"Less is more": A design thinking approach to the development of the agenda-setting conversation cards for people with type 2 diabetes

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ABSTRACT

Objectives: To report a design-thinking approach to a user-centred agenda-setting tool for use in type 2 diabetes clinics.
Methods: The study followed design-thinking phases: emphasizing, defining, and ideating an intervention, followed by iterative user-testing of prototypes. It was conducted at a Danish diabetes center using observations, interviews, workshops, focus groups, and questionnaires.
Results: Nurses wanted to put more emphasis on agenda-setting in status visits. During brainstorms the idea of using illustrated cards that listed key agenda topics was proposed and became the goal of this research. Adopting a design-thinking approach provided the basis for developing prototypes for iterative user-testing that led to a version that was acceptable to stakeholders. The resulting tool, Conversation Cards, was a set of cards that listed and illustrated seven key topics that were considered important to consider during diabetes status visits.
Conclusion: The goal of the Conversation Card intervention is to support collaborative agenda-setting in diabetes status visits. Further evaluation is needed to determine the utility and acceptability of the tool to nurses and to people with diabetes in routine settings.
Innovation: This novel tool is designed to trigger agenda-setting conversations and thereby prioritize individuals' choice of topics to talk about during diabetes status visits.

HIGHLIGHTS

- Agenda-setting is a recognized communication task but there are few examples of successful interventions
- Diabetes status visits tend to be dominated by efforts to collect biomedical data at the expense of patient-centered agendas
- Design-thinking led to the development of a set of agenda-setting cards that catalyze interaction and are easy for nurses to use

1. Introduction

The care of people with type 2 diabetes (T2D) requires regular attention to a range of issues. This introduces the risk that clinic visits become dominated by a need to collect information about topics such as blood pressure and glucose levels or providing advice about lifestyle changes. As a result, personal concerns of people with T2D may not be given priority, and questions of importance to them may go unanswered. This challenge has been widely recognized [1-4].

There have been numerous efforts to address this challenge. The hope that psychoeducational interventions would lead to changes in biomedical outcomes have been mixed. For example, motivational interviewing has, in a complex intervention study, proved effective of facilitating behavioral changes with subsequent improvement in glycemic control [5]. Such resource-intensive interventions may, however, be difficult to implement in diabetes outpatient clinics. Here, simpler interventions like shared agenda-setting may be attractive and others have focused on this method [6,7]. Shared agenda-setting may, on the other hand be less effective

from a biomedical perspective. For example, a trial of 79 practitioners in pediatric diabetic services on how to form shared agendas had no effect on glycosylated hemoglobin levels at one year after training [8].

Despite modest impact on biomedical outcomes in such studies [1], the challenge of addressing individual concerns persists, especially when nurses and other health care professionals are required to collect and record extensive data about diabetes conditions [2].

There is evidence that patient-centred interventions directed at providers lead to better patient-centredness of consultation and may also increase patient satisfaction with care [9]. Nevertheless, ways to involve patients in the design, planning, and delivery of interventions to promote patient-centred care need to be explored and outcome measures should include ways to evaluate collaborative agenda-setting [9].

Stott et al. designed a one-page agenda-setting tool that used graphics to focus on lifestyle issues such as diet, weight loss, and smoking [10]. That intervention was patient-centered because it encouraged patients to identify potential lifestyle priorities, such as diet and exercise consultation. However, the intervention was not developed using user-centred design principles and it is likely that the concerns of people with diabetes are not limited to lifestyle issues alone. To address this likelihood, we developed an intervention that: 1) addresses a broad canvas of concerns relevant to people with T2D; 2) meets the expressed needs of nurses who provide care for people who have T2D; 3) is practical and useful in real-world clinic visits.

To increase the likelihood that the intervention would meet the needs of both the nurses and the people with T2D who visit the clinic, we adopted a design-thinking approach to intervention development [11]. Our aim in this article is to demonstrate how the design-thinking approach led to the development of an agenda-setting tool for use in diabetes clinic visits.

2. Methods

2.1. Setting

The T2D clinic at Steno Diabetes Center Copenhagen (SDCC) manages approximately 4.500 people with T2D who need specialized care from a multi-disciplinary team of physicians, nurses, dieticians, podiatrists, and a psychologist. People with T2D in long-term follow-up are offered a minimum of three visits a year in the out-patient clinic: One annual extensive review with an endocrinologist, one or two shorter clinical encounters with an endocrinologist and an annual diabetes status visit (45–60 min) with a trained nurse. The latter is the subject of this study.

