack of physical inactivity (51%) applied to them. Over a third also had high cholesterol (42%), high blood pressure (42%) and/or were older than 65 years (35%). Other respondents identified uncontrolled blood sugar levels (32%); a diet containing high amounts of saturated and trans fats (31%); and/or depression (29%) as risk factors. A small number of respondents had experienced heart attack (4%), heart failure (2%) and/or stroke (1%) (Figure 27).

Figure 27: Existing CVD risk factors – NAC



Education about CVD

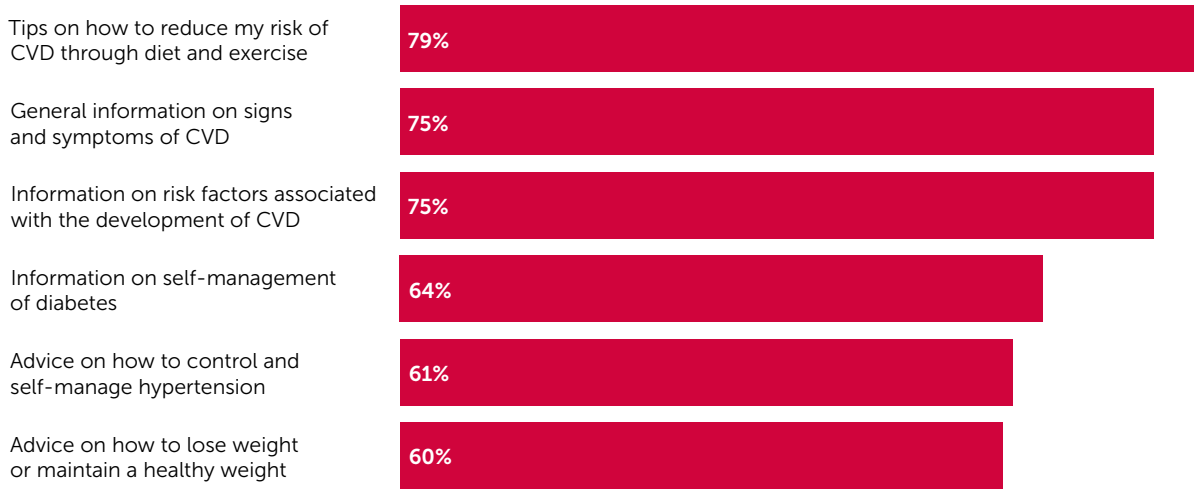
Almost a third of participants (32%) reported that they had either never had, or could not recall having had, a conversation with a health professional about T2D and CVD risk. More positively, roughly one in ten (13%) had had the conversation before their T2D diagnosis, while over a quarter (30%) had discussed CVD risks either at the time of or soon after being diagnosed with T2D. A minority (12%) said they had discussed the risks with a health professional on several occasions, although a further 11% had only the conversation later on, or when they had already been diagnosed with CVD. Participants who had had diabetes for less time learned about CVD earlier than those who had lived with the condition for more than nine years.

A third (32%) reported that they had never had, or could not remember the last time having, a conversation with a health professional about CVD. A small proportion (9%) recalled discussing CVD risk with a health professional several years earlier. More positively, almost half (48%) had discussed CVD risk less than a year prior to the survey.

Almost all participants (99%) were aware that CVD risk could be reduced by adopting a healthy diet and increasing levels of physical exercise. Twenty percent believed that T2D did not increase CVD risk if it was correctly managed.

Most people expressed a need for more information so they could better understand the link between CVD risk and T2D. The most popular topics for additional information were: diet and exercise (79%); general information on signs and symptoms of CVD (75%); risk factors for CVD (75%); self-management of T2D (64%); self-management of hypertension (61%); and how to lose weight or maintain a healthy weight (60%) (Figure 28).

Figure 28: Information needed to better understand the risks associated with T2D and CVD in order to reduce them – NAC



Information about CVD

The majority of participants (176 respondents; 69%) reported that they relied on a health professional for information about CVD, with digital options being the next most popular choice (168 participants; 66%). About a quarter accessed information on CVD from printed material (25%), at diabetes clinics (24%) and/or in scientific journals (21%). A smaller number found out about CVD from family and friends (13%), local patient organisations (10%) and/or TV or radio programmes (9%). Respondents were most satisfied with the quality of information obtained from digital sources, health professionals and scientific journals. Roughly half were very unsatisfied with information from daily magazines, advertisements, newspapers and/or caregivers.

South and Central America

Participant characteristics

Of the 936 respondents from IDF's South and Central America Region, the majority (57%) were women. Most participants (66%) were aged under 60, with 14% under 40. Just over two thirds (67%) had been living with diabetes for fewer than nine years. The majority (58%) had tertiary level education, 30% had secondary level education and 10% had primary school education.

Knowledge of CVD and risk factors

Participants demonstrated detailed knowledge of the definition of CVD, with the majority correctly identifying heart attack (79%), heart failure (68%), peripheral arterial disease (67%), angina (66%), stroke (63%), and atherosclerosis (62%) as CVD events. A smaller proportion also recognised aortic aneurysm (47%) and brain haemorrhage (41%). Overall, more than 90% of participants correctly identified at least one type of cardiovascular disease (Figure 29).

Figure 29: Knowledge of CVD – SACA

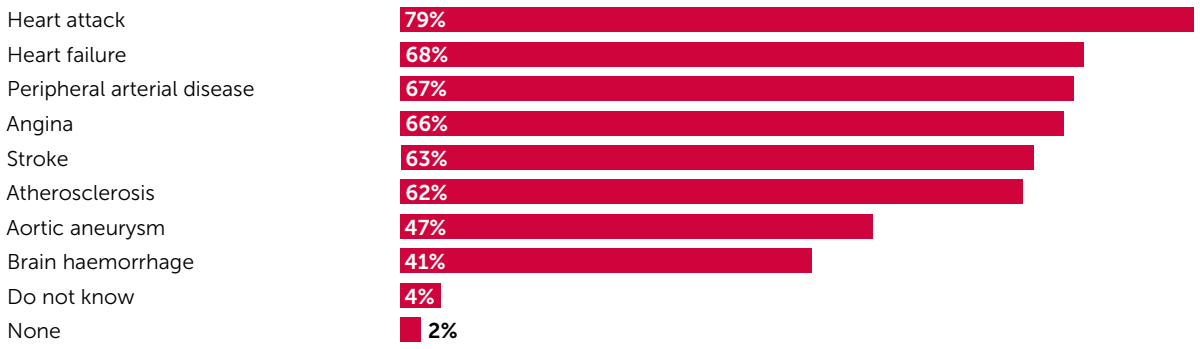
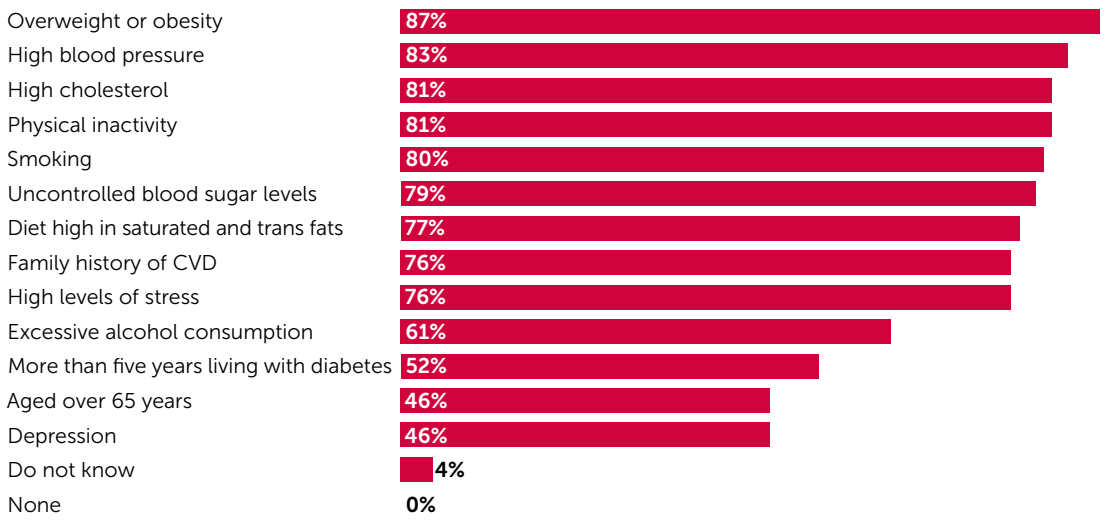


Figure 30: Knowledge of CVD risk factors – SACA



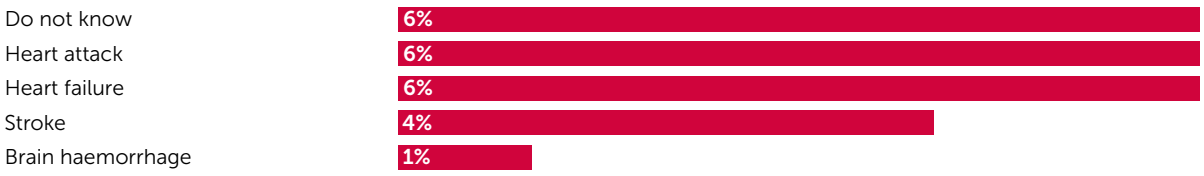
Almost all (95%) of those surveyed could identify some CVD risk factors. The most widely recognised were: overweight or obesity (87%); high blood pressure (83%); high cholesterol (81%); physical inactivity (81%); and smoking (80%). Many also recognised that uncontrolled blood sugar levels (79%) and a diet containing high amounts of saturated and trans fats (77%) were risk factors. Awareness of non-modifiable risk factors was also good, with many participants identifying a family history of CVD (76%); living with T2D for more than five years (52%); and being over 65 (46%) as being important. Other CVD risk factors that were widely recognised included high levels of stress (76%), excessive alcohol consumption (61%) and depression (46%) (Figure 30).

Awareness of CVD and risk factors

Most respondents (92%) recognised that they had some personal risk of developing CVD. Over two thirds (72%) categorised themselves as being somewhat at risk; at moderate risk; or at high risk for CVD. A further 28% classed themselves as either 'low risk' or 'no risk'.

Participants commonly identified lifestyle-related factors as increasing their risk of developing CVD. These included physical inactivity (63%) and being overweight or obese (60%). A family history of CVD (60%), as well as having lived with a diagnosis of diabetes for more than five years (57%), were also widely cited. A majority of people (57%) felt that high levels of stress was a risk factor for them. Maintaining healthy blood sugar levels was a challenge for 44% of participants, while 42% had difficulty managing their blood pressure and a further 40% said that achieving a healthy cholesterol level was difficult. Thirty-one percent noted that their diet contained high amounts of saturated and trans fats. Just over a quarter (26%) had depression, 17% smoked, and 10% consumed alcohol excessively. Among those who responded, 38% had not experienced a CVD event, or were not sure if they had. Heart attack (6%) and heart failure (6%) were the most frequently mentioned CVD events experienced (Figure 31).

Figure 31: Experienced CVD events – SACA



Education about CVD

When asked if they had had a conversation with a health professional about diabetes and CVD risk factors, 29% of participants either responded that they had never had one, or were not sure if they had. Only 9% stated that they had had several conversations about the risk factors. Of those who had discussed risk factors with a health professional, 16% had done so prior to their diabetes diagnosis; 21% at the time of diagnosis; and 13% soon after. Three percent first spoke with a health professional about T2D and CVD risk factors at the time of their CVD diagnosis, or soon after.

More than half (51%) had spoken to a health professional about CVD risk factors within the previous six months. A further 23% had talked to a health professional about their CVD risk more than six months previously. Finally, 26% reported that they were either not sure or had never had a conversation with a health professional about CVD risk factors.

A majority of respondents (67%) recognised that having diabetes increased their CVD risk, even if they took their medications as prescribed. Almost all (97%) were aware that a healthy diet and physical exercise could lower their CVD risk. Most respondents (95%) recognised that CVD affects people of all

ages. Recognising that CVD risk is often lifestyle-driven, 86% acknowledged that there were steps they could take to reduce it. The same proportion appreciated that people of all weights can be at risk of CVD, while 89% were aware that stress was associated with a higher risk of CVD.

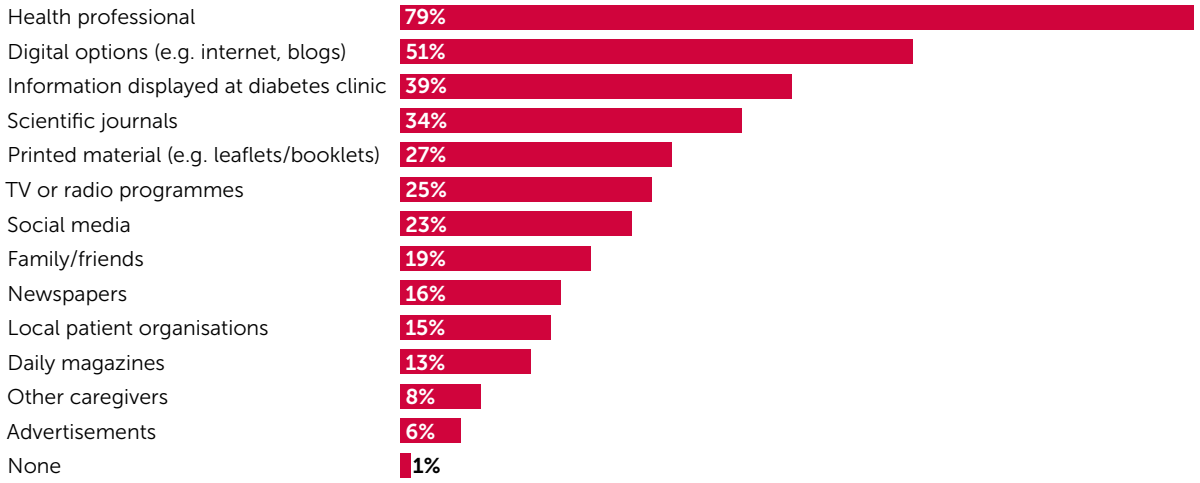
When asked what information they needed to better understand the risks associated with type 2 diabetes and CVD, 74% felt that tips for reducing risk through diet and exercise would be useful. Over two thirds (71%) wanted both general information on CVD and education on risk factors, while a slightly smaller proportion (60%) felt that information on diabetes self-management would be useful.

Information about CVD

The majority of respondents (79%) relied on a health professional for information on CVD, while 51% chose digital options. Just over a third (39%) relied on information displayed at their clinic, while 34% selected scientific journals as their preferred information source (Figure 32).

Information about CVD obtained from health professionals was associated with the highest rates of satisfaction among 36% of respondents, followed by information displayed at clinics (25%) and scientific journals (24%). Participants were least satisfied with caregivers (47%), advertisements (47%), daily magazines (45%), local patient organisations (42%) and newspapers (39%) as sources of information on CVD.

Figure 32: CVD information sources on which the participants rely – SACA



South East Asia

Participant characteristics

A total of 929 people from IDF's South East Asia Region participated in Taking Diabetes to Heart, of whom 63% (581 respondents) were male. A fifth (19%) were under the age of 40 and 29% were over 60. Equal proportions of about a fifth of respondents had been living with type 2 diabetes for fewer than three years, three to six years and six to nine years, while 38% had been living with the condition for more than nine years. The majority (65%) of the respondents had tertiary level education, 23% had secondary level education and a tenth had primary school education.

Knowledge of CVD and risk factors

A majority of participants correctly identified heart attack (65%), angina (59%) and stroke (51%) as types of CVD. Less well recognised CVD events included: heart failure (45%), peripheral arterial disease (32%), atherosclerosis (23%), brain haemorrhage (14%) and aortic aneurysm (14%). Additionally, 12% of participants stated that they did not know what constituted a CVD event or selected 'none' (Figure 33).

