Interaction Between Patients With Type 2 Diabetes And Diabetes Nurse Specialists During Annual Check-Ups: A Study Using Video Recordings

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Citation


Abstract

Background:
Patients with Type 2 diabetes are involved in lifelong treatment through annual diabetes check-up. Diabetes nurse specialists are in charge of these appointments which are meant to promote patient’s health, diabetes control as well as the recommended physical examination. Communication during the annual diabetes check-up depends on each party’s agenda or goals. The interaction structure during the annual check-ups by diabetes nurse specialists is rarely studied, though it is important for patients understanding.

Objective:
The aim of this study was to explain how the interaction was initiated and performed during the physical examination in annual diabetes check-ups.

Methods: Applied conversation analysis was used in 20 video observations to describe verbal and non-verbal interaction between patients with type 2 diabetes and diabetes nurse specialists during the annual diabetes check-ups.

Findings:
Annual check-ups consisted of five phases: opening, health history, physical examination, conclusion and closing. Patients were generally the main actors. By recounting their health history they were able to set the agenda. The pattern changed to more passive participation during the physical examination which required mutual cooperation in order to create reliable outcomes. The informative value of check-ups varied depending on, the patients’ problems and the type of examination used, among other things.

Practical implications:
First professionals must be aware that routines of instruction to patients during physical examination procedures have an influence on patients’ understanding of measurement outcomes. Second, professionals should understand that even when there is no problems there can still be a subject for discussion about self-management. Third professionals need to be prepared to cope with embarrassing examination routines in order to enhance informative value.

BACKGROUND

Patients with type 2 diabetes mellitus (T2DM) have a chronic metabolic disorder linked to a range of complications such as vascular and nervous system disorders. Prevention of complications requires lifelong treatment for which patients undergo annual check-ups. In Sweden, diabetes nurse specialists (DNSs) are in charge of comprehensive diabetes examination including screening of peripheral neuropathy and peripheral circulation disorder, vision control, recommendation of diabetic tablets or insulin therapy, stabilizing diabetes control, together with follow-up self-management and diabetes education during the annual diabetes check-ups. This study focused on the interaction between patients with T2DM and DNSs during the annual diabetes check-ups in two health care centres in Sweden. The interaction consists of a talk defined by the diabetes nurse-led clinics. The institutional talk takes place in the particular context involved in the diabetes check-ups with the interaction restricted to the business at hand. Healthcare professionals tend to develop standard routines for managing tasks in institutional encounters with patients risking being exposed to good or bad experiences during annual check-
This conversational asymmetry may threaten patient involvement. The quality of diabetes care also differs depending on where the patient lives in Sweden. For instance some patients with T2DM have a 3 times higher risk of having a foot amputated in some areas of Sweden. According to the Swedish National Diabetes Registry (NDR) only about half of diabetes patients with T2DM achieve the desired diabetes treatment goals. A retrospective study of patients with Type 1 and Type 2 diabetes revealed a growing gap between goals of treatment and the number of patients who achieved these goals. Furthermore, patients have been found not to follow advice from professionals, and not being able to control or manage diabetes can result in guilt and anxiety. Managing diabetes is not easy, and often patients have to make their own decisions and choices for self-management. During annual check-ups, the DNSs may choose to use or not use supporting theories or interaction models during their interaction with the patients. A significant challenge during the annual diabetes check-up is the task of promoting patients’ general health and control diabetes in ways that address the perspectives and agendas of both the DNSs and patients. An investigation of actions and activity between patient and DNS is one way to describe the context of diabetes check-ups. The aim of this study was to explain how the interaction was initiated and performed during the physical examination in annual diabetes check-ups.

METHODS

Twenty T2DM were videotaped during the annual diabetes check-ups. Applied conversation analysis was used to describe “talk-in-interaction”. This method is used in the study of management of talk and activity. Speakers display in their sequential and next turns an understanding of what the prior turn was about. This implies a detailed turn by turn consideration of the participants talk in interaction that are sequentially developed aspects of the activity made step by step over time. Various sequences could highlight verbal and non-verbal interaction to help build an overall map of different phases of the check-ups.