2.2. Design

The principles of design-thinking involve focusing on key challenges (emphasize, define), suggesting solutions (ideate), followed by a process of iterative user-testing, conducted by evaluating sequential intervention versions [12].

2.3. Data collection and analysis

Data for clinical needs assessment (emphasize, define, and ideate) and iterative evaluation (of prototypes and the final tool) was collected among stakeholders by a variety of methods (Table 1). The specific methods will be reviewed in the following section. We included new patients and nurses during the development process. The nurses contributed during their working hours. No financial incentives were offered to participants.

2.3.1. Needs assessment

In accordance with design-thinking, data collection for a needs assessment and analysis was conducted as an open discussion with nurses, followed by qualitative and quantitative data collection and analysis. We collaborated with a graphic designer and a nurse specialist in communication. During this first step, we defined the problem and considered possible solutions. The data consisted of a) researchers' reflective notes after a staff

Table 1
A four-stage development process based on design thinking.

Design Thinking		Data Collection Methods
Emphasize, define, ideate	Needs assessment	• Staff meeting with the nurses • Observation studies of annual status meetings between nurses and patients, incl. Subsequent informal individual interviews with both parts • Semi-structured individual interviews with nurses
Iterative user-testing	Evaluation of prototype 1	• A workshop with persons with T2D, nurses, and a dietician on the initial prototype of the intervention tool
	Evaluation of prototype 2	• Interviews with patients and nurses who used the adapted prototype of the intervention tool • Focus group discussion with the health professionals
	Evaluation of the final intervention tool	• Observation of status meetings and interviews with patients after use of the final intervention tool • Questionnaire completed by the nurses immediately after each of 100 consecutive consultation where the intervention tool was used

meeting with nurses in January 2020, b) field notes from four annual status meetings between nurses and patients, including informal individual interviews with patients and nurses (February–March 2020), and c) audio-recording of semi-structured individual interviews with three nurses (April–May 2020). We conducted conventional content analysis of the transcribed audio recordings [13]. Using this method, we obtained information directly from the participants and analyzed the data material inductively. We started out with immersing ourselves in the data by carefully reading the transcripts. Through our immediate impressions and initial analysis, labels emerged with which we coded the entire material. The codes were then grouped into thematic categories.

2.3.2. Evaluation of prototype 1

Prototype 1 consisted of seven pocket-size cards, each using a visual image to depict a potentially relevant topic. We called the tool Conversation Cards (CCs). The purpose of this evaluation was to assess reactions and improve the proposed CCs. Data was collected from a workshop in September 2020 and consisted of a) researchers' notes from a 3-h workshop with Danish speaking participants, b) workshop participants' written remarks on the cards, and c) workshop participants' ranking of the seven cards. We conducted conventional content analysis as described above [13] and calculated rankings.

2.3.3. Evaluation of prototype 2

Prototype 2 was a revised set of CCs and the purpose of this evaluation was threefold: 1) to investigate its usability, 2) to evaluate draft instructional bullet-form text intended for the backside of the cards, and 3) to create guidance for the nurses on how to introduce the CCs to patients. Data was collected from interviews and a focus group that consisted of a) audio-recordings of interviews with patients after nurses had used the cards in a visit, and b) video-recordings of an online focus group discussion with nurses who used the CCs and health professionals who had participated in the prototype 1 user-testing workshop. For data analysis, we conducted conventional content analysis on transcribed audio recordings and play back of the videos [13].

2.3.4. Evaluation of final version

The final CCs and the user instruction are described in Fig. 1. The purpose of this evaluation was to consider further refinement of the tool and to propose implementation strategies. Data for the evaluation consisted of a) field notes from observation of annual diabetes status visits and audio-recording of interviews with patients after use of the cards (May 2021), and b) questionnaire responses by nurses after annual diabetes status visits

The Conversation Cards (CCs) is a pocket-sized envelope with 7 wipeable cards and an instruction card for the nurse on how to use the CCs for agenda-setting, including suggestions for phrases that can be used to introduce the CCs to the patient.