Figure 33: Knowledge of CVD – SEA

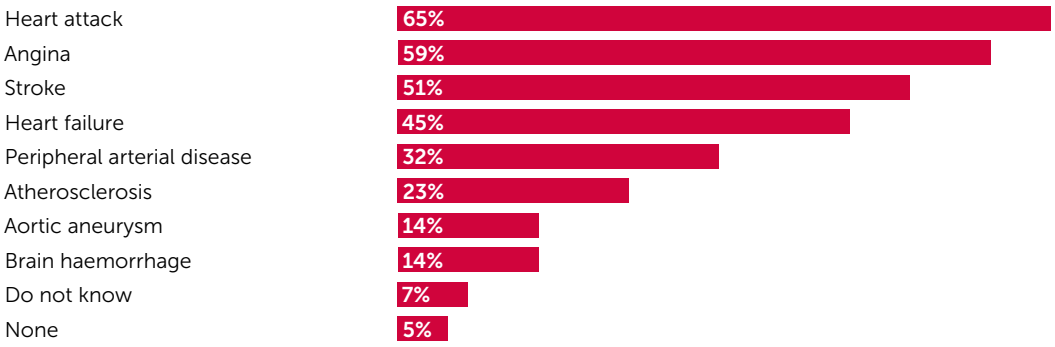
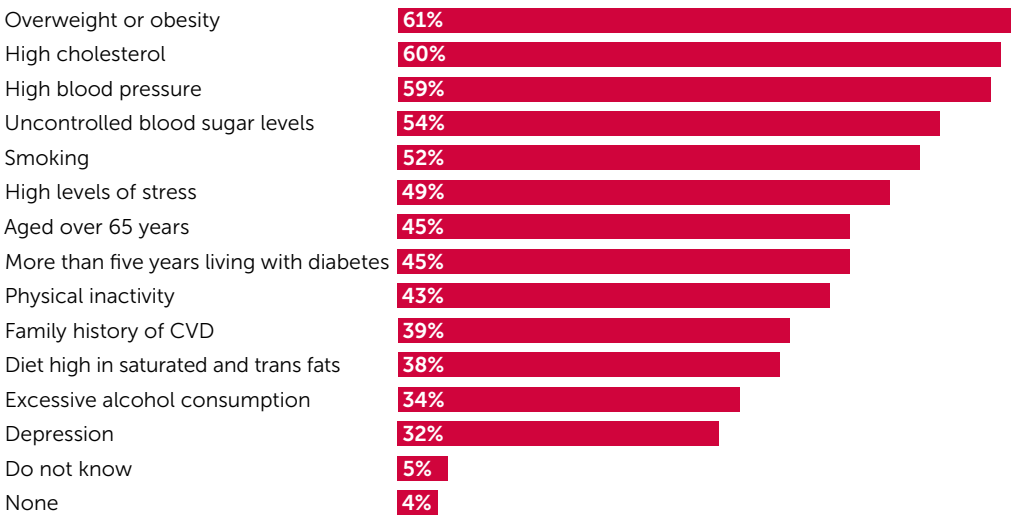


Figure 34: Knowledge of CVD risk factors – SEA

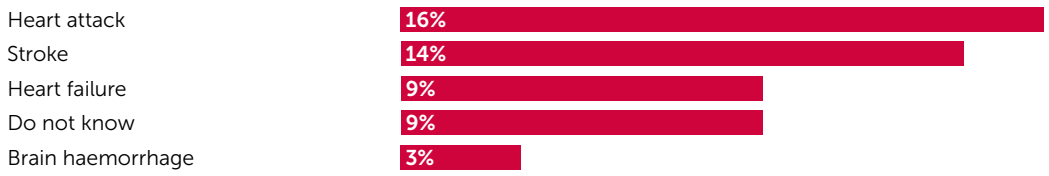


The majority correctly identified the following CVD risk factors: being overweight or obese (61%), high cholesterol (60%), high blood pressure (59%), and smoking (52%). Fewer than half were able to recognise high levels of stress (49%); being aged 65 or over (45%); living with diabetes for more than five years (45%); physical inactivity (43%); family history of CVD (39%); diet containing high amounts of saturated and trans fats (38%); excessive alcohol consumption (34%); or depression (32%) as risk factors for CVD. Additionally, 9% of participants stated that they did not know or selected 'none' (Figure 34).

Awareness of CVD and risk factors

When asked to self-evaluate CVD risk, 51% of the participants reported that they were at no or low risk. Thirty-nine percent thought their risk of developing CVD was somewhat or moderate, and only 10% thought they had a high risk. Risk factors cited by participants included living with diabetes for more than five years (58%), and uncontrolled blood sugar levels (56%). The least reported risk factors in this population were depression (31%) and excessive alcohol consumption (23%). A large number of participants (44%) had not experienced any CVD events. However, 16% had experienced heart attack, 14% stroke, 9% heart failure, and 3% brain haemorrhage, while 9% selected 'do not know' (Figure 35).

Figure 35: Experienced CVD events – SEA



Education about CVD

Around a fifth (19%) of participants reported that they had never had a conversation with a health professional about type 2 diabetes and CVD risk. An additional 7% were not sure or unable to recall any such conversation.

Only 18% had had a conversation with a health professional before being diagnosed with type 2 diabetes, while 31% had discussed CVD risk with them at the time of their diagnosis or soon after. A further 14% had talked about CVD risk with a health professional several years after their diagnosis with T2D. A minority (5%) had had this conversation at the time of or soon after their diagnosis with CVD, while 3% only discussed risk factors several years after being diagnosed with CVD. Five percent of participants reported having had this conversation on several occasions. Of these, 45% had discussed CVD risk factors with a health professional within the previous six months. Twelve percent had discussed CVD more than six months previously, and 22% more than a year ago. Seventeen percent had never discussed CVD with a health professional, and 3% were unsure if they had discussed CVD or not.

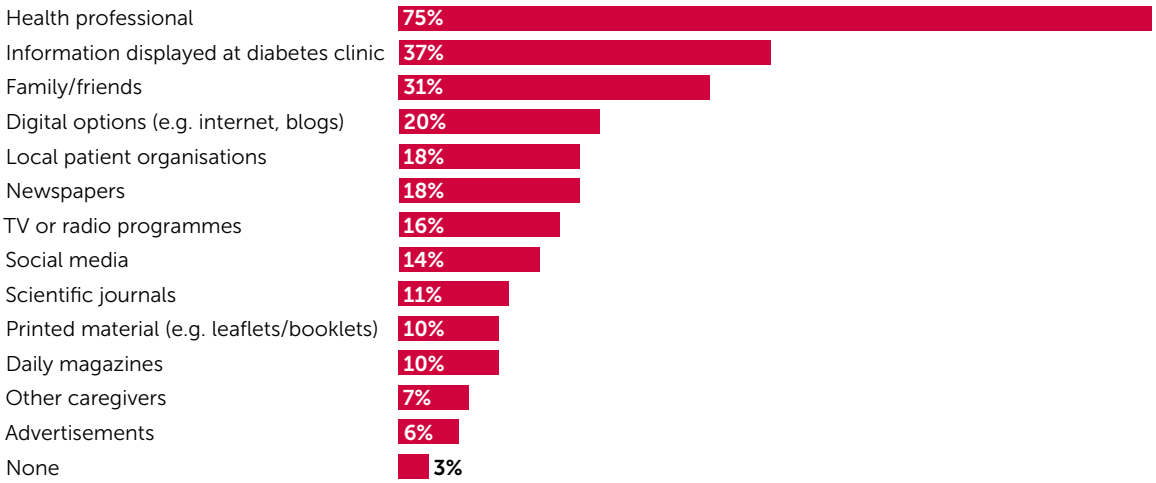
When responding to true/false statements, 86% of participants indicated that they could lower their risk of CVD through healthy diet and physical activity. Less positively, 28% felt that they were too young to worry about the risk of CVD, despite living with type 2 diabetes.

Close to or more than half of participants reported that they needed more information on CVD. Proportions ranged from 48% who indicated that they required advice on how to control and self-manage hypertension, to 64% who needed information on diabetes self-management.

Information about CVD

The majority of participants (75%) reported that they relied on a health professional for information about CVD. A further 37% depended on information displayed at a diabetes clinic and 31% relied on CVD information from family or friends (Figure 36).

Figure 36: CVD information sources on which the participants rely – SEA



Survey results for this group of respondents found that 41% were very satisfied with the quality of information received from a health professional, followed by diabetes clinics (25%). The highest level of reported dissatisfaction was among the 24% of participants who were very unsatisfied with the quality of information obtained from local patient organisations, followed by advertisements (23%), caregivers (22%), daily magazines (21%) and, surprisingly, scientific journals (21%).

Western Pacific

Participant characteristics

Of the 4,219 participants from IDF's Western Pacific Region who took part in the survey, there were almost equal numbers of men (2,124) and women (2,088). Just over one in ten (11%) were under 40, a third were aged 40–60, and the majority (57%) were aged over 60. A fifth of participants (900; 22%) had lived with diabetes for fewer than three years, while a further 30% had had the condition for between three and nine years. Almost half of the respondents (48%) had been living with diabetes for more than nine years. The majority (46%) had secondary level education, more than a third (39%) had tertiary level education and 14% had primary school education.

Knowledge of CVD and risk factors

The majority of the respondents correctly recognised heart attack (69%), stroke (58%), heart failure (56%), angina (55%) and/or atherosclerosis (53%) as types of CVD. A large proportion also identified peripheral arterial disease (50%), with over a third able to recognise brain haemorrhage (39%) and/or aortic aneurysm (35%) (Figure 37).

Figure 37: Knowledge of CVD – WP

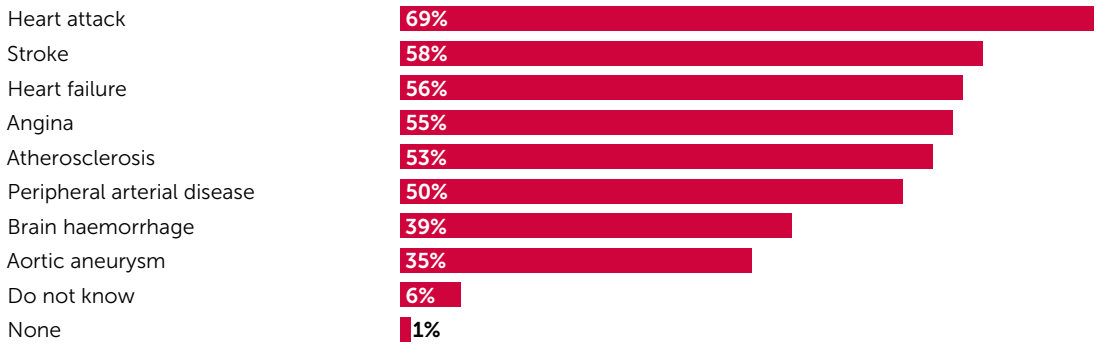
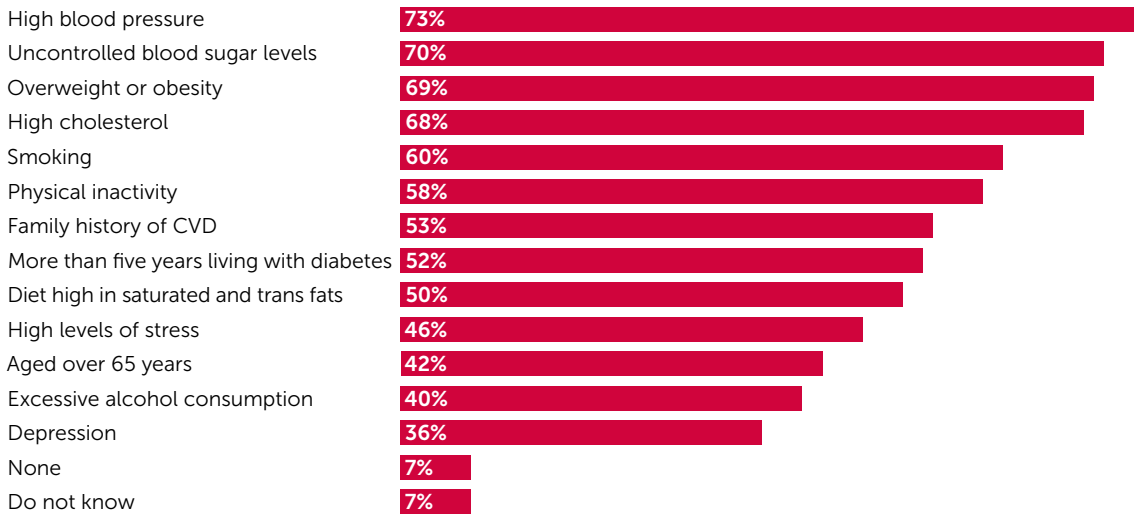


Figure 38: Knowledge of CVD risk factors – WP



Most participants correctly recognised high blood pressure (73%), uncontrolled blood sugar levels (70%), overweight or obesity (69%), high cholesterol (68%), smoking (60%) and/or physical inactivity (58%) as CVD risk factors. Approximately half identified additional risk factors including family history of CVD (53%); living with T2D for more than five years (52%); diet containing high amounts of saturated and trans fats (50%); and/or high levels of stress (46%). Additionally, more than a third recognised being aged over 65 (42%), excessive alcohol consumption (40%) and/or depression (36%) as CVD risk factors (Figure 38).

Awareness of CVD and risk factors

A quarter of participants (25%) considered themselves to be at no or low risk of CVD, with 61% categorising themselves as either somewhat at risk or at moderate risk. A minority (15%) considered themselves to be at high risk of CVD. Living with T2D for a shorter time was significantly associated with a higher self-rated CVD risk.

Approximately half of those surveyed reported living with T2D for more than five years (59%); having uncontrolled blood sugar levels (51%); being physically inactive (51%); being overweight or obese (50%); having high blood pressure (50%); and/or having high cholesterol (47%). More than a third identified other personal risk factors including: being older than 65 years (41%); having high levels of stress (38%); having a family history of CVD (37%); and/or following a diet containing high amounts of saturated and trans fats (33%). More than a fifth reported smoking (25%) and/or suffering from depression (22%).

When asked about their personal history of CVD events, 7% of respondents reported experiencing heart attack, 6% stroke, 4% heart failure and 3% brain haemorrhage. Those who were older had experienced more CVD events (Figure 39).

Figure 39: Experienced CVD events – WP

Education about CVD

A third of the participants (33%) reported that they had either never had or could not recall having had a conversation with a health professional about type 2 diabetes and CVD risk. More positively, 10% had had such a conversation before their T2D diagnosis, with 39% discussing CVD risk either at the time of or soon after their diagnosis. A small proportion (7%) reported having had the conversation on several occasions. Slightly more respondents (10%) had only discussed type 2 diabetes and CVD risk when already diagnosed with CVD. Those who had lived with T2D for less time had learned about CVD earlier.

Over a third of participants (35%) reported that they had never had a conversation with a health professional about CVD, or could not remember having done so. One in ten (10%) had last had such a conversation several years before being surveyed. Encouragingly, 36% had discussed CVD with a health professional less than a year before. Those who had talked about CVD with a health professional at earlier points in time had also had more recent conversations with them on the subject.

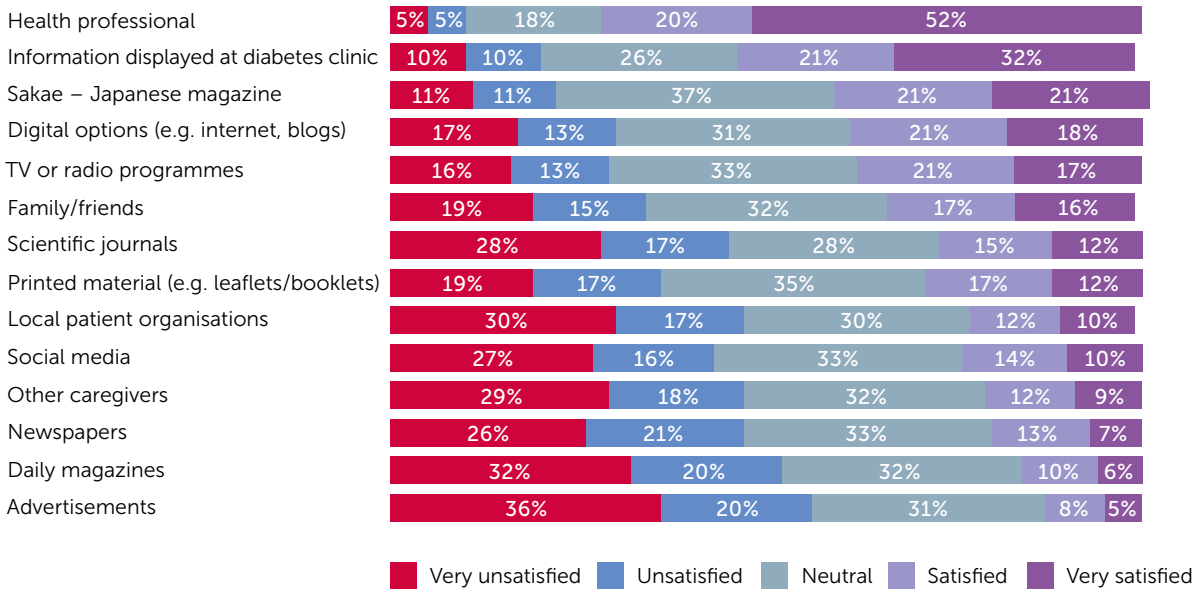
The majority of participants were aware that CVD risk can be reduced by adopting a healthy diet and increasing levels of physical exercise (82%). Almost a third (31%) believed that T2D does not increase CVD risk when correctly managed.