SETTINGS

The study was carried out in two diabetes nurse-led clinics in Sweden, with assistance of a DNS in each clinic. The two clinics respectively serve approximately 500 and 700 patients with T2DM. Computerized patient records were used by the DNS at the clinics. Consultation rooms were equipped with different items; for example, brochures, instructional materials and blood glucose meters, adapted to the tasks of the DNS. In one of the two clinics, the physical examination took place in a separate room. The consultation was performed at least once a year following the Swedish diabetes guidelines. Data specifically needed for the National Diabetes Registry (monitor medical quality and complications and medical of care) was obtained by the DNSs. The responsibility of DNS during the annual diabetes check-ups involve for example, changing diabetes treatment or educating and encouraging patient participation in his/her diabetes management. The DNSs at the two clinics worked full time and each had 14 years of experience as DNSs.

PARTICIPANTS

Twenty patients with type 2 diabetes who had experience of check-ups earlier by the same DNS (Table 2) were purposefully sampled from the waiting list during a period of six months in 2003 using both inclusion and exclusion criteria to achieve variation. Inclusion criteria were patients with at least three months duration of type 2 diabetes; minimum age 30 years; metabolic control followed by HbA1c > 5.3 % (the value referred to Swedish Mono-S method, which differs from Diabetes Control and Complications Trial (DCCT) standard in having about 1% lower value). The exclusion criteria included patients who did not speak Swedish. The Ethics Committee at the University of Gothenburg approved the study.
**Figure 2**

Table 2. Clinical Characteristics of Patients at the Annual Check-ups

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Clinic A</th>
<th>Clinic B</th>
<th>n</th>
<th>Range</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuity with same DNS</td>
<td>12</td>
<td>5-5</td>
<td>20</td>
<td>0.3-14 years</td>
<td>11 years</td>
</tr>
<tr>
<td>Annual diabetes check-ups (time from start to end)</td>
<td>26-48 minutes</td>
<td>26-53 minutes</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycemic control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HbA1c (%)</td>
<td>6.2%</td>
<td>6.5%</td>
<td>20</td>
<td>5.1-8.1</td>
<td>6.3%</td>
</tr>
<tr>
<td>Physical examination time</td>
<td>4-16 minutes</td>
<td>*5-21 minutes</td>
<td>*19</td>
<td>11 minutes</td>
<td></td>
</tr>
<tr>
<td>Feet inspected</td>
<td>10</td>
<td>9</td>
<td>*19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure (feet and arm)</td>
<td>10</td>
<td>9</td>
<td>*19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hip/Waist ratio measured (yes/No)</td>
<td>yes</td>
<td>No</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse (feet and arm)</td>
<td>10</td>
<td>9</td>
<td>*19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doppler (Yes/No)</td>
<td>Yes</td>
<td>†Yes</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monofilament (Yes/No)</td>
<td>No</td>
<td>Yes</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuning fork (Yes/No)</td>
<td>No</td>
<td>Yes</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biothesiometer (Yes/No)</td>
<td>Yes</td>
<td>No</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication regimen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined insulin &amp; oral medication</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulin only</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral medication only</td>
<td>3</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The patient with a diabetes history of 0.3 years was followed-up six times, and physical examination performed during the last visit. †DNS determines when Doppler examination was justified. The Biothesiometer (Biomedical, Newbury) is a hand-held device with a vibration button connected by an electrical cord to a base unit which contains a linear scale that displays the applied voltage, ranging from 0-50 V.

**PROCEDURE**

A pilot study involving six video recordings of the patient-DNS routine check-up was carried out in order to familiarise the researchers with the method. (These videos were not included in the study). Patients were asked about the check-ups afterwards. None of them indicated that the camera was disruptive; the diabetes check-ups were considered as being “the usual”. The DNSs stressed that training reduced the unsettling feeling of being filmed. Access to only one camera meant some compromises in the video-recording. The camera was placed on a tripod with the lens directed at the area normally used for consultation and physical examination. Camera placement was marked on the floor at these two locations.