Nurses are instructed to:

1. introduce themselves and welcomes the patient

2. in random order, introduce the illustrated CCs entitled 'Life with diabetes', 'My health', 'Medication', 'Symptoms', 'Thoughts and feelings', 'Sex and intimacy', and 'Other' while placing the CCs on a table in front of the patient

3. encourage the patient to spend a few minutes thinking about what needs to be discussed with the nurse

4. inform that they will also choose cards if they see other topics that should also be discussed

5. give the patient time to consider which topics should be on the agenda (typically by spending their own time at the computer)

6. initiate shared agenda-setting by listening to the patient's card selection and possibly add one or more cards based on a professional assessment of needs

7. encourage the patient to prioritize to jointly decide the order of items to be included

The proceeding of agenda-setting typically takes 5-10 minutes to complete. The nurse can refer to the CCs throughout the visit to make it clear to the patient that the card selections constitute the agenda of the visit without, however, excluding the possibility that new topics may appear along the way.

Fig. 1. The Conversation Cards and the procedure for using them.

where the cards were used (April to June 2021). The questionnaires included data about patients' card choice and nurses' possible additional card choices, when the nurse reported that an additional agenda-topic was needed. We also collected data to assess whether the patient had a positive or a negative attitude towards the CCs, and whether the nurse had found the tool helpful. For data analysis, we conducted conventional content analysis on transcribed audio-recordings [13] and descriptive statistics on the questionnaire responses.

2.4. Ethics

The project was registered with the Capital Region of Denmark's research rules for data protection [ID P-2021-405]. The Helsinki Declaration Code of Ethics was followed. Under Danish law, ethical approval was not required. Verbal informed consent was obtained from each participant.

3. Results

3.1. Needs assessment

During a staff meeting with approximately 30 nurses about the concept of shared decision-making, dissatisfaction about the nature of annual T2D diabetes status visits was spontaneously voiced. Nurses felt that the visits were dominated by a requirement to enter data into the electronic health record system. It was felt that this "stole the agenda" and limited patient-centred communication. Nurses reported avoiding, when possible, accepting status visits onto their schedule. Interviews with four nurses and observation of four status visits confirmed that the prime focus was on data collection using a checklist of closed questions that led to patient discomfort. Dialogue, when possible, was felt to be focused on how to achieve better blood sugar control or improve lifestyle. In short, the nurses reported no opportunity to develop or address a shared agenda.

Consensus about the problematic checklist approach catalyzed the wish to have a collaborative agenda-setting approach to the annual status visits. During a brainstorm meeting, there was agreement to develop cards that could be used to set a shared agenda. Each card could, for instance, represent a single topic, and that agenda could be set by selecting. Stakeholders would be asked to nominate key topics, with input also from the guideline documents of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD) [14], and a Danish guideline for general practice [15]. The initial prototype of the CCs, consisted of seven cards which each had a visual representation of a single topic (Fig. 2).

3.2. Evaluation of prototype 1

Patients and healthcare professionals enthusiastically supported the CC concept during a 3-h workshop in September 2020 with Danish speaking participants (Appendix A): three men and three women between 45 and 78 years of age who had T2D and four female nurses and one female dietician. Card rankings were as follows: 1st 'Medication', 2nd 'Feelings', 3rd 'Advice and help', 4th 'Life with diabetes', 5th 'Symptoms', 6th Problem solving', and 7th 'Healthy lifestyle' (for details see Appendix B).

Patients mentioned the lack of a card mentioning sex and intimacy. Patients did not understand the difference between the cards 'Advice and help' versus 'Problem solving'. Some participants felt that the term 'Healthy lifestyle' coupled with an image of a carrot was too judgmental and proposed the alternative name of 'My health'. A topic called 'Sex and intimacy' was added and the alternative term 'My health' adopted and coupled with an image of a heart. The topics 'Advice and help' and 'Problem solving' were merged into a topic called 'Other things'. Although it was not voiced explicitly, we sensed that some felt that multi-color illustrations were inappropriate and therefore replaced by a dark blue color design that matched the logo of the SDCC (Fig. 2).

Initial prototype

Adapted prototype

Fig. 2. The initial and the adapted prototype of the Conversation Cards.

We also added short bulleted explanatory text phrases on the back of each card (Fig. 3). We avoided text that might be perceived as negative or judgmental.