Participants expressed a need for more information on many aspects of T2D and CVD, including: self-management of T2D (76%); prevention of CVD through diet and exercise (74%); CVD risk factors (65%); general information on signs and symptoms of CVD (65%); self-management of hypertension (59%); and/or how to lose weight or maintain a healthy weight (55%).

Information about CVD

The majority of participants (75%) reported that they depended on a health professional for information on CVD, with 44% choosing their diabetes clinic as an information source. Almost a third relied on digital options (32%) and/or TV or radio programmes (30%). Smaller proportions relied on family or friends (23%) and/or printed material (21%). Older age groups showed a greater preference for information from health professionals. Participants were most satisfied with information received from health professionals and diabetes clinics. The lowest satisfaction scores were associated with CVD information from advertisements, daily magazines and local patient organisations (Figure 40).

Figure 40: Level of satisfaction with the information quality on cardiovascular disease (CVD) – WP



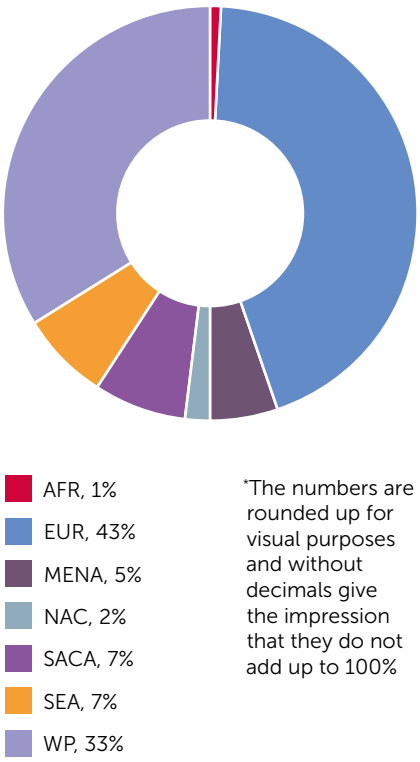
Regional comparison

The majority of participants in this study were from IDF's Europe Region (43%), followed by the Western Pacific Region (33%). The lowest number of participants came from Africa (1.4%), followed by North America and Caribbean (2%) and Middle East and North Africa (5%) (Figure 41).

The age profile of respondents was similar across Europe (EUR), North America and Caribbean (NAC), Western Pacific (WP) and Africa (AFR), where responses were highest among those aged 60–69. Across the remaining three regions – Middle East and North Africa (MENA), South and Central America (SACA) and South East Asia (SEA) – the majority of respondents were aged 50–59. WP had the highest proportion of participants over 70, followed by EUR and AFR (Figure 42).

For the MENA and WP regions, the gender split among respondents was almost equal. Female participants outnumbered male ones for the AFR, NAC and SACA regions. There were more male participants than female ones among the responses received from the EUR and SEA regions (Figure 43).

Figure 41: Regional distribution*



*The numbers are rounded up for visual purposes and without decimals give the impression that they do not add up to 100%

Figure 42: Age distribution comparison across regions

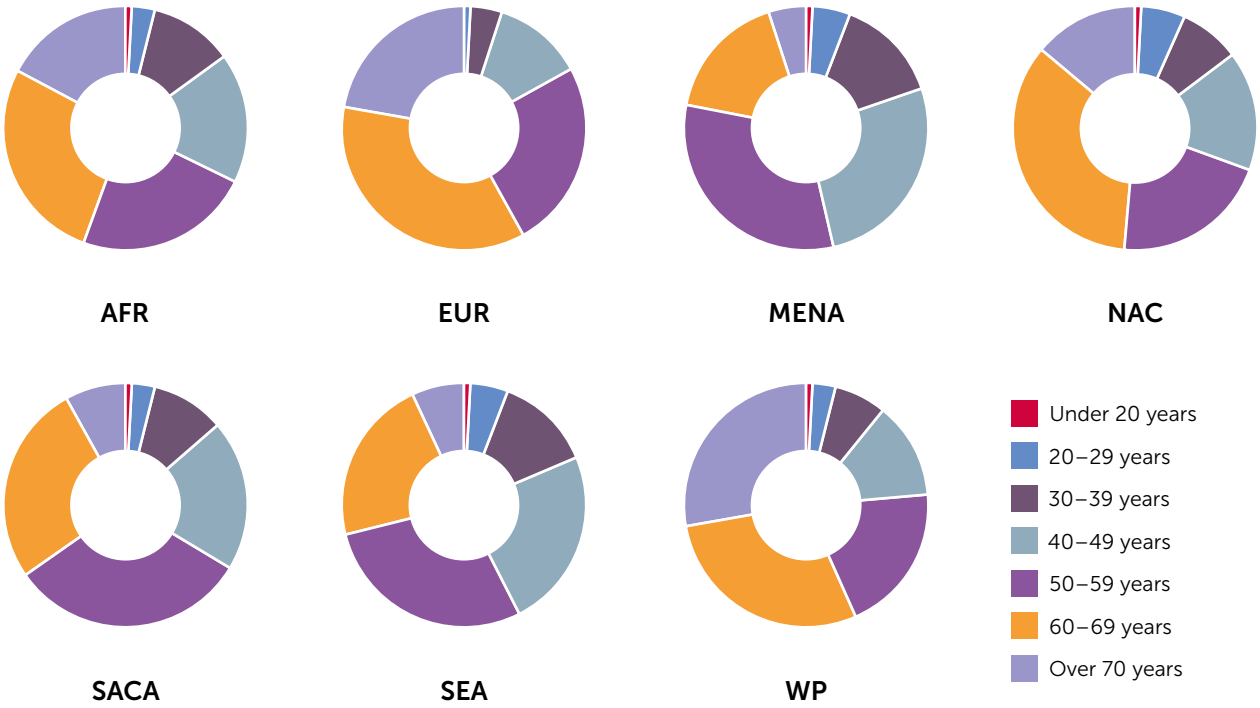
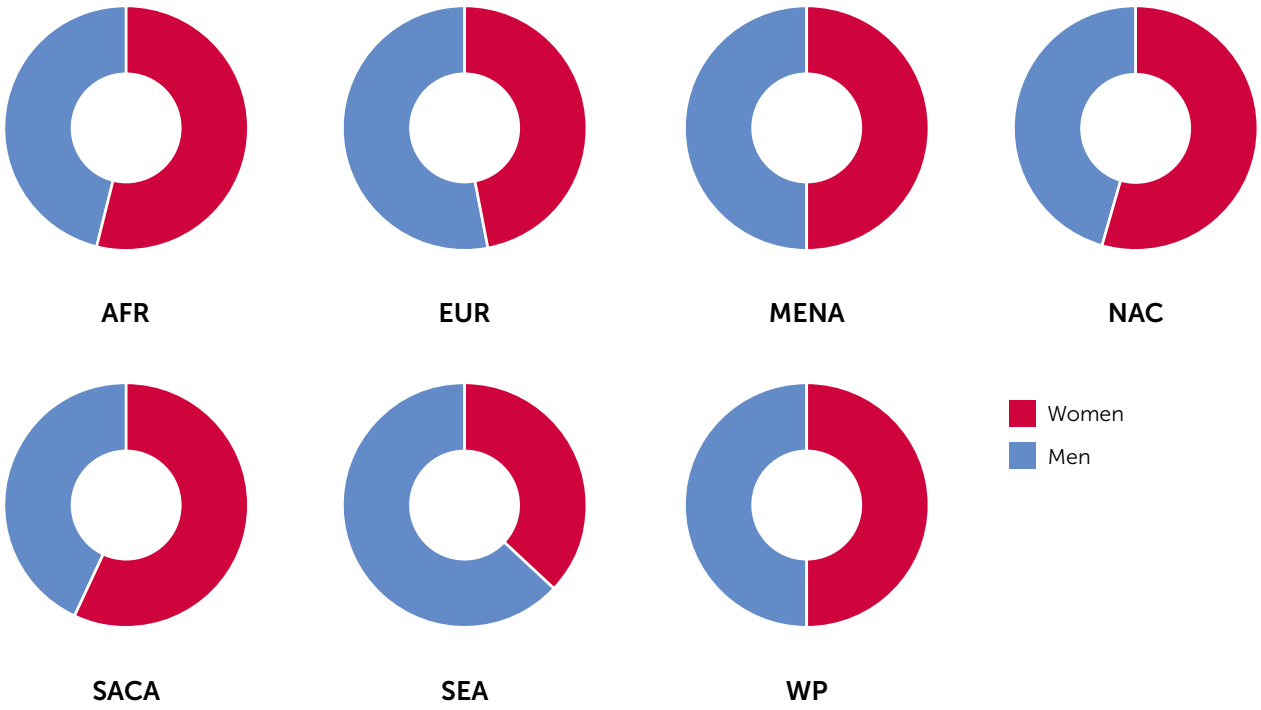


Figure 43: Gender distribution comparison across regions



In AFR, NAC, SEA and SACA, a larger proportion of participants had undertaken tertiary level education. NAC had the highest proportion of individuals with Master's degrees and PhDs (27%), followed by AFR (25%) and SEA (24%). The largest proportion of participants who were only educated to primary level came from MENA (44%), AFR (16%) and WP (14%) (Figure 44).

The largest proportion of those living with T2D for fewer than three years were from NAC (38%), followed by AFR (31%) and SACA (29%). Respondents who had lived with T2D for longest came from EUR and WP. The proportions of participants who had lived with T2D for more than six years were 64% in EUR and 62% in WP. Figures for those living with T2D for more than nine years were 48% for WP and 45% for EUR (Figure 45).

The best known CVD event across all but one region was heart attack, which was recognised by up to 90% of respondents in NAC. In AFR, stroke was fractionally more widely recognised (56%) than heart attack (55%). Across most regions, the CVD risk factor that was most widely identified was being overweight or obese, again recognised by more participants from NAC (95%) than anywhere else. In EUR, MENA and WP, high blood pressure was as well known or better known as a CVD risk factor than being overweight or obese. Smoking was the best-known CVD risk factor in MENA, while in WP the most recognised risk factors (in descending order) were high blood pressure; uncontrolled blood sugar levels; and being overweight or obese.

Self-evaluated risk of CVD was non-existent or lowest among respondents from AFR (63%) and SEA (51%). The highest level of self-evaluated CVD risk was among respondents from MENA (22%) and EUR (21%). Across all regions except AFR and SEA, the majority of participants placed themselves in the 'somewhat at risk' category (Figure 46).

Figure 44: Education level comparison across regions

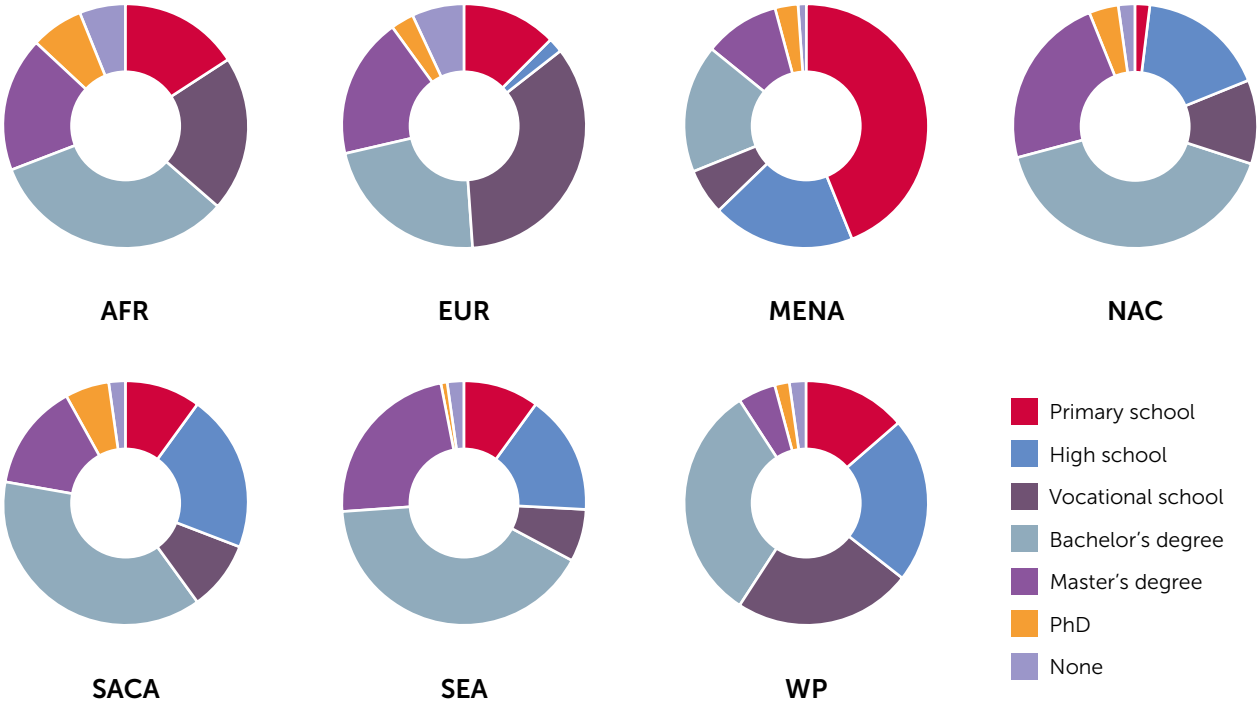


Figure 45: Time living with diabetes comparison across regions

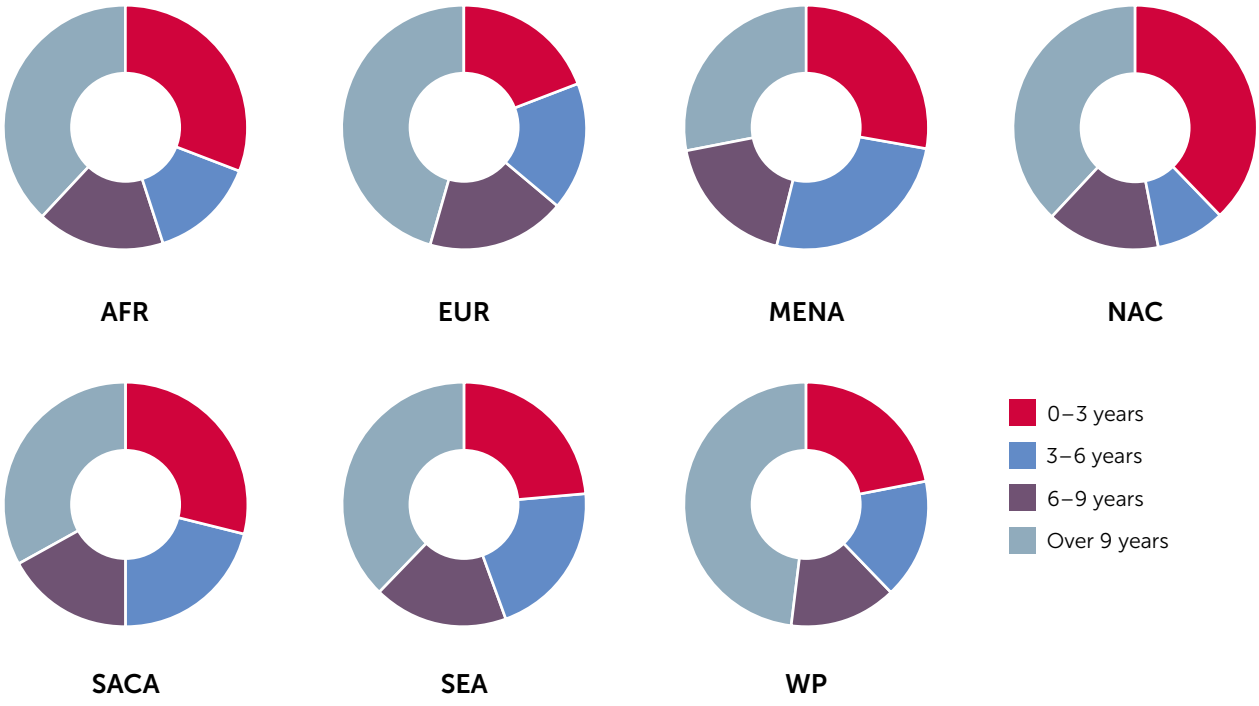
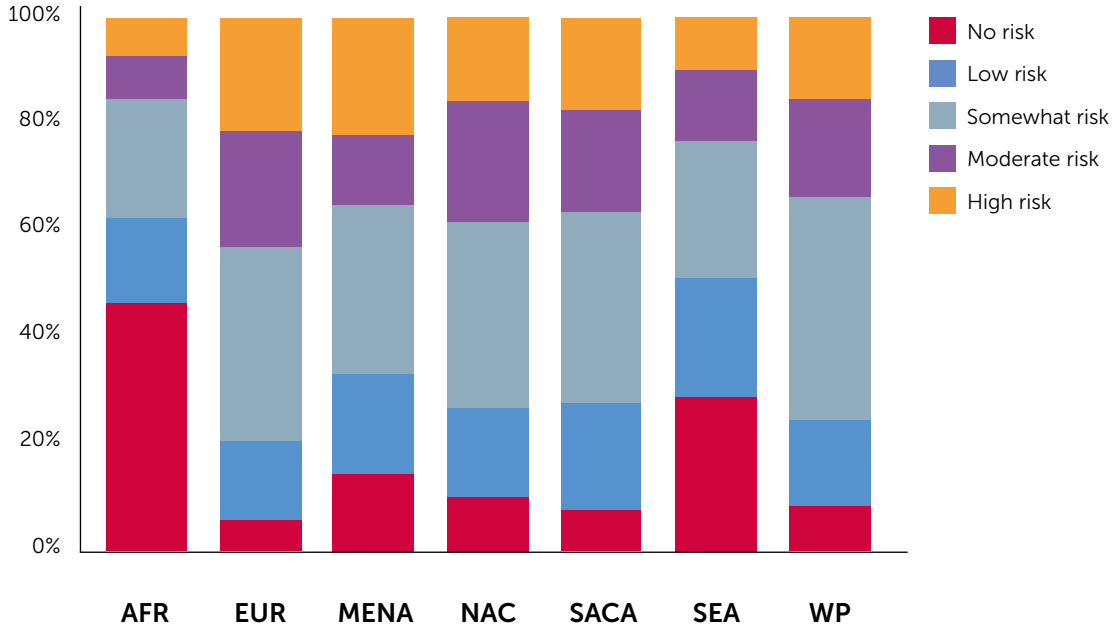


Figure 46: Self-evaluation of CVD risk across regions



When asked to indicate which CVD risk factors were applicable to them, the most common choices were: living with T2D for more than five years; high levels of stress; high blood pressure; uncontrolled blood sugar levels; obesity; and family history of CVD. There were regional variations relating to the CVD risk factors that participants felt were most applicable to themselves.

