**Why do diabetic patients not attend appointments with their dietitian?**

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**Abstract**

**Purpose** Determining the prevalence of and possible reasons for nonattendance of diabetic nutritional care clinics.

**Methods** Data were collected by means of a telephone survey and a review of patient records among 293 (166 attendees and 127 nonattendees) patients undergoing outpatient treatment at a university hospital. The t-tests, chi-square tests and logistic regression analysis were used to identify potential determinants of nonattendance. The theoretical framework was primarily based on the Health Belief Model.

**Results** In univariate analysis, nonattendance at the clinic was associated with a number of factors such as not visiting other care givers, risk perceptions, body-mass index, self-rated health, health locus of control, satisfaction with the dietitian, feelings of obligation to attend, and beliefs about the effectiveness of the treatment. In multivariate analysis only health locus of control and obligation to attend the visit were significant predictors of attendance. A significant number of respondents further reported that they perceived their visits to the dietitian to be of little use.

**Conclusion** One in three diabetic patients undergoing outpatient treatment skipped one or more visits to their dietitian. Patient education to improve attendance should focus primarily on convincing patients that they can contribute to their own health, and may stress the obligation the patients have when making an appointment with the dietitian.

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**Introduction**

Dietary guidelines are an important part of diabetes treatment because diet influences glycemic control, and in turn the occurrence of complications. Furthermore, diabetic patients have an increased risk of cardiovascular disease and it is therefore even more important for these patients to comply with the general guidelines for a healthy diet, and for saturated fat in particular (World Health Organization, 1985; VU Diabetescentrum, 1999; Heine, 1999; Rutten et al., 1999). Consequently, the
dietitian may fulfil a very important role in the treatment and tertiary prevention of diabetes.

In most medical centres in the Netherlands, as well as in other countries, diabetic patients are treated by a multidisciplinary team, which may include expertise from internal medicine, diabetology, diabetes education, psychology, podotheraphy, ophthalmology, clinical chemistry, and dietetics. In the Netherlands, patients who have been diagnosed with diabetes are referred to a dietitian as standard procedure. A new diabetes patient consults with a dietitian at least once during the first year after diagnosis. It is the dietitian who determines the number of return visits needed to familiarize the patient with the dietary advice. This applies to both type 1 and type 2 diabetes patients (Heine, 1999; VU Diabetescentrum, 1999; Rutten et al., 1999; Williamson et al., 2000). In practice, however, an unknown number of diabetic patients cancel or do not show up for their appointment with a dietitian. The fact that patients stay away is certainly not a problem specific to diabetes and dietitians in the Netherlands. The literature shows that other health care professionals and other health institutions also have to deal with this problem (Pekarik, 1992; Simons et al., 1997; Brown et al., 1998; Kloeblen & Batish, 1999; Lagerlund et al., 2000), and the effort to show up simply in terms of time, financial cost, and destination have been suggested as important determinants of attendance (Lorig, 1996). One earlier study conducted in the Netherlands showed that 43% of the diabetic patients had not visited a dietitian in the course of their periodical examination (Simons et al., 1997). In order to encourage attendance among diabetes patients, insight into possible determinants of nonattendance is necessary. The present study aims to investigate the prevalence of nonattendance and possible reasons why diabetes patients stay away from their visits with the dietitian.