3.3. Evaluation of prototype 2

Interviews with two male and two female patients who used prototype 2 confirmed that the CCs covered the right range of topics for prioritization during annual diabetes status visits:

"As soon as you see them, you suddenly know what to talk about and what you have on your mind… It's a really good idea. She's not just asking a question that you then have to answer." (patient 1)

"It was nice because … many times, when you are done, you think about what you should have asked about". (patient 3)

In the interviews with the two nurses who had used prototype 2 they reported that the CCs changed the visit process:

"… because it becomes clear that it is their choice what we are going to talk about." (nurse 1)

and that the use of the cards required a new skill:

"You have to be careful not to make the patient insecure if they do not know what to do with the cards…" (nurse 2)

The subsequent 2-h focus group discussion confirmed the usability of the CCs and suggested minor editorial changes. Design modifications led to a final 7 card tool, printed on two sides, and contained in a pocket size envelope. The revised instruction prompted patients to select one or more cards, and that the nurse might also select topics for discussion.

Fig. 3. Illustration of the back of the 'Symptom' card.

3.4. Evaluation of the final intervention tool

Observation of nine diabetes status visits and interviews with seven of these nine patients confirmed that the CC successfully set a patient-centred agenda. One patient said that the card labelled "Thoughts and feelings" enabled her to mention her concern that she might soon require dialysis. Nevertheless, the observations also revealed patient barriers and nursing challenges. One respondent found the cards too overwhelming to consider, two felt the CC might help others prioritize topics, but did not need such agenda-setting support themselves. One 81-year patient commented on the card labelled sexual intimacy and said: "Yes, that goes to hell …". Yet, despite the cue, the topic was not discussed by the nurse. In the subsequent research interview, the patient revolved around his unsolved problem and stressed that erectile dysfunction was a significant concern to him. The CC may therefore lead to expectations that some nurses may not feel able to meet.

The 100 questionnaire responses showed that 81% of patients appeared positive about the CCs : 15% of the patients selected more than one card, 58% one card, and 27% did not select any cards. The most frequently selected topics were as follows: 'Medicine', 'Symptoms', 'My health', 'Life with diabetes', 'Thought and feelings', 'Sex and intimacy' and 'Other things'. Nurses added their own topic selection in with cards in 28% of the visits (Fig. 4).

4. Discussion and conclusion

4.1. Discussion

Nurses who conducted annual diabetes status visits reported the need to place more emphasis on shared agenda-setting and give less focus on a checklist to meet data collection expectations. During a brainstorm, the idea of illustrated topic cards was proposed as a means to prioritize topics for conversation, and this led to the development, and testing of a set of CCs. Adopting a design-thinking process enabled an iterative process that led to the development of two prototypes that were subjected to user-testing, and to a version that was found to be acceptable to nurses and patients.

The agenda-setting tool consisted of a set of seven cards, printed on both sides, that had well-designed visual representations of topics that were considered appropriate for an annual diabetes status visit. The selection of topics and the design and instructions for use was modified by iterative user-testing of relevant multidisciplinary stakeholders. Early-stage evaluations of the CCs provided positive responses from both patients and nurses and demonstrated strong proof of concept that the intervention led to significant increases in patient-centred communication that was "eliciting, understanding and validating the patient's perspective" [16] and thereby helping to set the agenda at annual diabetes status visits.
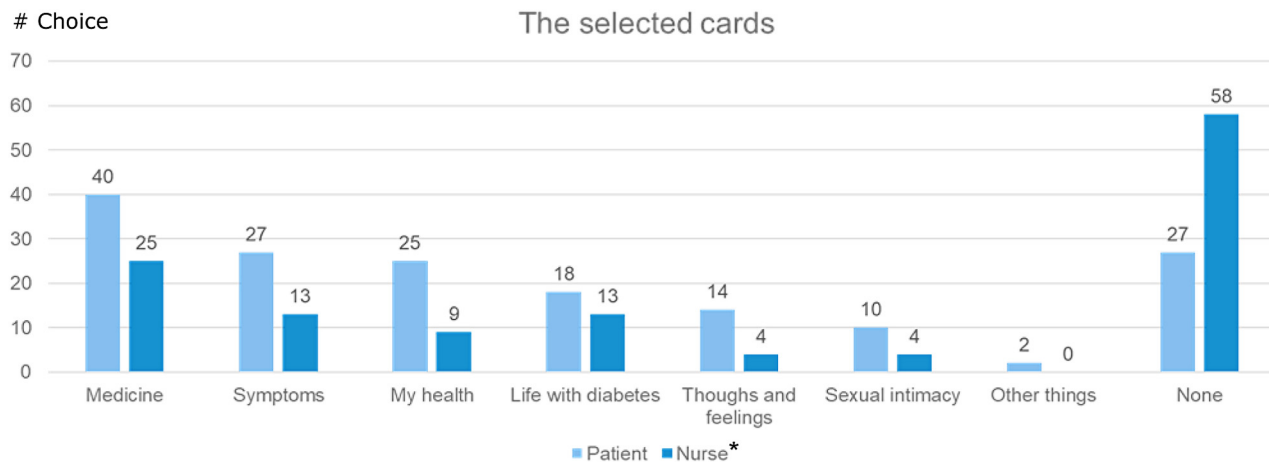
Fig. 4. Number of cards selected in 100 visits. *Nurses only chose additional cards when considered necessary.