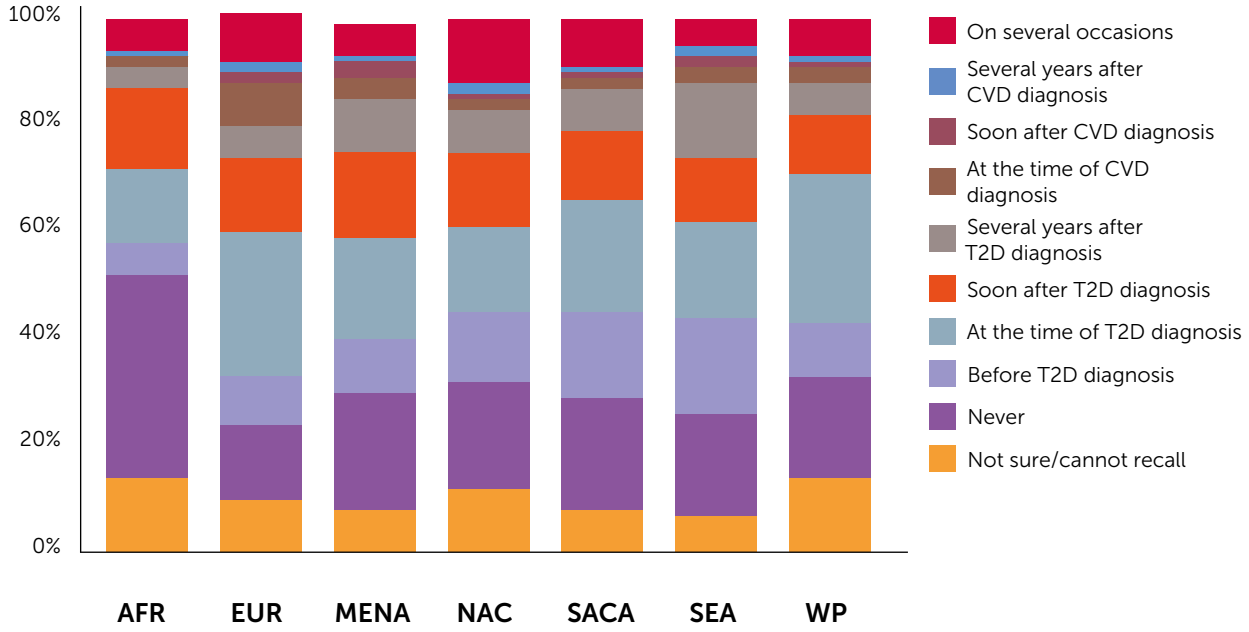
Across three regions (SEA, EUR and WP) the most reported CVD risk factor was living with T2D for more than five years. For SACA and AFR, the most reported CVD risk factor was physical inactivity, which was also one of the most selected risk factors in the WP region. In MENA, uncontrolled blood sugar levels was the most reported CVD risk factor. This was among the most frequently selected CVD risk factors in SEA and WP too.

Heart attack was the most commonly reported CVD event across all regions (with the exception of AFR, where stroke and heart failure were more common). The highest proportion of recorded heart attacks was in MENA.

The percentage of participants who reported never having had or not remembering having had a conversation with a health professional about CVD varied between 24% in EUR and 52% in AFR. The earliest conversations (either before, during or soon after T2D diagnosis) took place in EUR (among 50% of the participants) compared with 35% in AFR. NAC had the largest percentage of respondents who reported having had numerous conversations with a health professional.

The proportion of participants who had never had, or could not remember having had, a conversation with a health professional on CVD varied between 17% in MENA and 52% in AFR. Conversations within the last year had mostly taken place among participants from SACA (reported by more than 51% of the respondents) (Figure 47).

Figure 47: Discussion(s) with a health professional about T2D and CVD across regions



When asked about the information they most needed to better understand the association between type 2 diabetes and CVD, 'information on T2D self-management' ranked top in MENA, WP, SEA and EUR. The same number of respondents in EUR also indicated a need for general information on cardiovascular disease (CVD), such as signs and symptoms. In NAC, AFR and SACA, the information deemed most needed was tips on how to reduce the risk of cardiovascular disease through diet and exercise.

The largest number of respondents across all regions relied on CVD information from a health professional, followed by their diabetes clinic, with the exception of NAC and SACA where the second most relied-on source of CVD information was digital options such as the internet, blogs and apps. Across all regions, respondents reported being most satisfied with the CVD information they received from a health professional.

National findings

Brazil

Participant characteristics

A total of 626 people from Brazil took part in the survey, of whom 396 (63%) were female. The majority (65%) were aged 50 or over, while a quarter (24%) were between 40 and 49. More than half (56%) had tertiary level education. A third of the respondents had been living with T2D for fewer than three years, while half reported that they had had T2D for more than six years.

Knowledge of CVD and risk factors

A small minority of participants (7%) could not identify any CVD events. Most recognised heart attack (77%), heart failure (68%), angina (64%), peripheral arterial disease (64%), stroke (63%), and/or atherosclerosis as types of CVD. A smaller number (234; 37%) recognised brain haemorrhage as a CVD event.

The majority recognised overweight or obesity (85%) as a risk factor for CVD, followed by high blood pressure (84%); physical inactivity (81%); high cholesterol (81%); smoking (80%); uncontrolled blood sugar levels (79%); family history of CVD (77%); diet containing high amounts of saturated and trans fats (76%); high levels of stress (75%); and/or excessive alcohol consumption (61%). About half the participants recognised an additional three CVD risk factors: living with diabetes for more than five years (50%); depression (47%); and/or being aged over 65 (42%).

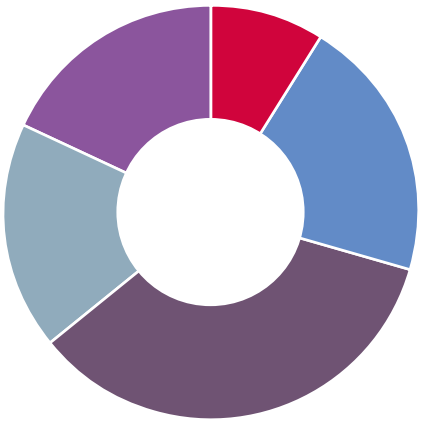
Awareness of CVD and risk factors

While 30% of respondents reported that they were either at no risk or low risk of CVD, 36% assessed their risk level as moderate or high. Another third described themselves as being somewhat at risk of CVD.

Many people reported having at least one CVD risk factor, including being physically inactive (383; 63%); having a family history of CVD (378; 62%); being overweight or obese (359; 59%); having high stress levels (339; 56%); living with diabetes for more than five years (333; 55%); and/or having uncontrolled blood sugar levels (297; 49%). More than a third had high blood pressure (40%) and/or high cholesterol (39%), and more than a quarter consumed a diet containing high amounts of saturated and trans fats (29%) and/or were depressed (25%).

Participants reported that they had experienced a number of CVD events, including heart attack (6%), heart failure (6%) and stroke (5%).

Figure 48: Self-evaluation of CVD risk – Brazil*

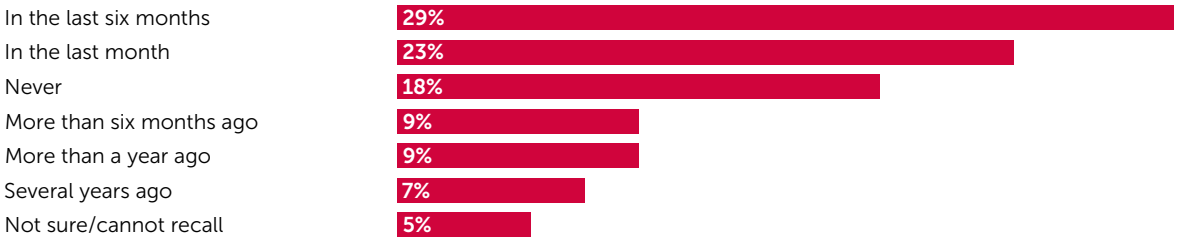


*The numbers are rounded up for visual purposes and without decimals give the impression that they do not add up to 100%

Education about CVD

Thirty-seven percent of participants reported that they had had a conversation with a health professional about diabetes and CVD either when they were diagnosed with T2D or soon afterwards. However, 18% had only had such a conversation several years after being diagnosed with T2D, and/or were not sure if they had discussed CVD risk factors with a health professional at all. A minority (119; 19%) had never talked about risk factors with a health professional and 3% had had the conversation following their diagnosis with CVD (either soon afterwards, or several years later). Encouragingly, 321 participants (52%) had discussed diabetes and CVD risk factors with a health professional within the previous six months, while 101 (16%) had had such a discussion more than a year previously and/or several years ago.

Figure 49: Last time discussing CVD risk factors with a health professional – Brazil



The majority of respondents (607; 97%) were aware that CVD risk could be reduced by adopting a healthy diet and/or increasing levels of physical exercise, while 89% (560 people) knew that stress is associated with a higher risk of CVD. More than half (57%) believed that men and women were at the same risk of developing CVD. A third (205; 33%) thought that diabetes would not increase their risk of CVD.

Most participants (450; 72%) reported that they needed information on how to reduce their risk of CVD through diet and exercise, while 439 (70%) expressed a need for general information on the signs and symptoms of CVD. Risk factors associated with developing CVD (69%) and diabetes self-management (58%) were other areas where respondents expressed a need for more information. More than half also wanted advice on how to lose weight or maintain a healthy weight (56%), and how to control and self-manage hypertension (53%).

Information about CVD

The majority of participants (550; 88%) reported that they relied on health professionals for information about CVD. About half (49%) preferred digital options, such as the internet and blogs; 46% referred to information displayed at their diabetes clinic; and 41% relied on scientific journals.

Most respondents were either satisfied or very satisfied with the quality of CVD information provided by health professionals. The next best rated sources of information were diabetes clinics and scientific journals. Participants were least satisfied with information from advertisements, daily magazines and/or local patient organisations.

Bulgaria

Participant characteristics

The number of survey respondents from Bulgaria was 1,129, split almost equally between men and women. The majority (86%) were aged over 50, and only 1% were under 30. Half (53%) had tertiary level education, while a quarter had gone to vocational school. A small minority (20 participants; 2%) had only attained primary school education. Most (61%) had been living with T2D for more than nine years, while roughly equal proportions had had T2D for six to nine years (14%), three to six years (12%), and fewer than three years (13%).

Knowledge of CVD and risk factors

Heart attack (82%) and heart failure (73%) were identified as types of CVD by most participants, followed by peripheral arterial disease (62%), stroke (46%), angina (44%), atherosclerosis (39%), and brain haemorrhage (35%). A third also identified aortic aneurysm as a CVD event.

The majority recognised high blood pressure (85%); overweight or obesity (78%); uncontrolled blood sugar levels (77%); smoking (69%); family history of CVD (64%); high levels of stress (61%); and/or high cholesterol (61%) as CVD risk factors. More than half correctly identified several additional risk factors, including: a diet containing high amounts of saturated and trans fats (59%); living with diabetes for more than five years (57%); being aged over 65 (56%); excessive alcohol consumption (51%); and/or physical inactivity (51%). A quarter recognised depression as a CVD risk factor.

Awareness of CVD and risk factors

Just over half the participants (53%) considered themselves to be at moderate or high risk of CVD. A third (28%) rated themselves as somewhat at risk, while one in five (19%) reported being at no risk or low risk of CVD. Living with T2D for a shorter time was significantly associated with a higher self-evaluated risk of CVD.

A majority reported that they had CVD risk factors including high blood pressure (72%); living with diabetes for more than five years (68%); high levels of stress (57%); being overweight or obese (56%); and uncontrolled blood sugar levels (55%). Just under half reported a family history of CVD (539); diet containing high amounts of saturated and trans fats (527); and/or high cholesterol (508) as personal CVD risk factors. Smaller numbers selected risk factors including smoking (373), depression (240), and/or excessive alcohol consumption (170). Heart failure (23%), and/or heart attack (20%) were the main CVD events that respondents had experienced.

Figure 50: Self-evaluation of CVD risk – Bulgaria

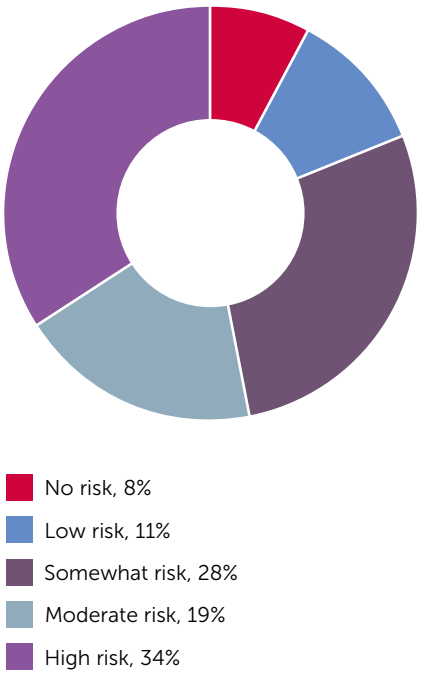
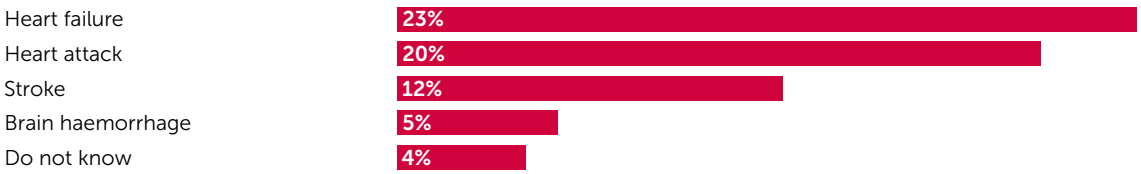


Figure 51: Experienced CVD events – Bulgaria



Education about CVD

Just under a third of the participants (30%) reported that they had had a conversation about diabetes and CVD with a health professional either at the time of their T2D diagnosis or soon afterwards. A small number (15%) had only had such a conversation either when diagnosed with CVD or soon afterwards. However, a quarter had never discussed T2D and CVD risk factors with a health professional, or could not remember having done so.

Almost a third of respondents (271; 28%) had discussed CVD with a health professional within the previous six months, while one in five (223; 22%) had had such a conversation more than a year before and/or several years before. However 181 (18%) could not remember or were not sure if they had had a discussion with a health professional regarding CVD. A minority (142; 14%) had never had such a discussion with a health professional.

Association between type 2 diabetes and cardiovascular disease

Most participants (948; 84%) were aware that it was possible to lower their risk of CVD through healthy diet and physical exercise. A majority (893; 79%) knew that high levels of stress are associated with an increased risk of CVD, while half (55%) believed that diabetes would not increase their CVD risk as long as they took their medication as prescribed. One in three (37%) thought that men and women are at the same risk of developing CVD, while 30% (339 respondents) believed that it is genetic and 18% reported that only overweight or obese people were at risk of developing CVD. A small minority (6%) reported that they were too young to worry about CVD.