Theoretical framework

Many theories have been proposed to investigate determinants of human behaviour. In the present study, the Health Belief Model (HBM) (Rosenstock, 1990) was the theoretical framework. The HBM is one of the main theoretical frameworks in adherence research (Noble, 1998), and has previously been used to investigate dietary compliance and to develop nutrition education interventions (Brownley et al., 1987; Pekarik, 1992; Kloeblen & Batish, 1999; Lagerlund et al., 2000). The HBM posits that preventive behaviour is influenced by perceived vulnerability and severity related to the disease or complications that may be prevented, a weighing of other perceived or expected pros and cons of the preventive behaviour, so-called cues to action, socio-demographic variables (e.g. age, gender), and psychological factors like health locus of control. Different additional factors have been proposed and studied in order to improve the model such as self-efficacy (i.e. the perceived difficulty to perform a certain behaviour; Bandura, 1986), and outcome efficacy (i.e. the belief that a certain action will result in a lower risk; Rogers, 1983). Present day HBM predicts that if a patient believes themselves to be at risk of complications (perceived vulnerability) related to diabetes and believes these complications to be serious (perceived severity), and believes that diet is an important means to avoid these risks (outcome efficacy), the patient will be more likely to consult a dietitian. Furthermore, other advantages and disadvantages of visiting a dietitian may be taken into account, such as the time and trouble to go to a dietitian and the way the dietitian communicates during the consultation. In addition, the patient is more likely to visit a dietitian if they believe that significant others (e.g. partner, family, caretaker or co-patients) expect or even actively encourage the visit. In studying determinants of attendance behaviour, a single theory approach may be too limited (Kok et al., 1996; Bartholomew et al., 2001). It has, therefore, been proposed that existing theoretical frameworks should be enriched if preliminary research indicates potential additional determinants that are not well covered by the theoretical constructs. This preliminary research can be based on reviewing the literature or on (other) qualitative methods (Bartholomew et al., 2001). For the present study, the HBM was extended with factors that were identified as potentially important.
predictors of attendance in a literature study and in qualitative interviews with patients, dietitians, doctors and nurses.

Patients and methods

Research population
The research population consisted of patients suffering from diabetes type 1 and type 2, all of whom were undergoing outpatient diabetic treatment in a university medical centre in the Netherlands. First, all diabetes patients’ records from 1999 and 2000 were analysed on (non) attendance (699). Based on the patient records, two groups of patients were selected (200 patients each) for further study. Attendees were patients who had attended every appointment with the dietitian since diagnosis, whereas the nonattendees were patients who had missed at least one of the follow-up appointments with the dietitian. However, nonattendees had to have an initial appointment with a dietitian after being diagnosed, to be included in the study. Based on the patients’ records, patients suffering from psychiatric problems and who did not speak Dutch were excluded in both groups.

Data collection methods
Qualitative research, consisting of a literature review, interviews with experts (specialists, dietitians, diabetics nurses and internists), and interviews with patients, was conducted to gather information about potential determinants of non-attendance. The literature study was conducted using Psychinfo and Medline databases using combinations of ‘attendance’, ‘compliance’, ‘adherence’, ‘dietitian’ and ‘diabetes’ as keywords. There were 20 interviews with patients (10 with attendees and 10 with nonattendees), 12 interviews with dietitians, three with doctors and two with nurses. Interviews were audiotaped and transcripts were made for content analysis. Based on this information, a questionnaire was constructed that was suitable for telephone administration and that, together with the patient records, covered all variables presented in Table 1.

The telephone survey consisted mostly of questions that could be answered on five-point scales. Two open-ended questions, asking the respondents directly about their reasons for not showing up, completed the survey. Perceived severity of diabetes was assessed with three items asking respondents questions like ‘How serious a disease is diabetes?’, and ‘Do you think that complications of diabetes are a serious health threat?’ Perceived health was assessed with three items (e.g. ‘How do you rate your health?’). Perceived pros and cons of attendance were assessed with four items (e.g. ‘Do you think it is useful to visit the dietitian?; ‘Do you often have to wait before the dietitian is ready to help you?’). Perceived encouragement from others to attend was assessed with three items (e.g. ‘Does your doctor encourage you to visit the dietitian?’). Satisfaction with the dietetic care was assessed with seven items (e.g. ‘Is your dietary advice well tailored to your personal dietary habits?’; ‘Does the dietitian listen well to what you tell her?’). Perceived vulnerability (‘How likely is it that you personally will have complications because of your diabetes?’), perceived outcome efficacy (‘How effective do you think keeping to your diet is in controlling your blood sugar?’), perceived encouragement from family and friends, general health locus of control, diabetes health locus of control, perceived obligation to attend the visit, perceived difficulty to attend the visit, and perceived importance of health were each assessed with one item.