Data for this study was collected in 2003-2004. The DNSs at the two clinics were given verbal and written information about the study and were willing to participate. They contacted patients on the waiting list and asked whether they would be willing to be contacted by the researcher. The first author then informed potential volunteers about the study by telephone. An information letter pointing out that they had rights to end participation in the study at any time without consequences for their care was thereafter sent to the patients. The patients were informed that the research project involved video-recording and participation in interviews before and after the DNS check-up. Sample patients were contacted and all were willing to participate in the study.

**ANALYSIS OF VIDEO SEQUENCES**

The analysis began with transcriptions of video-sequences writing down verbatim what was said by each party. In the analysis, Gail Jefferson transcription symbols were used (see Table 3).
Examination of the structure of the patient and DNS interaction revealed that annual physical examinations were constructed of checking in sequence, step by step. The physical examination, the phase these researchers chose to explore, forms a central part of a DNS’s routine tasks, but for the patient, the exam is an annual procedure. The DNS’s assessment and the patient’s presentation of their own body symbolised cooperation in a situation where asymmetry in participation and knowledge existed between patient and DNS at the physical examination.

The studies were analysed using the applied conversation analysis method, that involves concentration on naturally-occurring data and can demonstrate how institutional settings are formed in interaction. The ways the participants announce and make visible that kind of interaction are the main focus of the analysis. The program Transana 2.30 was used to show the way the annual diabetes check-up process was enacted. In the first step of the analysis, video data were studied consecutively in its entirety. The analysis revealed global structures (phases), and micro structures each time a participant talked. Sequences were repeatedly examined and attention was paid to what constituted action and activity as exemplified by the data shown in the analysis. The second step involved examinations of these actions in the context of the utterance which demonstrated how the participants understood the utterance, often by inspecting subsequent talk. The third step dealt with giving an explanation of how a particular practice (i.e. an utterance or conduct) results in a particular action.

The fourth step dealt with the sequences of interaction formed by the micro structures each time a participant talked. These excerpts of micro structures, described and explained in detail, were re-analysed.

**FINDINGS**

**OVERALL CONTEXT OF THE PHYSICAL EXAMINATION**

The patients’ and DNSs’ verbal and non-verbal interaction in annual diabetes check-ups was a process consisting of five phases: opening, health history, physical examination, conclusion and closing. The opening phase accommodated participants’ known earlier level of activity. DNSs brought the patients from the waiting room and invited the patients in and offered them a seat in the corner of DNS’s desk. The computer was on; documents were lying on the desk. The patients might have brought their self-monitoring equipment. They mostly smiled and made inquiries or comments of a social nature, which constituted the opening of the check-up and was one way of beginning an interaction. Patients and DNSs seemed prepared to introduce a common ground for the meeting when the DNSs used words like “now we will see how you are doing” or formulated a direct question “how do you feel today?” or “how have things been since your last visit?” Patients responded by giving their history of present illness while the DNS listened supportively. Patients’ active participation described, for example, moods, concerns, problems or perceptions of “wellbeing”. DNSs used personalized questions in conversation with the patients to get a picture of the patients’ every day life. They listened to the patient’s history about self monitoring of blood glucose, medical treatment, diet, exercise and habits. Cooperation in checking these items revealed individuals’ risk behaviours such as the use of old test sticks, non-calibrated blood glucose meters, needles, medical treatment and improper diet. Checking these items could also jog patients’ memories to disclose specific problems or requests to try new treatment or aids. In this way, patients and DNSs exchanged information, reflecting the clinical goals and sharing mutual knowledge including treatment options. In addition, agreements were made regarding efforts to secure the patient’s diabetes control, health and life.

DNSs then performed an annual physical examination and organized work in a technical way using an implicit scheme: inspection of feet; checking for sensation; checking circulation in feet and arms and waist measurement. During examination, patients were transformed into an object for inspection. They cooperated by moving their body into position to facilitate different examinations and following the DNS’s instructions. The conclusion of this phase was oriented towards an agreement on efforts and goals related to maintenance of health and diabetes control. Finally the DNS or the patient went over a summary of agreements, and the DNS did some administrative tasks and confirmed the next appointment. These actions concluded the check-up.