The majority reported that they needed information about diabetes self-management (78%), as well as tips on how to reduce their risk of CVD through diet and exercise (74%), plus general information on signs and symptoms of CVD (73%). Most also stated that they wanted advice on how to control and self-manage hypertension (66%), as well as education on risk factors associated with developing CVD (64%), and advice on how to lose weight or maintain a healthy weight (64%).

Information about CVD

Most participants (76%) reported that they relied on a health professional for information about CVD, while 44% selected TV or radio programmes, and 43% opted for information displayed at their diabetes clinic (43%). Other trusted sources of information on CVD included family and friends (39%); printed materials, such as leaflets and booklets (37%); digital options, including the internet and blogs (24%); and local patient organisations (19%).

The majority were either satisfied or very satisfied with the quality of information on CVD offered by a health professional (58%) and provided at diabetic clinics. On the other hand, a large proportion were unsatisfied or very unsatisfied with the quality of the information from advertisements, daily magazines, social media, newspapers and scientific journals.

China

Participant characteristics

A total of 587 people from China took part in the study, of whom 304 (52%) were male. More than a third (38%) were aged 50 or over and only 11% were under 30. Just over a third (35%) had tertiary level education, while the majority (52%) had secondary school education. Almost half (46%) had been living with T2D for fewer than three years, while 22% (131 participants) had been diagnosed for more than nine years.

Knowledge of CVD and risk factors

Atherosclerosis was recognised as a CVD event by 81% of participants (475 people). A majority also correctly identified heart attack (77%), angina (73%), heart failure (68%), peripheral arterial disease (67%), brain haemorrhage (60%) and stroke (57%) as types of CVD.

Most respondents correctly identified a number of CVD risk factors, including uncontrolled blood sugar levels (85%); overweight or obesity (85%); high blood pressure (84%); family history of CVD (84%); high cholesterol (78%); living with diabetes for more than five years (76%); and physical inactivity (71%). More than half also recognised several other risk factors including smoking; depression; a diet containing high amounts of saturated and trans fats; excessive alcohol consumption; being aged over 65; and high levels of stress.

Awareness of CVD and risk factors

Just over half of participants (53%) rated their CVD risk as moderate or high, with a similar number reporting that they were at no risk, low risk, or somewhat at risk. Self-rated CVD risk was not significantly associated with the person's age, sex, or education level. However, living with T2D for a shorter period of time was significantly associated with a higher self-rated risk of CVD.

A majority of those surveyed reported personal CVD risk factors including physical inactivity (65%); high levels of stress (58%); uncontrolled blood sugar levels (57%); overweight or obesity; (55%); high cholesterol (53%); living with diabetes for more than five years (53%); and/or a family history of CVD (51%). In addition, about half identified other risk factors including high blood pressure; a diet containing high amounts of saturated and trans fats; depression; smoking; excessive alcohol consumption; and/or being aged over 65.

More than a third of participants (37%) had not experienced any CVD events, while a further 14% did not know if they had done so. Heart attack (10%), stroke (8%), brain haemorrhage (5%), and heart failure (4%) were the CVD events most commonly reported.

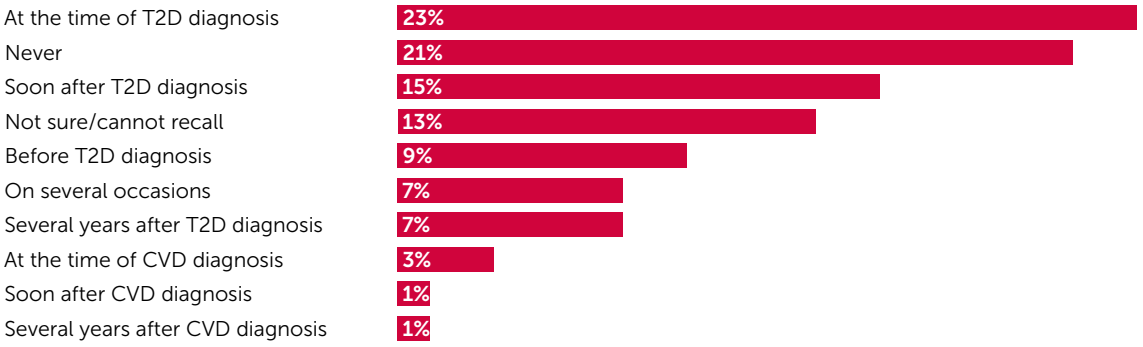
Figure 52: Experienced CVD events – China

Education about CVD

Over a third of participants (38%) had had a discussion about T2D and CVD with a health professional either at the time of their T2D diagnosis or soon after. A slightly smaller proportion (34%) had either not had such a conversation or could not recall having done so.

Forty-one percent of participants had had a discussion about T2D and CVD with a health professional within the previous six months, while only 9% said they had done so more than a year previously.

Figure 53: Discussion(s) with a health professional about T2D and CVD – China



Almost all participants (96%) were aware that they could lower their risk of CVD through healthy diet and physical exercise, while 81% knew that stress is associated with a higher risk of CVD. Just under half (47%) thought that men and women are at the same risk of developing CVD. A fifth (19%) believed that having diabetes would not increase their risk of CVD, while 13% thought that CVD is genetically determined and there was nothing they could do to reduce the risk. The same proportion (13%) believed that only overweight people are at risk of developing CVD.

Respondents identified a range of topics that would help them better understand the links between T2D and CVD. Information about diabetes self-management (91%) and tips on how to prevent the risk of CVD through diet and exercise (88%) were the most requested. Many people also expressed a need for information on risk factors associated with the development of CVD (82%), plus general information on the signs and symptoms of CVD (81%).

Information about CVD

Participants selected a variety of information sources about CVD that they relied on, including health professionals (68%), digital options such as the internet or blogs (68%) and information available at their diabetes clinic (54%). Smaller proportions relied on social media (23%), daily magazines (22%), newspapers (21%), local patient organisations (14%) and advertisements (11%).

Most people (61%) were either satisfied or very satisfied with the quality of CVD-related information provided by health professionals. Other highly rated sources of information included digital options (55%) and information displayed at diabetes clinics (51%). By contrast, a majority of respondents were dissatisfied with information from advertisements (73%), local patient organisations (59%), daily magazines (55%), newspapers (53%), and social media (53%).

Czech Republic

Participant characteristics

Of the 580 people from the Czech Republic who took part in the survey, 299 (52%) were female. Just under half (45%) were aged 60 or over, while a further 40% were between 40 and 59 years old. Roughly equal proportions had been educated to primary level (38%) and tertiary level (37%), while 23% had secondary level education. A fifth (20%) of the respondents had been living with T2D for fewer than three years, while 31% had had the condition for more than nine years.

Knowledge of CVD and risk factors

A majority recognised heart attack (478; 82%), stroke (432; 74%), heart failure (424; 73%), peripheral arterial disease (340; 59%), angina (339; 58%) and/or atherosclerosis (302; 52%) as types of CVD. More than a third also identified brain haemorrhage (260; 45%) and/or aortic aneurysm (230; 40%) as CVD events.

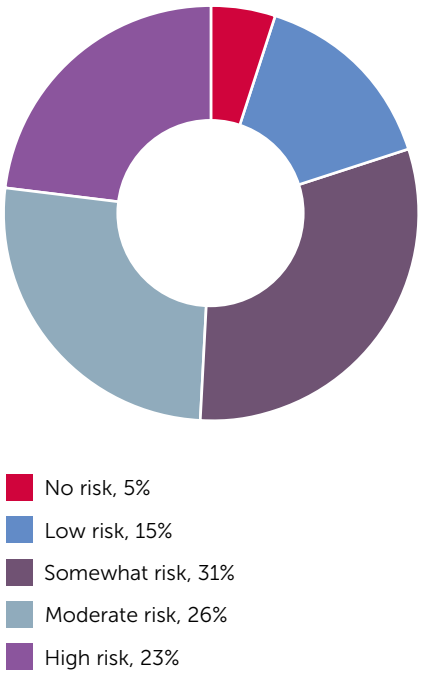
Most participants could identify a wide range of CVD risk factors, including: high blood pressure (502; 87%); smoking (468; 81%); overweight or obesity (467; 81%); high cholesterol (450; 78%); being aged over 65 (405; 70%); high levels of stress (398; 69%); physical inactivity (367; 63%); living with diabetes for more than five years (365; 63%); diet containing high amounts of saturated and trans fats (362; 62%); family history of CVD (356; 61%); and/or excessive alcohol consumption (348; 60%). Approximately half also recognised uncontrolled blood sugar levels (340; 59%) and/or depression (294; 51%) as risk factors for CVD.

Awareness of CVD and risk factors

One in five (20%) respondents reported that they were either at no risk or low risk of CVD. Almost half (49%) assessed their risk level as moderate or high, while 31% described themselves as being somewhat at risk of CVD.

Approximately half of the participants identified at least one personal CVD risk factor, including having high blood pressure (378; 65%); living with diabetes for more than five years (371; 64%); a family history of CVD (300; 52%); having high cholesterol (279; 48%); being overweight or obese (278; 48%); and/or being physically inactive (261; 45%). Over a third also listed other risk factors including following a diet high in saturated and trans fats (236; 41%); being aged over 65 (230; 40%); smoking (230; 40%); high stress levels (221; 38%) and/or uncontrolled blood sugar levels (201; 35%). Almost a fifth (18%) had experienced heart attack, while 11% had had heart failure.

Figure 54: Self-evaluation of CVD risk – Czech Republic

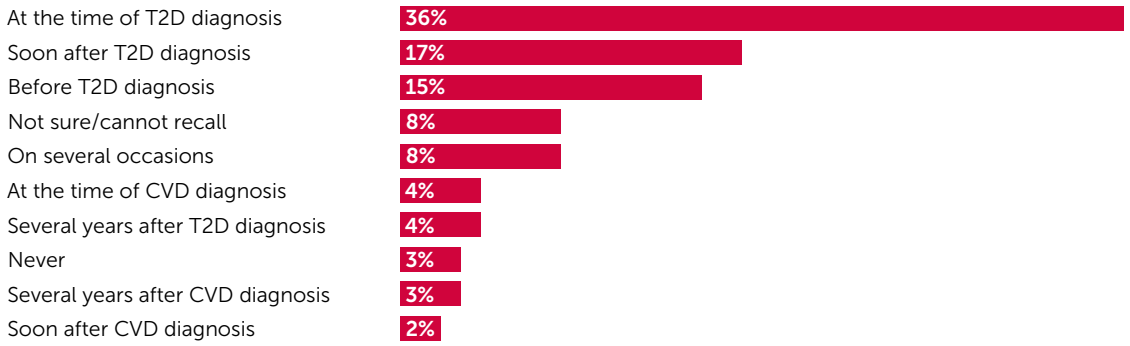


Education about CVD

One in ten (11%) had either never talked about CVD risk factors with a health professional or could not recall such a discussion. More positively, 15% had had a conversation about CVD prior to their T2D diagnosis. More than half (53%) reported that they had discussed diabetes and CVD with a health professional either when they were diagnosed with T2D or soon afterwards. Almost one in ten (8%) had had the conversation on several occasions. A small minority (6%) had had such a conversation several years after being diagnosed with T2D or following their diagnosis with CVD (either soon afterwards, or several years later).

Nearly a quarter of participants (23%) had discussed diabetes and CVD risk factors with a health professional within the previous six months, and an additional 29% had done so during the previous year. Just under one in three (28%) had discussed diabetes and CVD more than a year previously and/or several years beforehand.

Figure 55: Discussion(s) with a health professional about T2D and CVD – Czech Republic



The majority of respondents (520; 90%) were aware that they could lower their CVD risk through healthy diet and physical exercise; knew that stress is associated with a higher risk of CVD (506; 87%); and/or considered men and women to be at equal risk for CVD (376; 65%)

A majority of participants (332; 57%) were interested in receiving further guidance on diabetes self-management, and/or general information on the signs and symptoms of CVD (288; 50%). Approximately half (274; 47%) also reported that they needed information on how to reduce their risk of CVD through diet and exercise.

Information about CVD

Almost all participants (559; 96%) reported that they relied on health professionals for information about CVD. More than a third selected family and friends (236; 41%) and/or information displayed at their diabetes clinic (227; 39%) as the sources of information they relied on.

Most respondents were very satisfied with the quality of CVD information provided by health professionals, followed by family and friends and/or information displayed at their diabetes clinic. They were least satisfied with information from advertisements, other caregivers, social media and daily magazines.

Denmark

Participant characteristics

Just under a thousand people from Denmark took part in the survey, of whom 558 (60%) were male and 373 (40%) were female. The majority (61%) were over 60, while more than a third (36%) were aged 40–59. Two out of five participants (41%; 378) had been living with type 2 diabetes for over nine years, while a quarter (24%) had been living with diabetes for fewer than three years. Over half the respondents (52%) had secondary level education, and a further 31% had tertiary level education.

Knowledge of CVD and risk factors

Participants correctly identified a variety of types of CVD, including heart attack (80%), peripheral arterial disease (71%), atherosclerosis (66%), angina (64%), stroke (50%), heart failure (47%), aortic aneurysm (43%) and/or brain haemorrhage (42%). A minority (3%) chose the option 'do not know', while 1% thought that none of the conditions listed were types of CVD.

A majority were able to identify several CVD risk factors, including being overweight or obese (94%); smoking (89%); high blood pressure (88%); high cholesterol (87%); physical inactivity (82%); a diet containing high amounts of saturated and trans fats (80%); family history of CVD (74%); uncontrolled blood sugar levels (73%); high levels of stress (71%); and/or excessive alcohol consumption (63%). Just under half (48%) identified living with diabetes for more than five years as a risk factor, while 39% recognised being aged over 65 as increasing their risk and 29% selected depression. One percent did not know which of the options listed were risk factors.

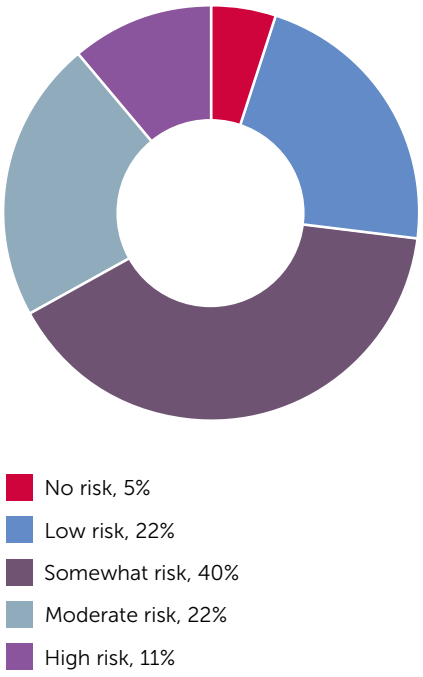
Awareness of CVD and risk factors

When asked to self-evaluate their CVD risk, 27% of participants categorised themselves as being at no risk or low risk. Nearly two thirds (62%) reported that they were somewhat at risk or at moderate risk. Around one in ten (11%) felt they were at high risk of CVD.

Respondents recognised a number of risk factors that applied to them, including being overweight or obese (70%); living with diabetes for more than five years (59%); having high blood pressure (47%); being physically inactive (43%); having a family history of CVD (43%); having high cholesterol (39%); a diet containing high amounts of saturated and trans fats (31%); uncontrolled blood sugar levels (27%); and/or smoking (22%).

One in three participants (33%) had not experienced any CVD event or were not sure if they had. The types of CVD event that respondents had experienced most were heart attack (7%), heart failure (3%), brain haemorrhage (2%) and stroke (2%).

Figure 56: Self-evaluation of CVD risk – Denmark

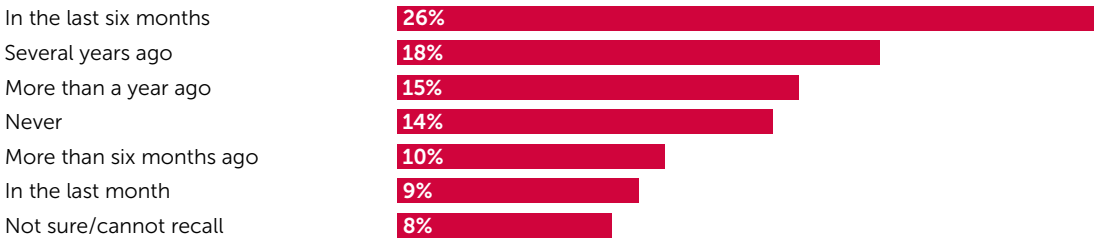


Education about CVD

Almost a third of participants (31%) reported that they had never had, or could not recall having had, a conversation with a health professional about T2D and CVD risk. More positively, around half (47%) said that they had had such a conversation before diagnosis, upon diagnosis or soon after being diagnosed with type 2 diabetes. A further 13% had discussed CVD risk with a health professional on several occasions.