Data analysis
Differences in relevant variables between attendees and nonattendees were analysed in two steps. First, univariate analyses were conducted. Two-sided t-tests were used to study significant differences in continuous variables (e.g. age, BMI) and \( \chi^2 \)-tests were used for nominal and ordinal variables (e.g. marital status, social class). Secondly, a multiple logistic regression analysis was conducted, with attendance as the dependent variable and all variables that were significantly associated with attendance in the univariate analyses as independent variables, to detect the most important potential determinants of attendance. Further, based on the
answers to the open questions, an inventory was made of the most frequently mentioned reasons for nonattendance, and of suggestions for improvement of the consultation with the dietitian.

Results

Of the total group of 699 patients from the years 1999 and 2000, the total percentage of non-attending patients was 36% (n = 241). From the nonattendees 19% (n = 45) never visited a dietitian (in 1999 and 2000); 55% (n = 133) had failed to show up for one scheduled visit; and 26% (n = 63) had failed to attend more than once.

Response and respondents

Twenty-seven percentage of the selected research population (200 attendance and 200 nonattendance patients) were not available, not willing, or not capable of co-operating with the interview. Non-response was higher among nonattendees, resulting in a study population of 166 attendees and 127 nonattendees. However, no evidence for a selection bias was found since, based on the patients records, responders and nonresponders were not significantly different in age, sex, and diabetes type.

The study population consisted of 64% diabetes type two patients; 42% were male. Of the patients, 45% used insulin, 24% used blood glucose reducing oral medication, 16% used both insulin and oral medication. Only two patients made use of the pump therapy, and another two patients reported to use only the diet to control the disease. The average age of the patients was 48.4 years (SD = 15.7; range 15–90 years). Furthermore, they had a mean HbA1c of 8.3% (SD = 1.6) and a mean BMI of 28.9 (SD = 5.9) kg m$^{-2}$.

Difference between attending and nonattending patients

The univariate analyses showed that nonattendees were more likely to not show up at visits with their
physicians ($\chi^2 = 16.9, \text{d.f.} = 1, P < 0.001$) as well as with the diabetes nurse ($\chi^2 = 54.0, \text{d.f.} = 1, P < 0.001$) than attendees. Neither marital state, social class, level of education, nor sex was significantly associated with attendance. However, there was some indication that country of origin ($\chi^2 = 12.7, \text{d.f.} = 7, P = 0.8$) and the type of diabetes ($\chi^2 = 3.0, \text{d.f.} = 1, P = 0.08$) were associated with attendance: patients of Surinam and Moroccan origin, two of the most common ethnic minorities in the Netherlands, and patients with type 1 diabetes were less likely to attend. Mean BMI was higher among nonattendees ($29.7 \pm 6.3$; $t = 1.9, \text{d.f.} = 277, P < 0.05$).

Six of the 13 psychosocial variables that were studied as potential determinants of attendance were indeed significantly associated with attendance. Nonattendees reported lower risk perceptions related to their diabetes ($t = 3.0, \text{d.f.} = 289, P < 0.05$), were less satisfied about their visit to the dietitians ($t = -2.0, \text{d.f.} = 274, P < 0.05$), and had higher perceived difficulties related to visiting the dietitian ($t = 3.6, \text{d.f.} = 290, P < 0.01$). Nonattendees were less convinced that they were able to influence their health in general (general health locus of control; $t = -2.8, \text{d.f.} = 287, P < 0.01$) as well as their diabetes in particular (diabetes health locus of control; $t = -2.8, \text{d.f.} = 287, P < 0.01$). Further, nonattendees perceived less obligation to show up at the appointment with the dietitian ($t = -4.8, \text{d.f.} = 290, P < 0.001$). Finally, nonattendees perceived the outcome efficacy of the dietary advice to be lower ($t = 2.2, \text{d.f.} = 290, P < 0.05$).