**CHANGES IN ACTIVITY AND INITIATIVE AT THE ANNUAL PHYSICAL EXAMINATION**

Structures of interaction at the physical examination changed from active to passive. A change in the examination phase was also associated with a change in examination location to another room. The DNS asked the patient if there was anything important they wanted to discuss before leaving the counselling room. The DNS might say: “Before we go in..."
and check your feet and blood pressure, is there anything that you think we should discuss, anything important?, or: “Do you have any other questions?” Patients mostly answered in the negative since they had already discussed a number of different topics, although on some occasions new topics could develop.

The DNS sometimes initiated the physical examination without asking for the patient’s thoughts, usually when the main topics had been negotiated and exhausted. In the example below, the patient and DNS had discussed various different topics over the past 15 minutes. The structure shows the process of negotiation of a change in insulin treatment. The patient and DNS seemed to be in agreement, and the sequence ends.

**Figure 4**
Excerpt 1.

The DNS looked up, leaned towards the patient and told him about her intention to begin the physical examination. The patient accepted without delay, nodded and initiated small talk. He moved his body into position in preparation for the physical examination.

When the DNSs initiated physical examination, the patients were mainly lying silently on the bed. DNSs stood or sat down on a stool in front of the patient’s feet, and began to examine them. They used the hands to follow a procedure of investigation of the skin between the toes in each foot. The DNSs often asked “have you had any problems with your feet? “ if earlier discussion had indicated foot problems. The question could be answered in the affirmative or otherwise, but the patients were at least given the opportunity of discussing symptoms. During examination of the patient’s feet, the DNS would say, for example, “the skin on your feet is a little dry”. This observation indicates possible problems and initiated further questions about the patient’s self care, thus enabling the patient to participate. Patients could then explain their experiences as a one-off situation or an ongoing problem. DNSs used such information and proposed self-care regimes for patients’ feet. Information given was adapted to the individual’s health risks for example, smoking or current medical treatment. Patients made use of this information by stating personal views on what could or could not be improved. DNSs could also look at the patients’ feet and express an opinion, for example: “they look fine”, without asking about their foot care regime. In these situations, patients rarely described their foot care regime without getting the DNS’s advice or information.

Patients were able to remain active participants in the examination process by communicating problems, in keeping with the DNS’s annual agenda. In the following excerpt, the last topic seemed to be exhausted and the sequence was ended. The DNS then asked if they could begin the physical examination, but the patient did not take off her shoes or initiate small talk.

**Figure 5**
Excerpt 2.
The social norm, where patients accept the invitation to begin the physical examination, was ignored by this patient who, having a problem, preferred to invite the DNS as an expert. The DNS showed the willingness to co-operate. The patient got an opportunity to talk and introduced the problem, mentioning general rights for the diabetes patients’ access to podiatric resources. The DNS affirmed these rights and offered inspection.

**Figure 7**
Excerpt 3.

<table>
<thead>
<tr>
<th>DSN:</th>
<th>Let’s see, what did you say was wrong with your foot?</th>
</tr>
</thead>
<tbody>
<tr>
<td>P:</td>
<td>It’s painful,</td>
</tr>
<tr>
<td></td>
<td>(lifts head, raises one hand and points towards the foot)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSN:</th>
<th>(holds the foot with both hands and feels both the inside and outside)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P:</td>
<td>(lifts up, points towards the foot)</td>
</tr>
</tbody>
</table>

The DNS began cooperating with the patient on the problem asking the patient for thoughts and giving room to discuss those concerns. The DNS listened, responded and made proposals which could be accepted or rejected by the patient. The patient told the DNS what was usually done in such situations. This negotiation and checking continued for five minutes until an agreement was made on the plan of action. The patient then agreed to the annual physical examination and lay down.

**MUTUAL DEPENDENCE TO REACH DESIRED OUTCOMES**

Regardless of the method used to check the condition of the patients’ feet, cooperation is important. DNSs used different instruments to estimate peripheral nerve function (Table 2). The method of cooperation with patients was determined by examination routines at the two clinics. In the example below (excerpt 4) sensory function was determined using the Biothesiometer at one clinic (Clinic A).
The DNS informed the patient what was about to be done, what the patient was expected to feel, and how to assist in the procedure. The patient cooperated quietly, indicating when vibration was felt. The DNS made an assessment, sensation being good in this instance, and continued with pulse palpation.