When asked to consider how recently they had talked about CVD risk with a health professional, 35% said within the previous six months, while 43% had done so more than six months previously.

Figure 57: Last time discussing CVD risk factors with a health professional – Denmark



Almost 100% agreed that healthy diet and exercise could lower the risk of CVD, with only four participants selecting 'false' for this statement. A tiny minority of participants (2%) felt that they were too young to worry about CVD.

When asked what information they needed to better understand the link between type 2 diabetes and CVD, there was a particular preference for certain types of information, notably general information on the signs and symptoms CVD (73%); tips for reducing CVD risk through diet and exercise (67%); and information on diabetes self-management (66%).

Information about CVD

The majority of participants (83%) reported that they depended on a health professional for information about CVD. The next most popular source was digital options such as the internet or blogs (40%), followed by information at diabetes clinics (36%). The least relied-on forms of information were adverts (1%), daily magazines (1%) and social media (4%).

Respondents were most satisfied with information about CVD received from health professionals, with 50% selecting 'satisfied' or 'very satisfied' for this source. Information displayed at diabetes clinics and scientific journals scored 37% and 32% respectively across the same two categories. At the other end of the spectrum, 88% of participants were unsatisfied or very unsatisfied with advertisements, and daily magazines were rated negatively by 83%.

India

Participant characteristics

India's 918 survey respondents represented the largest group in the South East Asia Region. Men made up 62% of the total, while 29% of those surveyed were aged over 60. The majority (65%) had tertiary level education. More than half (56%) had been living with T2D for over six years, while 38% had had the condition for more than nine years. A quarter had been living with T2D for fewer than three years.

Knowledge of CVD and risk factors

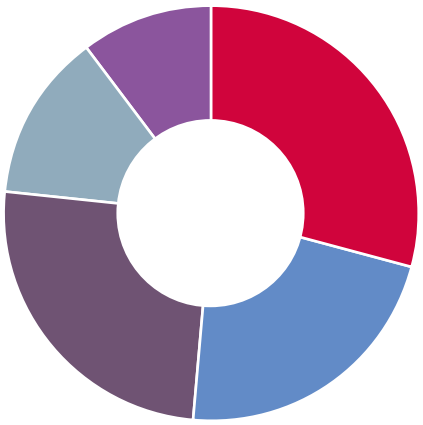
The most widely recognised CVD categories among participants were heart attack (65%), angina (59%), and stroke (51%). A small minority (12%) could not identify any types of CVD. Most were aware of several CVD risk factors, including being overweight or obese (61%); having high cholesterol (60%); and having high blood pressure (59%).

Awareness of CVD and risk factors

Just over half the participants (52%) considered themselves to be at low or no risk of CVD, while 10% categorised themselves as being at high risk.

The most common personal CVD risk factors cited by respondents were living with diabetes for more than five years (58%) and uncontrolled blood sugar levels (56%). Nearly half also classed themselves as being overweight or obese (49%); having high levels of stress (49%); high blood pressure (48%); high cholesterol (47%); and/or being physically inactive (47%). Heart attack (16%) and stroke (14%) were the CVD events most commonly experienced by respondents.

Figure 58: Self-evaluation of CVD risk – India*



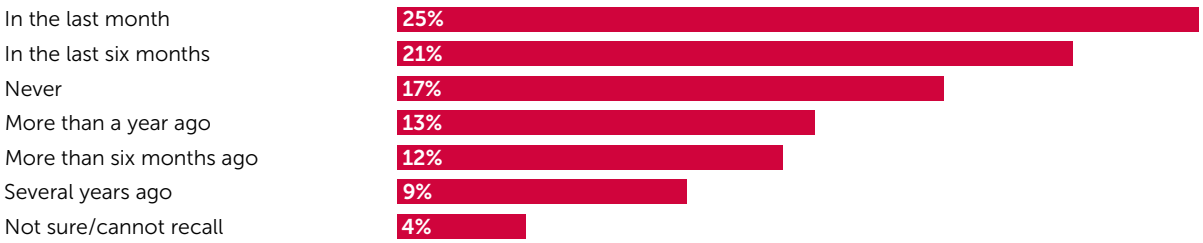
*The numbers are rounded up for visual purposes and without decimals give the impression that they do not add up to 100%

Education about CVD

Asked when they first had a conversation with a health professional about T2D and CVD, 26% said they had either never done so, or could not recall having done so. One in three (31%) said that they had discussed T2D and CVD either at the time of or soon after being diagnosed with diabetes.

Turning to the last time they had discussed CVD risk factors with a health professional, 46% said this was within the previous year, of whom one in four (25%) had had the conversation in the previous month. A further 9% had discussed CVD risk factors with a health professional several years ago. Less positively, 21% had either never had such a conversation, or could not recall having done so. Those with a higher self-rated CVD risk had had a conversation with a health professional more recently.

Figure 59: Last time discussing CVD risk factors with a health professional – India



The majority of participants (86%) were aware that they could lower their risk of CVD through healthy diet and physical exercise. A similar proportion (84%) agreed with the statement that stress is associated with a higher risk of CVD.

Information about CVD

When asked what information they needed to better understand the risks associated with T2D and CVD, participants' top three choices were: information on diabetes self-management (63%); general information on signs and symptoms of CVD (61%); and tips on how to reduce their risk of CVD through diet and exercise (60%).

Asked which CVD information sources they relied on, three out of four people chose a health professional (75%), followed by information displayed at diabetes clinics (37%) and information from family and friends (31%). When asked about how satisfied they were with different sources, information from health professionals was rated highest, with 42% of participants saying they were very satisfied with the information received. Information from advertisements, local patient organisations and daily magazines was considered to be unsatisfactory by more than 20% of participants.

Italy

Participant characteristics

A total of 643 people from Italy took part in the survey, of whom 375 (58%) were male. The majority (54%) were aged 60 or over, with 42% between 40 and 59 years old. Forty-one percent had secondary level education and a further 40% had attained tertiary level education. Roughly equal proportions had been living with T2D for fewer than three years (27%); three to six years (23%); six to nine years (26%) or more than nine years (23%).

Knowledge of CVD and risk factors

A small minority of participants (22; 3%) could not identify any CVD events. Most recognised heart attack (558; 87%), heart failure (504; 78%), angina (423; 66%), aortic aneurysm (380; 59%), atherosclerosis (361; 56%) and/or peripheral arterial disease (54%) as types of CVD. More than a third identified stroke (286; 44%) and/or brain haemorrhage (251; 39%) as CVD events.

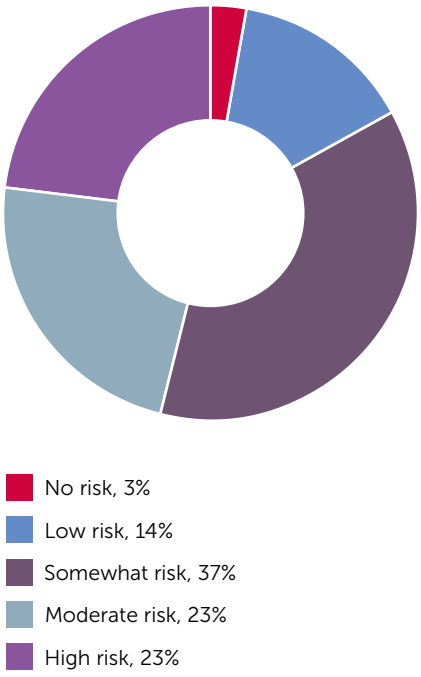
Nine out of ten respondents recognised several CVD risk factors including: overweight or obesity (579; 90%); high blood pressure (571; 89%); high cholesterol (567; 88%); and/or uncontrolled blood sugar levels (563; 88%). Most were also aware of several other risk factors including: physical inactivity (469; 73%); a diet containing high amounts of saturated and trans fats (467; 73%); smoking (443; 69%); and/or family history of CVD (423; 66%). Approximately half identified high levels of stress (379; 59%); living with diabetes for more than five years (336; 52%); and/or being aged over 65 (326; 51%) as risk factors for CVD.

Awareness of CVD and risk factors

One in six respondents (17%) considered themselves to be either at no risk or low risk of CVD. Almost half (46%) assessed their risk level as moderate or high. More than a third (37%) described themselves as being somewhat at risk of CVD.

A majority of respondents reported personal CVD risk factors including uncontrolled blood sugar levels (471; 73%); living with diabetes for more than five years (373; 58%); being physically inactive (363; 56%); being overweight or obese (357; 56%); having high cholesterol (350; 54%); and/or having high blood pressure (336; 52%). More than a third identified other risk factors such as having a family history of CVD (314; 49%); being aged over 65 (297; 46%); and/or high stress levels (262; 41%). Thirteen percent had experienced heart attack.

Figure 60: Self-evaluation of CVD risk – Italy

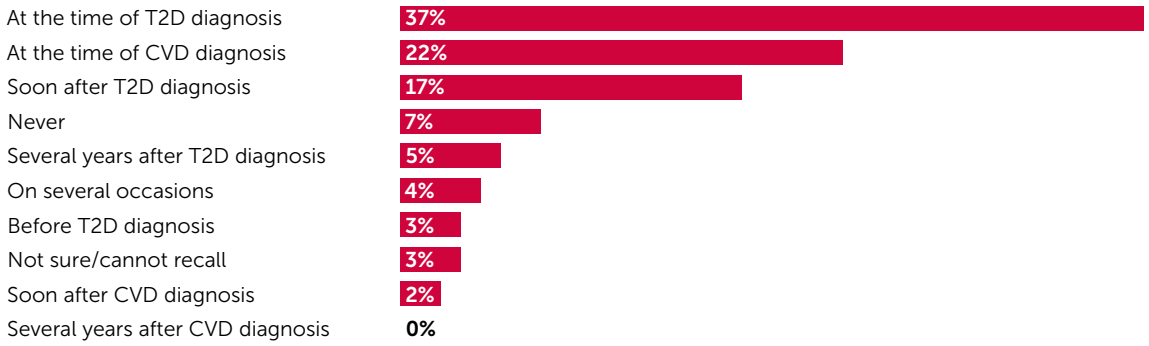


Education about CVD

One in ten participants had either never talked about CVD risk factors with a health professional or could not recall such a discussion. By contrast, more than half (54%) reported that they had had a conversation with a health professional about diabetes and CVD either when they were diagnosed with T2D or soon afterwards. A small minority (4%) had had the conversation on several occasions. One in four (24%) had either talked with a health professional several years after being diagnosed with T2D or following their diagnosis with CVD (either soon afterwards, or several years later).

A quarter (27%) of the participants had discussed diabetes and CVD risk factors with a health professional within the previous month, and a further 19% had done so within the previous six months. However nearly a third (31%) had only had such a discussion either more than a year previously or several years ago.

Figure 61: Discussion(s) with a health professional about T2D and CVD – Italy



The majority of respondents (602; 94%) thought that diabetes would not increase their risk of CVD or that only people who are overweight are at risk of developing CVD (510; 79%). By contrast, 67% (434) were aware that stress is associated with a higher risk of CVD.

Most participants expressed a need for further guidance on diabetes self-management (539; 84%) and/or general information on the signs and symptoms of CVD (474; 74%). Approximately half wanted information on how to reduce their risk of CVD through diet and exercise (323; 50%); advice on how to lose weight or maintain a healthy weight (291; 45%); and/or information on how to control and self-manage hypertension (285; 44%).

Information about CVD

The majority of participants (576; 90%) reported that they relied on health professionals, other caregivers (360; 56%) and/or information displayed at diabetes clinics (345; 54%) for information about CVD. Over a third selected local patient organisations (247; 38%) and/or printed material such as leaflets or booklets (240; 37%) as their preferred source of information.

Most respondents were very satisfied with the quality of CVD information provided by health professionals and least satisfied with information broadcast on TV or radio.

Japan

Participant characteristics

Of the 1,507 people from Japan who took part in the survey, the majority were men (901 respondents; 60%). Just over three quarters (1,148; 76%) were aged over 60, while only 2% (43 participants) were under 40. One in ten (170; 12%) had lived with T2D for fewer than three years; three quarters (75%) had had diabetes for more than six years; while 62% (900 participants) had lived with the condition for more than nine years. Only one in ten (10%) had tertiary level education, and the highest level of education achieved by 43% of respondents was secondary level.

Knowledge of CVD and risk factors

The majority of participants correctly identified heart attack (64%), heart failure (59%), stroke (57%) and/or atherosclerosis (53%) as types of CVD. More than a third also recognised brain haemorrhage (46%), peripheral arterial disease (44%), aortic aneurysm (39%) and/or angina (36%).

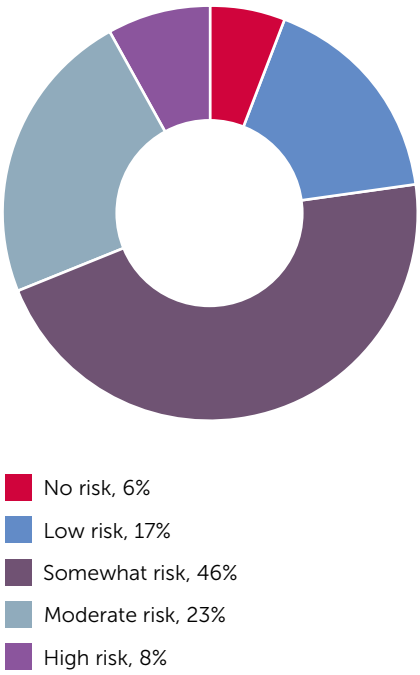
Most respondents knew that high blood pressure (69%), uncontrolled blood sugar levels (67%), being overweight or obese (63%), physical inactivity (62%), smoking (61%), high cholesterol (60%) and/or high levels of stress (51%) were risk factors for CVD. More than a third also recognised excessive alcohol consumption (45%); living with diabetes for more than five years (44%); family history of CVD (42%); a diet containing high amounts of saturated and trans fats (36%) and/or being older than 65 (30%) as CVD risk factors.

Awareness of CVD and risk factors

Almost a quarter of participants (307; 23%) considered themselves to be at no risk or low risk of CVD, while 69% rated themselves as somewhat at risk or at moderate risk. Just under one in ten (106; 8%) considered their risk to be high.

Two thirds of participants (66%) recognised high levels of stress as a risk factor that applied to them. About half also selected being physically inactive (50%); having uncontrolled blood sugar levels (45%); being aged over 65 (45%); having high blood pressure (41%); and/or being overweight or obese (40%). Thirty-two percent identified high cholesterol as a risk factor, while smaller proportions selected family history of CVD (19%); smoking (16%); and a diet containing high amounts of saturated and trans fats (13%). When asked about CVD events that they had experienced personally, 5% reported that they had had heart failure, with 4% selecting heart attack and/or stroke.

Figure 62: Self-evaluation of CVD risk – Japan



Education about CVD

More than a third of participants (35%) reported that they had never had, or could not recall having had, a conversation with a health professional about type 2 diabetes and CVD risk. More positively, 7% had had such a conversation before their T2D diagnosis, while almost half (44%) had done so either at the time of, or soon after being diagnosed with diabetes. A further 2% had discussed CVD risk with a health professional later on, or when they had already been diagnosed with CVD.

Two in five participants (40%) had never had, or could not remember having had, a conversation with a health professional about CVD. One in six (17%) had last discussed CVD several years previously, while 33% had last had the conversation less than a year beforehand.

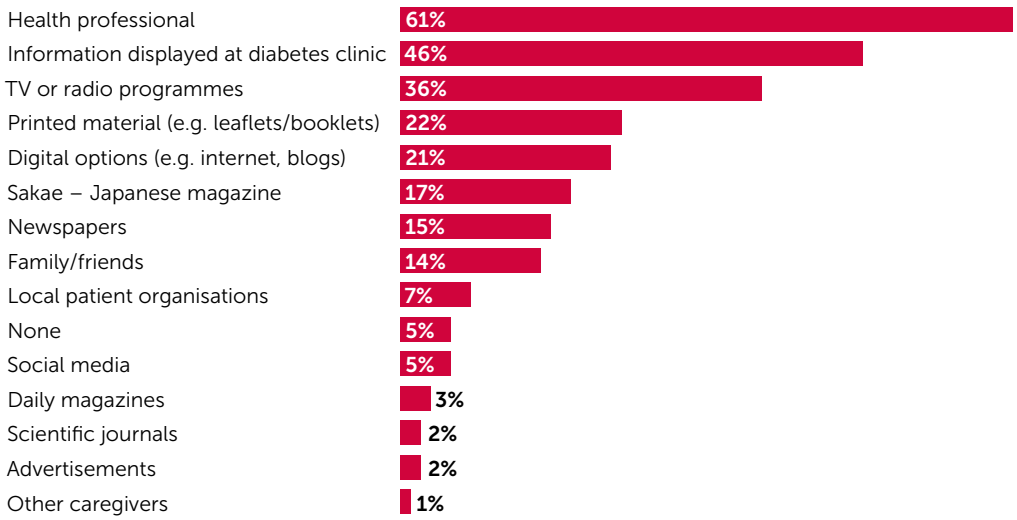
Almost two thirds of respondents (69%) knew that stress is associated with a higher risk of CVD and 56% were aware that they could lower their risk of CVD through healthy diet and physical exercise.