Collaborative agenda setting is viewed as an important goal for healthcare system "that is respectful and responsive to individual patient preferences, needs and values and ensures that patient values guide all clinical decisions" [17]. There have been other efforts to prompt agenda-setting. Stott et al. [10] evaluated the use of illustrations depicting a range of topics such as diet, blood sugar control and weight management. However, their intervention was not developed with the benefit of user-involvement, and the narrow focus of lifestyle topics reflect a lack of stakeholder engagement. Ukoumunne et al. [18] tested the feasibility of a randomized trial with a web-based pre-consultation tool intervention to generate an agenda for discussion in diabetes outpatient clinics. The agenda-setting tool was found acceptable for most patients and did not extend the duration of encounters. However, it was not possible to recruit and follow up on participants in the trial. Frost et al. [18] undertook an embedded qualitative study from the same trial and found that the intervention tool could facilitate patients' agenda-setting, but only when pre-existing clinician orientations already favored shared decision-making. The low recruitment in the trial may have represented patients' resistance to undertake pre-visit work [19]. Our finding that the CC intervention was found to be acceptable and feasible may reflect the low level of burden that the CCs place on both patients and nurses.

Nevertheless, it became clear that the CC intervention could not be introduced without paying attention to a number of contextual issues. For example, how would the data collection requirements of the annual diabetes status visit be met if the CCs led to more time spent addressing the concerns of the person with T2D? Were the nurses ready to respond to all the topics listed on the CCs? The strength of this study was the close attention given to design-thinking during the development processes. This focus has led to the design of a tool that has simplicity and meets the needs of both patients and nurses.

We acknowledge that development and testing was conducted with a relatively limited set of nurses and patients in Denmark, and that tool may need adaption, and further evaluation, before we can advocate wider implementation. The intervention has implications for service-managers and others who will need to consider whether a checklist data collection approach is compatible with a wish to pay more attention to patient-led agendas. Secondly, an optional web-based supplement could be established for patients who want to prepare at home. Finally, the implementation of this agenda-setting tool requires attention to culture and training in agenda-setting. Not all health professionals may be willing or competent to discuss the wider range of topics that could be raised.

4.2. Innovation

The CCs are innovative because they were specifically designed to meet an identified need to modify a specific encounter type, typically dominated by a biomedical agenda. They are tactile, have elegant graphic elements, and by design catalyse interaction because they rely on a card sort and prioritization method. It is noteworthy that whilst 'agenda-setting' is a prominent topic in debates about how to improve healthcare communication it is striking that the area lacks high quality research [6,19]. Definitions have often included goal-setting efforts, and while overlaps exist, there are also clear differences between efforts to agree the areas to be prioritized for discussion versus setting goals that will need detailed plans for how to achieve those goals. There is also a measurement challenge in this area. Gobat developed a measurement approach for use in primary care [20]. However, few have utilized the measure, and the task of evaluating whether agenda setting is being accomplished has been neglected in terms of precise definition and validated measurement approaches.

This study does not address the challenges of definition and measurement. However, it does clearly focus on agenda setting and brings a careful user-centered design to a specific tool for nurses to use in visits that are widely recognized to be dominated by a biomedical agenda to collect data rather than address the concerns of the person with diabetes. We found no other attempts to take this design-thinking approach to the design of an agenda setting tool. We are not aware of other agenda settings tools that are as simple, visual and have the potential to be rapidly utilized, in both face-to-face visits and in telehealth settings. The only other example we found to address agenda setting in diabetes did not rely on stakeholder engagement and only focused on modification of lifestyle [10]. Other attempts to influence agenda setting such as prompt lists and training clinicians have largely been unsuccessful [21-22].

4.3. Conclusion

A design-thinking approach resulted in a user-centred tool that could potentially transform how shared agendas get set by people with diabetes, nurses, and others in clinical diabetes status visits.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.pecinn.2022.100097.

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