Measurement of sensory function was based on two different tests at the other clinic (Clinic B) (Table 2). Compared to the DNS who used only one instrument the use of two tests was introduced in a slightly different fashion. The DNS explained and demonstrated the differences between the tests. In this example, the primary test was the tuning fork to establish whether or not the patient had problems feeling vibration when the DNS began testing with the monofilament (MF) test.

During this examination the patient was sometimes silent or indicated feeling of some sensation, and the DNS repeated the test. This cooperation demonstrated mutual understanding. By requesting confirmation of sensation, the patient and DNS was assured of a reliable outcome of the test. The DNS had information on the patient’s sensory function, but did not provide the usual assessment. The patient could have asked for an assessment, but instead began to discuss symptoms, and showed awareness of sensory function. The DNS was supportive and answered the patient’s questions and continued with blood pressure measurement. DNS preferred to talk more after the measurement and the patient accepted that.

Afterwards, the patient and the DNS sat next to each other on the bed and appeared prepared for a talk. The DNS looked towards the patient talking in a calming manner and began to inform the patient of the symptoms and the results of the examination, which was an explanation of the seriousness of the problem. The patient nodded gravely and looked down at the floor, repeating “hmm...”. The situation allowed the DNS to talk, and with the patient’s acceptance of the assessment, the DNS continued to explain.
In such situations, where the disease has progressed, the DNS used signs and symptoms, measurement instruments and professional knowledge when explaining the results of the assessment. When stressing important preventive action, verbal and nonverbal communication was used to explain how patients could, for example, treat dermal tearing between the toes or why they should use good shoes and socks. DNS also gave advice on ongoing foot care.

The DNS’s assessments were generally accepted by patients, but in this example (excerpt 6) the patient questioned the extent of the impaired sensory function. The patient had informed the DNS the perception of an earlier foot problem that had improved. The investigation of sensory function was then completed, based on the outcome of Biothesiometer testing (Table 1).

**Figure 11**

**Excerpt 6**

```plaintext
DNS: Your sensory function is a little impaired so I’ll have to turn up the maximum before you feel anything, but you’ve been like this before.

P: <This patient> she always tests the sensory function in my feet as well :=

DNS: Hmm:=

P: She thinks it’s good:

DNS: She thinks it’s good, yes? you can test it in different ways:=

P: Yes (8) I think she has (8) one of these :=

DNS: Tuning fork=

P: Yes :=that’s right:=

DNS: Yes := I have a small plastic stick here, do you feel anything when I put it on your big toe? Do you feel anything there? :=

P: Yes := I can feel that it’s there:=

DNS: That’s it; it’s a little harder with vibration:=

P: Yes, yes=

DNS: := Yes, you can feel the touch= (standing at the feet, puts instrument aside)

P: := yes ha=

DNS: you can sense touch (8) but <a little harder with vibration> well I’m going to take your blood pressure and see how your circulation is
```

The DNS informed the patient of the findings on sensory function, detailing the assessment compared with previous outcomes, and then paused. The patient remained silent, allowing the DNS to continue. The patient then broke the long silence in order to obtain clarification of his sensory function. The DNS interrupted the assessment, and referring to the patient’s prior statement stressed the professional ability to perform the investigation. The patient approved.

The DNS then introduced another instrument which was not usually used that might clarify the finding of instruments used earlier in the assessment. The DNS used this instrument twice and was able to confirm the patient’s ability to feel touch but not vibration.

The patient and the DNS did not discuss sensory function later and there was no clarification as to whether they were in agreement on this subject, or if the patient was still confused about it.

**PROCEDURES CARRIED OUT ROUTINELY OR OUT OF NECESSITY**

Patients’ peripheral vascular function was estimated by pulse palpation or through use of a Doppler instrument (Table 1). In the first case, the DNS would sometimes make assessments individually and determine if Doppler examination was justified or, as in the following excerpt (excerpt 7), would quantify the extent of arterial obstruction by measuring blood-pressure in the lower limb. Blood-pressure was measured with a sphygmomanometer with the cuff placed on the patient’s right foot and arm. Patient verbal consent was not required to perform Doppler measurements. Patients generally did not request measurement procedures, but might do so as in the following excerpt.