The majority expressed a need for more information on self-management of T2D (76%), along with tips on how to reduce their risk of CVD through diet and exercise (72%). There was also a strong interest in accessing general information on the signs and symptoms of CVD (54%); how to control and self-manage hypertension (54%); risk factors associated with the development of CVD (52%); and how to lose weight or maintain a healthy weight (48%).

Information about CVD

When asked which sources of CVD information they relied on most, 838 respondents (61%) selected health professionals, while 627 (46%) chose information displayed at diabetes clinics. More than a third (36%) selected TV or radio programmes as their preferred source; 22% chose printed materials; and 21% opted for digital options. One in six (17%) selected Sakae as the source of information about CVD they found most reliable. Older participants were more likely to prefer information from health professionals.

Figure 63: CVD information sources on which the participants rely – Japan



Participants were most satisfied with the quality of CVD information provided by health professionals and at diabetes clinics. They were least satisfied with information from other caregivers; advertisements; and local patient organisations. Sakae was the sixth most relied on source of information.

Pakistan

Participant characteristics

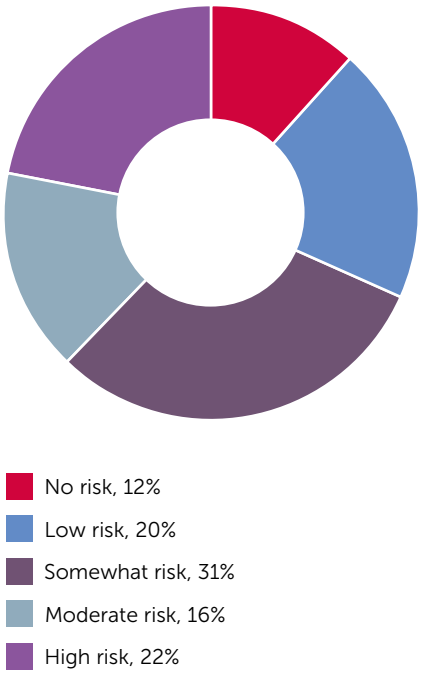
Of the 427 participants from Pakistan who took part in the survey, 245 (57%) were women. A quarter of respondents (105 people) were aged under 40, and 17% (73) were over 60. Almost two thirds (58%) were 40–60 years old. One in three (133; 31%) had lived with T2D for fewer than three years; a further 31% had had the condition for between three and six years; and the remaining 38% had been living with diabetes for more than six years. Of the latter group, 19% had had T2D for over nine years. The highest level of education achieved by 60% of respondents was attending primary school, while 20% had university level education.

Knowledge of CVD and risk factors

Heart attack was recognised as a type of CVD by 60% of participants. Other CVD events that were correctly identified included: angina (58%), heart failure (29%), stroke (28%), peripheral arterial disease (22%), and aortic aneurysm (20%). Smaller proportions recognised atherosclerosis (17%) and brain haemorrhage (14%) as types of CVD.

Most respondents correctly identified a number of CVD risk factors, including smoking (67%), high blood pressure (66%), high cholesterol (59%), overweight or obesity (57%) and depression (56%). Other widely recognised risk factors included uncontrolled blood sugar levels (43%); living with diabetes for more than five years (43%); being aged over 65 (34%); and physical inactivity (33%). A smaller proportion correctly identified a diet containing high amounts of saturated and trans fats (31%); family history of CVD (30%); excessive alcohol consumption (30%); and high levels of stress (26%) as CVD risk factors.

Figure 64: Self-evaluation of CVD risk – Pakistan



Awareness of CVD and risk factors

One in three participants (134; 32%) considered themselves to be at no risk or low risk of CVD, while almost half assessed themselves as somewhat at risk or at moderate risk. The remaining 22% (94 people) considered themselves to be at high risk of CVD.

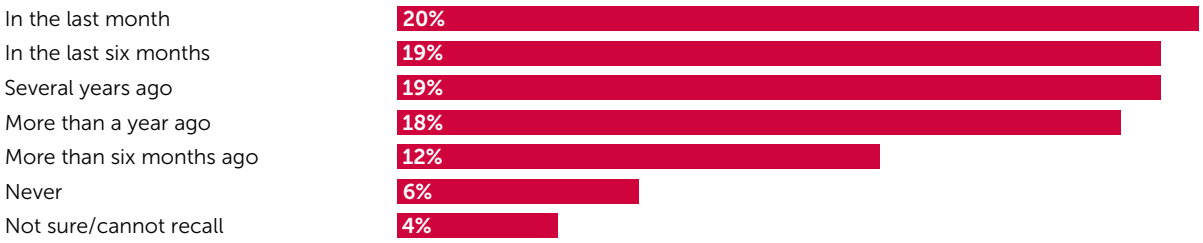
Commonly reported CVD risk factors included smoking; high blood pressure; high cholesterol; being overweight or obese; physical inactivity; having a family history of CVD; and a diet containing high amounts of saturated and trans fats. Respondents had personally experienced a variety of CVD events including heart attack (22%) and stroke (13%).

Education about CVD

More than a quarter of participants (27%) reported that they had never had, or could not recall having had, a conversation with a health professional about type 2 diabetes and CVD risk. More positively, one in ten had had such a conversation before their diagnosis with T2D, and 37% had done so either at the time of, or soon after being diagnosed with diabetes. A fifth had had the conversation later on, or when already diagnosed with CVD.

Ten percent of participants reported that they had never had a conversation with a health professional about CVD, or could not remember having done so. One in five (19%) had had such a conversation several years previously. Encouragingly, 39% had discussed CVD with a health professional less than a year previously.

Figure 65: Last time discussing CVD risk factors with a health professional – Pakistan



Over half of respondents (54%) considered that CVD was only a risk for overweight people. Slightly fewer thought that CVD was genetic and unpreventable (44%) while 29% felt that they were too young to worry about CVD.

A majority expressed a need for more information on the self-management of T2D (59%); how to self-manage and control hypertension (59%); and how to reduce the risk of CVD through diet and exercise (52%). A large proportion also wanted general information on signs and symptoms of CVD (49%); advice on how to lose weight or maintain a healthy weight (48%); and information on CVD risk factors (45%).

Information about CVD

Most participants (361 respondents; 85%) reported that they relied on health professionals for information about CVD, with information available at diabetes clinics cited as the second most reliable source (228 participants; 53%). Two out of five relied on information from family or friends (41%), while 34% selected TV or radio as their trusted source of information.

The quality of information on CVD provided by health professionals and diabetes clinics scored highest. Participants were least satisfied with information from daily magazines, advertisements and scientific journals.

Philippines

Participant characteristics

A total of 801 people from the Philippines took part in the survey, of whom 508 (63%) were female. The majority (74%) were aged 50 or over, while over a third (37%) were between 40 and 59 years old. Most (86%) had tertiary level education. One in four respondents had been living with T2D for fewer than three years, while 41% reported that they had had T2D for more than nine years.

Knowledge of CVD and risk factors

A small minority of participants (9%) could not identify any CVD events. Most recognised heart attack (70%), angina (62%), heart failure (54%) and/or stroke (51%) as types of CVD. Fewer than half identified peripheral arterial disease (43%), atherosclerosis (41%), aortic aneurysm (26%) and/or brain haemorrhage (22%) as CVD events.

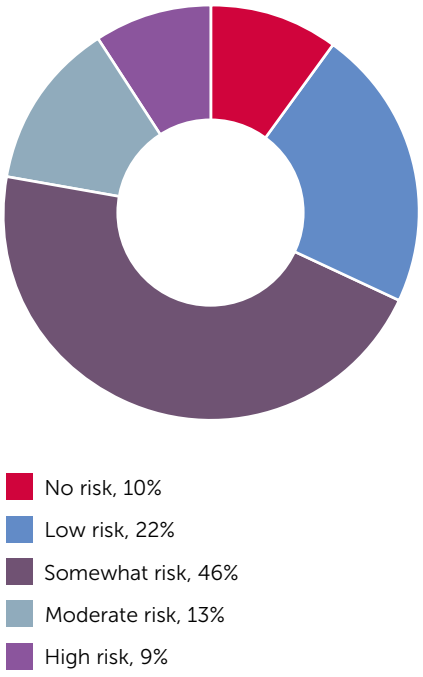
The majority recognised uncontrolled blood sugar levels (72%); high blood pressure (72%); high cholesterol (70%); and/or overweight or obesity (68%) as risk factors for CVD. Approximately half also identified high levels of stress (57%); family history of CVD (56%); smoking (55%); physical inactivity (49%); and/or a diet containing high amounts of saturated and trans fats (49%) as risk factors for CVD.

Awareness of CVD and risk factors

A third of respondents (32%) reported that they were either at no risk or low risk of CVD. Nearly half (46%) described themselves as being somewhat at risk of CVD. One in five (22%) assessed their risk level as moderate or high.

Many people reported having at least one CVD risk factor, including uncontrolled blood sugar levels (543; 68%); high cholesterol (527; 66%); high blood pressure (521; 65%); having a family history of CVD (477; 60%); being physically inactive (472; 59%); having high stress levels (458; 57%); being overweight or obese (450; 56%); a diet containing high amounts of saturated and trans fats (445; 56%); and/or living with diabetes for more than five years (430; 54%). More than a third also reported smoking (322; 40%); depression (305; 38%); and/or excessive alcohol consumption (269; 34%) as personal CVD risk factors. Just under one in ten had experienced either stroke (8%) or heart attack (7%).

Figure 66: Self-evaluation of CVD risk – Philippines

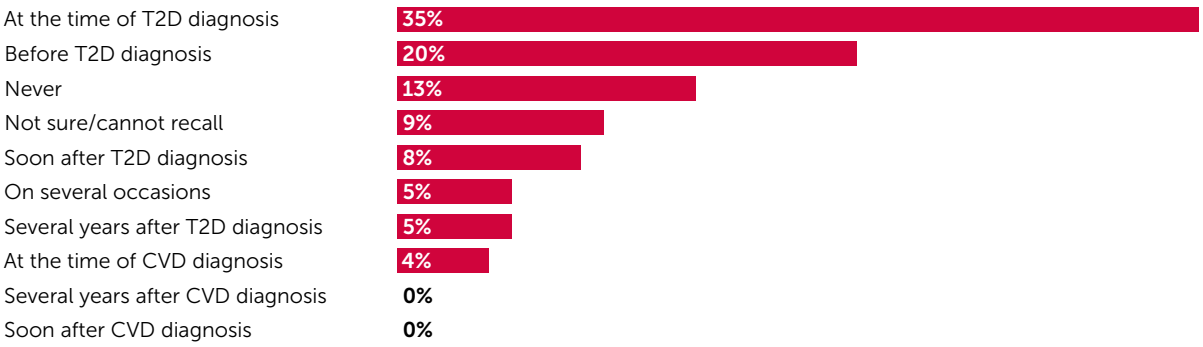


Education about CVD

One in five participants had either never discussed CVD risk factors with a health professional or could not recall such a conversation. More positively, one in five had talked to a health professional about CVD risk factors before their T2D diagnosis. Over a third (43%) reported that they had had a conversation with a health professional about diabetes and CVD either when they were diagnosed with T2D or soon afterwards. A small proportion (9%) only had such a conversation several years after being diagnosed with T2D or following their diagnosis with CVD (either soon afterwards, or several years later).

Encouragingly, 347 participants (43%) had discussed diabetes and CVD risk factors with a health professional within the previous six months and a further 113 (14%) had done so during the previous year. Around a quarter (185; 23%) had either had such a discussion more than a year previously or several years ago.

Figure 67: Discussion(s) with a health professional about T2D and CVD – Philippines



The majority of respondents (721; 90%) knew that stress is associated with a higher risk of CVD and/or were aware that CVD risk could be reduced by adopting a healthy diet and increasing levels of physical exercise (695; 87%). Half (386; 48%) thought that diabetes would not increase their risk of CVD.

Most participants (606; 76%) expressed a need for general information on the signs and symptoms of CVD, while 75% (601) reported that they needed information on how to reduce their CVD risk through diet and exercise. A further 581 (73%) wanted further guidance on diabetes self-management, and a similar proportion (577; 72%) indicated that education on the risk factors associated with developing CVD would be helpful. Many also sought advice on how to lose weight or maintain a healthy weight (482; 60%), and how to control and self-manage hypertension (504; 63%).

Information about CVD

The majority of participants (687; 86%) reported that they relied on health professionals for information about CVD. About a quarter referred to information displayed at diabetes clinics (229; 29%) and/or preferred digital options, such as the internet and blogs (210; 26%).

Most respondents were very satisfied with the quality of CVD information provided by health professionals. The next best rated sources of information were diabetes clinics, and TV or radio. Surprisingly, participants were least satisfied with information from scientific journals and/or local patient organisations.

Serbia

Participant characteristics

Just over 500 people from Serbia took part in the survey, of whom 264 (53%) were male and 238 (47%) were female. The majority (67%) were aged 60 or over, while 27% were between 40 and 59 years old. One in four had been educated to primary level (26%), while 43% had secondary level education. Just under a third (30%) had tertiary level education. Two thirds (69%) of respondents had been living with T2D for more than nine years, while 8% had had the condition for fewer than three years.

Knowledge of CVD and risk factors

Most participants recognised heart attack (396; 79%), angina (330; 66%), stroke (317; 63%), heart failure (292; 58%), peripheral arterial disease (286; 57%) and/or atherosclerosis (270; 54%) as types of CVD. Nearly half also identified aortic aneurysm (227; 45%) and/or brain haemorrhage (226; 45%) as CVD events.

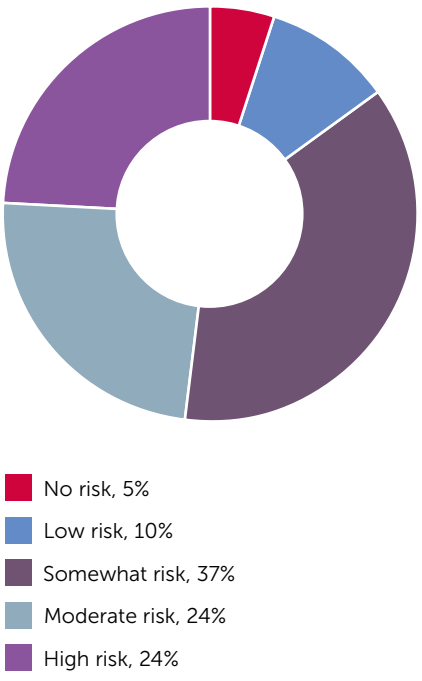
Risk factors for CVD were widely recognised, with most people identifying high blood pressure (400; 80%); smoking (383; 76%); diet containing high amounts of saturated and trans fats (379; 75%); physical inactivity (370; 74%); overweight or obesity (369; 74%); uncontrolled blood sugar levels (367; 73%); high cholesterol (362; 72%); depression (345; 69%); family history of CVD (323; 64%); living with diabetes for more than five years (318; 63%); and/or being aged over 65 (275; 55%).

Awareness of CVD and risk factors

Around one in six respondents (15%) reported that they were at either no risk or low risk of CVD. More than a third (37%) described themselves as being somewhat at risk, while 48% assessed their risk level as moderate or high.

The majority of people reported having at least one CVD risk factor, including living with diabetes for more than five years (356; 71%); high blood pressure (347; 69%); uncontrolled blood sugar levels (346; 69%); high levels of stress (297; 59%); high cholesterol (274; 55%); being overweight or obese (259; 52%); and/or having a family history of CVD (254; 51%). More than a third identified other risk factors including being aged over 65 (197; 39%); being physically inactive (186; 37%); and/or following a diet containing high amounts of saturated and trans fats (178; 35%). Respondents had experienced a range of CVD events, including heart attack (18%), stroke (9%) and heart failure (8%).