The logistic regression analysis showed that general health locus of control (odds ratio 2.08; $P < 0.01$) and feelings of obligation to keep the appointment with the dietitian (odds ratio 1.37; $P < 0.1$) were the only significant predictors of nonattendance in multivariate analysis.

The reasons patients reported for not showing up

In total, 73% of the patients acknowledged that they hesitated or were reluctant to visit their dietitian. Fifty-one respondents gave a reason why they were hesitant to visit their dietitian (Table 2).

### Table 2 An inventory of answers to the open question about why respondents were (sometimes) reluctant to visit a dietitian

<table>
<thead>
<tr>
<th>Frequency of answer</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight did not change</td>
<td>22</td>
</tr>
<tr>
<td>Dietary advice (from a dietitian) does not work</td>
<td>6</td>
</tr>
<tr>
<td>Distance to the diabetes centre</td>
<td>4</td>
</tr>
<tr>
<td>Too big a hassle</td>
<td>4</td>
</tr>
<tr>
<td>I do not want to be treated like a child</td>
<td>3</td>
</tr>
<tr>
<td>Blood sugar is too high</td>
<td>3</td>
</tr>
<tr>
<td>I know everything the dietitian tells me</td>
<td>3</td>
</tr>
<tr>
<td>I get a different dietitian at each visit</td>
<td>2</td>
</tr>
<tr>
<td>The dietitian wants me to make too many changes</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
</tr>
</tbody>
</table>

The range in number of reasons given was 0–3. A stable body weight was the reason reported most often; a stable body weight may have been perceived as an indication of a good diet. Doubts about the usefulness of dietary advice were also mentioned quite often. Ninety-four respondents gave a specific reason for not showing up at the appointment with their dietitian. Simply forgetting the appointment was the most prevalent reason (Table 3).

### Table 3 Inventory of answers to the open question about reasons for missing an appointment with the dietitian

<table>
<thead>
<tr>
<th>Frequency of answer</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I forgot</td>
<td>41</td>
</tr>
<tr>
<td>I came the wrong days</td>
<td>11</td>
</tr>
<tr>
<td>A dietitian can tell me nothing new</td>
<td>11</td>
</tr>
<tr>
<td>I do not know why</td>
<td>6</td>
</tr>
<tr>
<td>I was away [on a (business) trip]</td>
<td>5</td>
</tr>
<tr>
<td>I changed to another dietitian</td>
<td>3</td>
</tr>
<tr>
<td>I overslept</td>
<td>3</td>
</tr>
<tr>
<td>I had no time</td>
<td>3</td>
</tr>
<tr>
<td>My weight did not change</td>
<td>2</td>
</tr>
<tr>
<td>The dietary advice does not work</td>
<td>2</td>
</tr>
<tr>
<td>A visit to the dietitian is least important when I visit the hospital</td>
<td>2</td>
</tr>
<tr>
<td>Other reasons</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
</tr>
</tbody>
</table>

Suggestions for improving visits with the dietitian

Overall, 26% of the participants gave suggestions for improving visits with dietitians. The most
frequently suggested improvement was to provide more new information during the consultation. Another suggestion was to better co-ordinate the patients’ appointments with other specialists. Furthermore, patients (particularly those from cultural minority groups) suggested tailoring the dietary advice more to the personal (culturally relevant) diet.