**Figure 12**

Figure 3. A Doppler examination started 17 minutes after the meeting began.
The examination began as a routine procedure and was done in silence. The DNS only informed the patient when shifting from foot to arm. The patient cooperated in silence. Measurements ended after four minutes. The DNS informed the patient of the values found and made an assessment. The patient did not respond, but instead asked about the investigation procedure. The DNS responded by explaining the procedure, and the patient indicated understanding. A Doppler was used when justified to the DNS who then informed, revealed and explained the signs, symptoms and outcomes to the patient.

One DNS conducted waist and hip measurement (excerpt 8), beginning the examination procedure with the participants standing opposite each other. There were jokes and laughter at the patients’ unspoken resistance.

Before putting the measuring tape around the patient’s stomach the DNS might say “I’ll measure around your stomach, too”. The DNS took the measurements quickly and wrote down the result, then accepted the patient’s request to put on shoes thus ending the physical examination. The DNS followed the annual assessment agenda without informing the patient about the aim of the measurement. Nor did the DNS give the patient the numerical value or talk about the assessment results. Self-aware patients could feel embarrassed, especially when the numerical value was large. The DNS might anticipate this reaction and sometimes showed respect for the patient by employing a comforting communication strategy: “We’ll take it again”. The DNS used verbal and nonverbal communication to indicate that the measurement routine was over, thus ending the sequence.

Patients could ask, but in this situation they abstained or expressed regret for being either obese or underweight if the value was too high or too low. The DNS avoided further discussion; but noted that the goal had not yet been reached. Whether there was measurement or not, the patients talked about weight, physical activity, risks, goals or lifestyle as demonstrated at other occasions in video sequences.

**DISCUSSION**

Overall this video-analysis of patient-DNS interaction in the physical examination suggests that patients are prepared for their annual check-up. In recounting their health history, the patients spontaneously discussed their thoughts, concerns or sense of wellbeing in relation to health and diabetes. Cooperation between patient and DNS was formed by the patients’ perceptions and perspectives. Patients’ perceptions and perspectives were acknowledged by the DNS during
assessments. In this way, understanding of health and diabetes in particular was promoted in an interactive process. Patients and DNSs made a mutual assessment process by sharing knowledge, expertise and individualized goals and agendas. Both patients and DNSs demonstrated responsibility for agreements, and treatment options were shared. Findings from this study are similar to those by Bergstrand,30 who defined understanding of health through interactive discussions, and Karhila,39 who showed that the participants constructed solutions to problems together by mutually recognising what needed to be solved. On the other hand Draw and Heritage3 noted that frequently in institutional interaction, the lay person had little opportunity to take the initiative, depending on the question-answer pattern at hand. In this study patients had the opportunity to be main actors even in the physical examination, thus demonstrating that the concerns of the patients were in focus. Patient participation differs from the study by Heath that showed that the physicians’ medical agenda restricted the opportunity for the patients to explain their everyday life.30 However, patients participation became more passive in the annual physical examination especially the foot inspection. Depending on patient cooperation, the DNS asked patients whether they had any feet problems, and mostly the patients answered in the negative. In a situation where there were no problems, the DNS could simply inform the patient of the assessment findings and continue. If however the patients did not respond to the assessment it was difficult to continue. In this situation, the DNS would not know whether the patient’s knowledge of self-management was inappropriate or not. On the other hand, with patients being in the resting position and remaining in silence, the DNS was free to carry out the examination. The video data indicated that DNSs could be restricted in time thus limiting the opportunity for DNS-patient discussion. In general, discussions on interventions or self management took place only when problems existed. In such cases education became an integral part of the examination process.31 Heath30 stressed that “patients become the subject of clinical procedures and practice” (pp 193) when transformed into an object. According to this study, patients adapted their bodies, thus allowing the DNS to carry out clinical examination routines in an orderly fashion. However, communicating with patients required skilled cooperation from the DNS, which was particularly important in investigating sensory function. DNSs asked if patients remembered the examination procedures; confirmed and instructed them in what to do. In one clinic, though, the DNS also illustrated to patients the sensation caused by test instruments by demonstrating first on the patients’ hands. This routine gave opportunity for patients to understand the expected outcomes of examination by using their own body as a resource.