Figure 68: Self-evaluation of CVD risk – Serbia

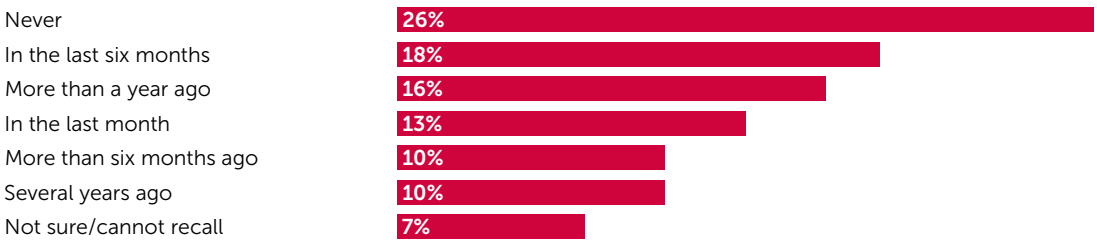


Education about CVD

Almost a third (31%) of participants had either never talked about CVD risk factors with a health professional or could not recall such a discussion. More positively, 9% had discussed CVD risk factors prior to their T2D diagnosis. A further 30% reported that they had had a conversation with a health professional about diabetes and CVD either when they were diagnosed with T2D or soon afterwards. A smaller proportion (12%) had had the conversation on several occasions. One in ten (11%) had discussed CVD with a health professional several years after being diagnosed with T2D or following their diagnosis with CVD (either soon afterwards, or several years later).

Nearly a third of respondents (31%) had discussed diabetes and CVD risk factors with a health professional within the previous six months, and a further 10% had done so within the previous year. A quarter (26%) had had such a discussion more than a year previously and/or several years beforehand.

Figure 69: Last time discussing CVD risk factors with a health professional – Serbia



Almost all respondents (477; 95%) knew that stress is associated with a higher risk of CVD, and/or that CVD risk could be reduced by adopting a healthy diet and increasing levels of physical exercise (464; 92%). The majority believed that men and women are at equal risk of CVD (337; 67%) and/or thought that diabetes would not increase their risk of CVD if they took their medication as prescribed (287; 57%).

Most participants said they needed information on a variety of topics related to CVD. These included the risk factors associated with developing CVD (392; 78%); how to control and self-manage hypertension (278; 55%); and/or information on how to reduce their risk of CVD through diet and exercise (273; 54%).

Information about CVD

The majority of respondents (419; 83%) relied on health professionals for information about CVD. More than a quarter selected TV or radio (159; 32%); information displayed at diabetes clinics (138; 27%); and/or family or friends (123; 25%) as the source of information they relied on.

Many participants were very satisfied with the quality of CVD information provided by health professionals. The next most reliable options was information displayed at diabetes clinics. Respondents were least satisfied with information provided by other caregivers and obtained from social media.

Thailand

Participant characteristics

Of the 774 people from Thailand who took part in the survey, 449 (58%) were female. The majority (57%) were aged 60 or over, while over a third (35%) were between 40 and 59 years old. More than two fifths (46%) had tertiary level education. One in six respondents (17%) had been living with T2D for fewer than three years, while more than half (52%) reported that they had had T2D for more than nine years.

Knowledge of CVD and risk factors

A small minority of participants (43; 6%) could not identify any CVD events. Most recognised heart attack (467; 60%), angina (456; 59%) and/or stroke (431; 56%) as types of CVD. More than a third correctly identified peripheral arterial disease (315; 41%) and/or heart failure (278; 36%), while a smaller proportion recognised atherosclerosis (232; 30%), brain haemorrhage (22%) and/or aortic aneurysm (21%) as CVD events.

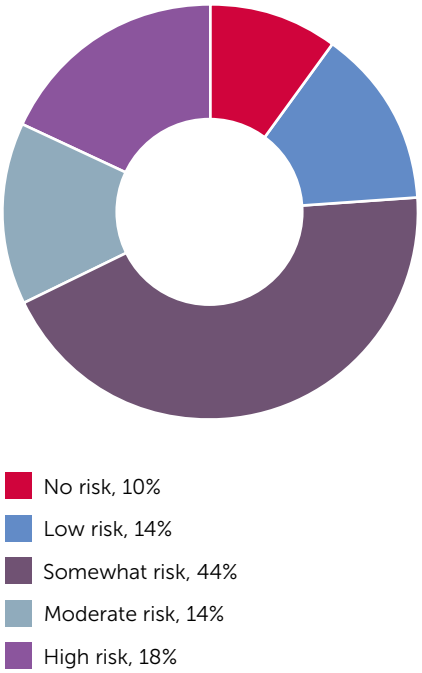
The majority recognised high cholesterol (509; 66%); high blood pressure (499; 64%); overweight or obesity (439; 57%); uncontrolled blood sugar levels (438; 57%); and/or living with diabetes for more than five years (422; 55%) as risk factors for CVD. Almost half were also aware that a diet containing high amounts of saturated and trans fats (359; 46%); smoking (357; 46%); and/or depression (337; 44%) are CVD risk factors.

Awareness of CVD and risk factors

A quarter of respondents (24%) reported that they were either at no risk or low risk of CVD. Nearly a third (32%) assessed their risk level as moderate or high, while 44% described themselves as being somewhat at risk of CVD.

Approximately half reported having at least one CVD risk factor, including living with diabetes for more than five years (446; 58%); high blood pressure (407; 53%); high cholesterol (400; 52%); uncontrolled blood sugar levels (394; 51%); and/or being overweight or obese (378; 49%). More than a third also identified other personal CVD risk factors including following a diet containing high amounts of saturated and trans fats (288; 38%) and/or being aged over 65 (274; 35%). When asked what CVD events they had experienced, 9% selected stroke and an equal proportion indicated that they had had a heart attack.

Figure 70: Self-evaluation of CVD risk – Thailand

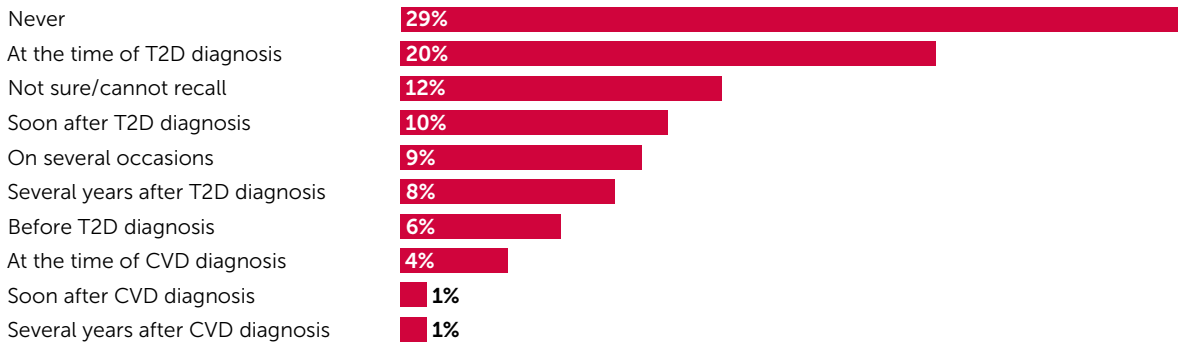


Education about CVD

Forty-one percent of respondents had either never talked about CVD risk factors with a health professional or could not recall such a discussion. More positively, 30% reported that they had had a conversation with a health professional about diabetes and CVD either when they were diagnosed with T2D or soon afterwards. One in ten (9%) had had the conversation on several occasions. A minority (5%) had either discussed T2D and CVD several years after being diagnosed with diabetes, or following their diagnosis with CVD (either soon afterwards, or several years later).

Nearly a third (31%) of participants had discussed diabetes and CVD risk factors with a health professional within the previous six months. A further 6% had done so within the previous year, and another 18% had had such a discussion more than a year previously and/or several years ago.

Figure 71: Discussion(s) with a health professional about T2D and CVD – Thailand



The majority of respondents (751; 97%) were aware that CVD risk could be reduced by adopting a healthy diet and increasing levels of physical exercise, and knew that stress is associated with a higher risk of CVD (686; 89%). Half (428; 55%) thought that diabetes would not increase their risk of CVD.

Most participants (537; 69%) wanted further guidance on diabetes self-management; reported that they needed information on how to reduce their risk of CVD through diet and exercise (476; 61%); and/or expressed a need for education on risk factors associated with developing CVD (474; 61%). Many also expressed a need for general information on the signs and symptoms of CVD (410; 53%) and/or how to control and self-manage hypertension (368; 48%).

Information about CVD

The majority of participants (706; 91%) reported that they relied on health professionals or material displayed at diabetes clinics (428; 55%) for information about CVD. More than a quarter preferred digital options, such as the internet and blogs (211; 27%).

Most respondents were very satisfied with the quality of CVD information provided by health professionals or diabetes clinics. The information sources with the lowest satisfaction ratings were: daily magazines, newspapers, advertisements, local patient organisations and/or other caregivers.

Conclusion

Conclusion

Diabetes poses one of the greatest challenges to healthcare systems worldwide. In 2017 it was estimated that there were 425 million people with diabetes globally, accounting for 10% of the adult population aged between 20 and 79. The number of adults with diabetes is projected to reach 629 million by 2045 (IDF Diabetes Atlas, 2017).

The findings of this research showed that about 10% of participants did not know about CVD and its associated risk factors. Only one in six considered themselves at high risk of CVD, which was surprising given that the majority had at least one CVD risk factor and a large proportion had experienced one or more CVD events.

Heart attack, heart failure and stroke were the most widely reported CVD events among participants. Living with T2D for more than five years; being overweight or obese; high blood pressure; uncontrolled blood sugar levels; and physical inactivity were the most common CVD risk factors. There were surprisingly disparate levels of recognition between the less well-known risk factors (smoking: 10% of participants; diet containing high amounts of saturated and trans fats: 20%) and the most well-known factors (high blood pressure; 78%).

Participants were generally aware of the relationship between stress and CVD, and knew that they could reduce their CVD risk through healthy diet and exercise. However, the role of health professionals remains critical, as many participants were fundamentally unclear about the relationship between diabetes and CVD with regard to the role of age; overweight or obesity; medication; and genetics.

The majority of participants relied on health professionals as a source of information about CVD. It is therefore worrying that about one in six (17%) reported that they had never had a conversation with a health professional about T2D and CVD. Even among those who had discussed the link, only a small proportion did so 'at the time of' or 'soon after' their T2D diagnosis (25% and 13%, respectively).

The vast majority of participants mentioned health professionals as the main source of information on CVD, followed by the information displayed at diabetes clinics. Most were satisfied with the quality of information provided by these sources.

Findings indicated that participants who had had T2D for a shorter time had better knowledge and awareness about CVD and its risk factors. Greater efforts are needed to increase awareness and understanding of CVD among people who have been living with T2D for a longer period of time.

Finally, participants indicated that they needed information about the role of diet and exercise in preventing CVD; diabetes self-management; as well as general information about signs and symptoms of CVD to better understand the association between T2D and CVD in order to prevent it.

Recommendations

1. Increase health promotion activities with a focus on common risk factors for CVD and T2D.

One in ten respondents did not know about CVD and its associated risk factors. Only one in six considered themselves as being at high risk of CVD, although the majority had at least one CVD risk factor and a large proportion had experienced one or more CVD events. National health promotion activities and public health policies targeting people with T2D should include more information on the importance of modifiable risk factors, such as healthy diet, lipid control, physical activity, blood pressure management, and smoking cessation. In addition, intersectoral collaboration is needed to strengthen health systems and implement cost-effective CVD interventions among people with T2D.

2. Inform health professionals about their important role in increasing awareness and knowledge of CVD in people with T2D.

Three in four respondents relied on CVD information from a health professional, yet one in six were unsatisfied or very unsatisfied with this information. Capacity building and training among health professionals, especially in primary care practice, should be routinely organised and guidelines should be implemented for systematic CVD screening and education for people with T2D to promote CVD awareness and knowledge.

3. Implement CVD monitoring systems among people with T2D.

Over nine in ten respondents had one or more CVD risk factors, in addition to having T2D. Appropriate resources should be directed to implementing internationally standardised monitoring systems in national contexts and to developing CVD risk factor surveillance to gather and monitor evidence on the true extent of CVD among people with T2D.


International
Diabetes
Federation
I take
diabetes
to heart

Appendix

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Glossary

Angina	The sensation of chest pain, pressure, or squeezing, caused by an inadequate supply of blood to the heart.
Aortic aneurysm	Enlargement of the aorta to greater than 1.5 times its normal size.
Arrhythmia	Occurs when the electrical impulses that coordinate heartbeats don't work properly, causing the heart to beat too fast, too slow or irregularly.
Atherosclerosis	Narrowing, hardening and thickening of the walls of the arteries.
Blood pressure	A measure of the force of the blood being pushed by the heart through the arteries. Blood pressure is written as two numbers. The higher number (systolic) shows the pressure created by the heart contracting or pumping out the blood. The lower number (diastolic) indicates the pressure when the heart is relaxing between beats.
Brain haemorrhage	A type of stroke caused by an artery in the brain bursting and causing localised bleeding in the surrounding tissues.
Cardiovascular disease	Diseases and injuries of the circulatory system: the heart, the blood vessels of the heart and the system of blood vessels throughout the body.
Cholesterol	A waxy, fat-like substance that is used to form cell membranes and to produce some hormones. When total cholesterol is measured in the blood, it includes cholesterol carried by low-density lipoproteins (LDL) and high-density lipoproteins (HDL).
Diabetes	A condition that arises when the pancreas does not produce enough insulin or when the body cannot effectively use insulin. The three most common forms are: type 1 diabetes, type 2 diabetes, and gestational diabetes.
Health professional	An individual who provides preventive, curative, promotional or rehabilitative healthcare services in a systematic way to people, families or communities.
Heart attack	Also called myocardial infarction. Results from permanent damage to an area of the heart muscle, after the blood supply to the area of the heart is interrupted because of narrowed or blocked blood vessels.
Heart failure	Occurs when damage to the heart muscle is severe enough to prevent it from functioning adequately as a pump.
High-income country	A country defined by the World Bank to have a gross national income *per capita* of USD 12,055 or more in 2018.
Hypertension	Persistently elevated blood pressure.
Insulin	A hormone produced in the pancreas. If blood glucose levels increase, it enables cells to take up glucose from the blood stream and convert it to energy, and the liver to take up glucose from the blood stream and store it as glycogen.
Insulin resistance	A state in which a given level of insulin produces a less-than-expected biological effect.

Low-income country	A country defined by the World Bank to have a gross national income *per capita* of USD 995 or less in 2018.
Lower-middle income country	A country defined by the World Bank to have a gross national income *per capita* of more than USD 996 and less than USD 3,895 in 2018.
Obesity	People are generally considered obese when their body mass index is over 30. A lower threshold is used in some Asian populations.
Peripheral arterial disease	A circulatory problem in which narrowed arteries reduce blood flow to the limbs.
Secondary level education	Second stage of formal education including high school and vocational school.
Stroke	A sudden loss of function in part of the brain as a result of the interruption of its blood supply.
Tertiary level education	Also referred to as third stage, third level, and post-secondary education. It is the educational level following the completion of a school providing a secondary education, such as universities.
Type 2 diabetes	In type 2 diabetes, there is a combination of inadequate production of insulin and an inability of the body to respond fully to insulin (insulin resistance).
Upper-middle income country	A country defined by the World Bank to have a gross national income *per capita* of more than USD 3,896 and less than USD 12,055 in 2018.

Countries of origin of participants

Afghanistan	Côte d'Ivoire	Hungary	Montenegro	Slovakia
Albania	Croatia	Iceland	Morocco	Slovenia
Algeria	Cuba	India	Mozambique	Somalia
Andorra	Cyprus	Indonesia	Myanmar	South Africa
Antigua and Barbuda	Czech Republic	Iraq	Nepal	Spain
Argentina	Democratic Republic of the Congo	Ireland	Netherlands	Sri Lanka
Australia	Denmark	Islamic Republic of Iran	New Zealand	St Kitts and Nevis
Austria	Dominica	Israel	Nicaragua	Suriname
Bahrain	Dominican Republic	Italy	Niger	Sweden
Bangladesh	Ecuador	Jamaica	Nigeria	Switzerland
Barbados	Egypt	Japan	Norway	Syrian Arab Republic
Belgium	El Salvador	Jordan	Pakistan	Taiwan
Belize	Ethiopia	Kazakhstan	Palestine	Thailand
Bolivia	Federated States of Micronesia	Kenya	Panama	Tunisia
Bosnia and Herzegovina	Fiji	Latvia	Paraguay	Turkey
Brazil	Finland	Lebanon	Peru	UK
Brunei Darussalam	France	Libya	Philippines	Ukraine
Bulgaria	Gambia	Luxembourg	Poland	United Arab Emirates
Burundi	Georgia	Macau	Portugal	Uruguay
Cambodia	Germany	Macedonia	Puerto Rico	USA
Cameroon	Ghana	Madagascar	Republic of Korea	Uzbekistan
Canada	Greece	Malaysia	Romania	Venezuela
Cape Verde	Grenada	Maldives	Russia	Vietnam
Chile	Guatemala	Malta	Rwanda	Zambia
China	Haiti	Mauritius	Saudi Arabia	Zimbabwe
Colombia	Honduras	Mexico	Serbia	
Costa Rica	Hong Kong	Mongolia	Singapore	

List of figures

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