Discussion

The present study indicated that many diabetes patients do not (always) attend the scheduled visits with a dietitian. Some more insight was achieved in possible determinants of nonattendance; in particular, convincing patients that they can indeed contribute to their own health and that it is impolite to not show up at a scheduled visit may improve attendance. However, the qualitative data from the present study suggest that many patients have doubts about the usefulness of the dietary advice and think that they do not hear much new information during the visits. May be the most striking result is that many nonattendees reported to have simply forgotten their visit, which is an indication that visiting their dietitian is not high on their list of priorities. Diabetes is a disease in which self-management, including diet can and will make a difference. Therefore, educating patients about their ability to improve or longer maintain their health by dietary change should be made a priority. The present study indicates that in order to do that an improvement in dietary advice is necessary.

The present study used a very strict definition of nonattendance: missing one visit with the dietitian. It could be that a different criterion for classifying patients as nonattendees would have resulted in other significant correlates of nonattendance. We argued, however, that because of the limited number of scheduled visits, attending all of these visits should be standard procedure for patients with diabetes given the importance of diet in diabetes management. The fact that many respondents reported to see little use in visiting their dietitian and further reported to hear little news during these visits illustrates that many patients are unmotivated to attend the visits. It may further indicate that many patients have higher expectations for their visits than the dietitian can deliver. The patients answered that they usually already knew what the dietitian would be telling them. In particular, patients who had suffered from diabetes for a longer period of time did not find the consultations to be beneficial. Very often they reported that they had heard the same information elsewhere (from other dietitians, health care professionals, etc.) or at previous consultations. The failure to recognize the benefit of nutritional counselling may be because of the patients’ overestimation of their own knowledge and adequacy of their eating habits (Lagerlund et al., 2000; Williamson et al., 2000). However, it certainly shows that dietitians may need to use different techniques and approaches to address their clients.

Dietary advice for diabetes patients is indeed rarely more than just advice. However, for people to change their behaviour, especially a complicated and social behaviour like diet and nutrition, advice on why and what to change is often not enough. For one thing, the impact of dietary advice will not only depend on the quality of the advice but also, and maybe even more so, on the motivation of the patient. Furthermore, dietary advice for diabetes patients should (eventually) result in self-management, and should therefore be aimed at increasing skills and self-efficacy related to keeping the diet. Nowadays behaviour change is not longer regarded as a one-step process from unhealthy to healthy behaviour, but as a process in which a number of distinctive stages can be recognized. A large number of publications on the so-called Transtheoretical model and its stages of change concept have encouraged dissemination of this insight (Prochaska et al., 1992). The Transtheoretical model distinguished five stages of change. People may be in precontemplation (no motivation to change within the next 6 months), in contemplation (intention to change within 6 months but no plans to change within the next 30 days), preparation (plans to change within the next 30 days), action (trying to realize their plans to change), and maintenance (having maintained behaviour change for at least
6 months). The most important implication of stages of change is that people in different stages need different interventions to help them proceed to the next stage. For example, people in precontemplation need information and arguments to make them aware of a need to change and to convince them that the pros of change outweigh the cons. People in contemplation and preparation need information and instructions on what to change and on how to change, tailored to their personal dietary habits and social circumstances, as well as confidence improving interventions to boost their self-efficacy related to the desired behaviour change. To date, Dutch dietitians are in most cases well trained to give people expert advice on what to change, but less so to give advice on how to accomplish these changes. They have little training on how to improve motivation and self-efficacy in order to help their patients in dietary self-management. Dietitians may need to be trained in counselling techniques [for example the health counselling protocol (Brug et al., in press) or motivational interviewing (Shinitzky & Kub, 2001)] in order to improve their consultations with diabetes patients, to increase patient satisfaction, and to be better equipped to help their patients reach lasting dietary change.

The present study was based on telephone surveys among diabetes patients. Telephone surveys are a good way to collect quantitative data among larger study populations, but are limited in time and therefore in the extensiveness of the questionnaire. This limits the specificity and amount of questions. Further research to identify more detailed information about enabling factors and barriers to visit the dietitian should perhaps include face-to-face interviewing soon after a visit that was not attended.

References