Further explanations of the reasons for assessment were routinely made when outcomes appeared abnormal. DNSs and patients often used their knowledge to reach a mutual agreement. This compares with Heath,32 who argues after investigating physical examination that physicians’ sometimes undermined patient participation by moving on to diagnosis and recommendation of treatment. In this study, patients’ questioning of assessments might be expressed in silence. Silence in that way could be interpreted as an indication that there are issues arising from the interaction that the DNSs need to be aware of. The DNS might try to justify or prove the assessment findings by introducing a new test instrument. The instrument could be easily introduced and used by the DNS, but was often unfamiliar to the patient. Different outcomes found through the use of different instruments need to be explained and understood by the patient, as a response to questions which may be underlying the patient’s silence. Where patients challenge the diagnosis, physicians gave explicit reasons for their conclusions.33 Patients with diabetes might also need explicit information in order to understand and accept the DNS’s assessment.

Routines guided by clinical practice and conventions in estimating peripheral vascular function differed between the two clinics. One DNS palpated the pulses in patients’ feet and only supplemented with the Doppler examination in case of signs or symptoms of impaired vascular circulation. The other DNS performed both pulses and the Doppler examination routinely,34 but in this study, routine Doppler measurement was not shown to increase the informative value for the patients.

The routine of waist measurement at one clinic was often embarrassing for patients, resulting in them asking fewer questions. The DNS comforted or relieved patients, playing down the numerical value of waist measurement, mostly by using humour and by performing the measurement quickly and writing down the numerical value instead of discussing it with the patient. In a study by Pillet-Shore35 the numerical value for weight used in nurse-patient interactions demonstrated a moral view of the patients’ weight.
According to this study, the routine of waist measurement was characterized by DNS compassion and sympathetic attitude instead of having a medical significance. Leppänen concluded that nurses did not want to stress patients, but in diabetes care routines patients sometimes need to be stressed in order to enhance their diabetes management. Mutual laughter is associated with humour, but also involves cognitive and emotive functions that can accompany complex communicative goals. The use of humour under these circumstances might even signal that the issue was of lesser importance.

Some limitations in this study need to be mentioned. The small sample limits the generalizability of the findings, but trustworthiness was improved by transcription based on verbatim speech and symbols of CA. Comparable analysis of the same data by several researchers also support the findings from this study. The DNS was liable to switch on the camera before getting the patient into the room and switch it off when the meeting was concluded. However, on two occasions, the DNS turned on the camera when the patients had entered into the room. Another problem arose on two occasions when the meeting took longer than 60 minutes, and the recorded tape ended with the result that only parts of the meeting was filmed. For ethical reasons, the first author who arranged the video-recording chose not to participate during the video-recording. The counselling room was small; a third person could have been disruptive to communication, especially when considering that a patient might expect to speak in confidence with DNS, as is usual after long acquaintance with the same caregivers.

The use of video gave a unique opportunity to revisit the reality of interaction. Detailed analysis of patient-nurse behaviour could easily have been lost using another approach, but moving from concrete understanding to a more abstract level in the analysis was demanding and quite time-consuming. The video recordings provided an analytical framework that characterized the clinical settings at annual diabetes check-ups. The analysis demonstrated that some sequences could limit a participant’s opportunity to talk (e.g. by changes in activity during physical examinations where the patients were mostly silent), suggesting some distance between the co-operating participants. Mutual understanding of assessment findings was more problematic in such situations as patients were not expected to respond. Naturally occurring interaction between patient and DNS was visualized using applied CA method, and gave information about interactions between participants in the study that would otherwise have been mostly hidden.

CONCLUSION
The annual diabetes check-up was an assessment with the objective of imparting knowledge and information based on cooperation between patients and DNSs. Patients became the main actors and were treated as unique, although their roles shifted from active to passive during the examination. Although, the patients silence during physical examination confirmed the need for DNSs to give proper information and confirm that patients understood the physical examination procedures and the meaning of assessments. Examination routines in diabetes care need to be considered; e.g., the DNS may using Doppler when justified or routinely. The informative value for patients would not differ, just examination time. Routines could also give patients unpleasing feelings. DNSs must be able to cope with embarrassing situations, such as waist measurement, in order to enhance informative value.

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