Brief Communication

Development of culturally sensitive dialog tools in diabetes education

Nana Folmann Hempler, Bettina Ewers[1]

Steno Diabetes Center, Health Promotion Research, [1]Department of Nutrition and Food Services, Steno Diabetes Center, Gentofte, Denmark

ABSTRACT

Person-centeredness is a goal in diabetes education, and cultural influences are important to consider in this regard. This report describes the use of a design-based research approach to develop culturally sensitive dialog tools to support person-centered dietary education targeting Pakistani immigrants in Denmark with type 2 diabetes. The approach appears to be a promising method to develop dialog tools for patient education that are culturally sensitive, thereby increasing their acceptability among ethnic minority groups. The process also emphasizes the importance of adequate training and competencies in the application of dialog tools and of alignment between researchers and health care professionals with regards to the educational philosophy underlying their use.

Key words: Cultural sensitivity, diabetes, dialog tools, dietary education, Pakistani background

Introduction

Culturally sensitive dialog tools promoting patient-provider communication and healthy behaviors improve patient outcomes.[1] However, few studies explicate methods of achieving cultural sensitivity in interventions like diabetes education, including how and if members of the target population were involved.[2-5] Cultural sensitivity can be considered with regards to two dimensions; "surface structure" (e.g. matching of materials and messages to the preferred by the target population) and "deep structure" (incorporating cultural, social, historical, environmental, and psychological factors that influence health behaviors of the target population).[2] This report describes the development of dialog tools targeting dietary education among Pakistani immigrants in Denmark with type 2 diabetes, a population with increased prevalence of both type 2 diabetes and multiple chronic conditions, a lower educational level, and less diabetes knowledge, compared to the majority population.[6,7]

Access this article online	
Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.146880

Developing Dialog Tools

To develop the dialog tools, we used a design-based research approach. Design-based research covers methodologies in education that are designed to bridge the gap between research and practice.[8] Design methods include ethnographic and observational techniques, visualization, prototyping, sketching, storytelling, brainstorming, and others. The processes in design-based approach are a continuous process of definition and redefinition of problems and design opportunities, as well as design and redesign of prototypes [Table 1].[9] Rather than designing an entire intervention only to discover at the end that it may not work, iterative design argues for quickly building prototypes, testing them, and re-designing while gradually evolving the intervention over time. In this study, we applied the methodology of design thinking, which is a humanistic approach developed by Brown and Wyatt.[10] Design thinking particularly focuses on the needs of the people who consume a product or service and the infrastructure that enables it.[10]

Corresponding Author: Dr. Nana Folmann Hempler, Steno Diabetes Center A/S, Patient Education Research, Niels Steensens Vej 8, DK-2820 Gentofte, Denmark. E-mail: nfhr@steno.dk

Table 1: Overview of activities in the design thinking process

Activity	Purpose and materials	Outcome
Phase 1: Inspiration-What's going on? What are patients' needs, preferences, and wishes?		
Observation (2 days) of individual education sessions	Observe existing education (individual-based counseling) with various patients who differed by age, gender, country of birth, language skills. Researcher received a copy of all materials handed out to patients	Insights about the existing education
Observing a patient's journey in the clinic (1-patient of Pakistani background, one of Danish background)	Insights about the existing education focusing on coordination of care (physician, nurse, and dieticians)	Uncertainty about roles of the different health care professionals (e.g., the nurse addressed dietary issues)
In-depth interviews with 12 patients with Pakistani background (in their homes or workplaces) and grounded theory analysis	Gain insight into people's lives and identify needs, preferences and wishes with regards to dietary education. Different materials such as pictures containing illustrations of food, beverages and social practices were used to engage participants	People with diabetes wished for dietary education that was meaningful and applicable in daily life and that health care professionals acknowledged food preferences and life conditions (low social support, severe illness, fatigue)
Interactive workshop with dieticians and researchers	Present the study framework and design thinking method to dieticians; discuss patients' experiences and perspectives with regard to needs, preferences and wishes using patient quotes and posters with patient profiles to facilitate discussions; identify dieticians' views and experiences with providing dietary education to patients with ethnic minority background	Insights from patient interviews and observation were eye-openers for dieticians. Dieticians identified and discussed experiences of barriers in current practice, such as language and cultural differences. Risk of stereotyping patients and the importance of considering individual needs were discussed
Meeting between researchers regarding synthesis of data	Discuss and view data from interviews, observations, workshops, existing literature, theories, and models in the field with the purpose of developing guiding design principles to support patient-centeredness and cultural competence in patient education	Guiding principles for achieving patient-centeredness: (1) Patients' needs and preferences are at the center; (2) Focus on involvement, dialog, and participation in the education; (3) Methods and techniques are applied to communicate knowledge that is relevant to the patient; (4) The dieticians' competences and roles are clear to the patients; and (5) Attention to development of cultural competencies
Phase 2: Ideation-developing tools		
Workshop for idea generation with researchers, an industrial designer, and dieticians	Structured brainstorming process regarding ideas for patient education targeting patients with Pakistani background. The process included short inspirational presentations of patient education tools, reflection exercises and subsequent idea generation. Idea generation sought to generate as many ideas as possible drawing on design principles. Ideas were written on post-its and idea sheets and dieticians were asked to build on each other's ideas	Ideas were mostly focused on themes or methods in education (e.g., addressing family issues and life conditions, using visual tools, practical cooking)
Interviews with two patients and two health care professionals with Pakistani background	Explore patients' and health professionals' views on participatory methods, preferences, issues to address in dietary education (themes, methods, setting), and existing materials handed out by health care professionals	Feedback from patients and health care professionals. Different perspectives with regards to setting (groups/individual, men and women together)
Idea meeting with researcher and designers	Based on interviews and the workshop idea sheet, researchers and a designer initiated creation of prototypes for early dialog tools	Dialog tools were divided into: (1) Tools for reflection and goal setting (e.g., role in food in the family, daily life, views on health, patient quotes) and (2) Tools for knowledge and learning (e.g., carbs and blood sugar, fats, and heart disease)
Feedback on prototypes. Interviews with two patients (man and a women)	Explore reactions to provisional prototypes	Two tools were excluded as they were considered irrelevant by patients. A new tool was added. Others were adjusted with regard to the amount of text, content and pictures
Feedback on prototypes. Interviews with dieticians	Explore reactions to provisional prototypes	One new tool developed. Others were adjusted with regards to content and pictures

Contd...

Table 1: *Contd...*

Activity	Purpose and materials	Outcome
Phase 3: Implementation-how do dialog tools work in real life settings?		
Competence workshop with researchers and dieticians	Role play concerning application of dialog tools facilitated by researcher. Discussion of the application of motivational interviewing in group-based patient education	Competence development focusing on dieticians' approach to applying dialog tools
Planning of group-based education with researchers, dieticians, and an interpreter	Selecting dialog tools, discussion of practical issues such as recruitment, transport, and rules for translation	Development in progress
Testing of selected tools in group-based patient education, followed by 3 h group interview with patients (three women, three men, two dieticians)	Session was video-recorded and analyzed by researchers for both research and supervision purposes	Reflection tools revealed important knowledge about the patients; however, the purpose of using tools was unclear to the patients and considered inappropriate in a group setting
Competence workshop with dieticians and researchers	Discuss application of dialog tools based on selected video clips. Discussion of dieticians' competencies. Discussion of putting the model "Health Education Juggler" into educational practice	Competence development. Dialog about comparison of two tools for learning and knowledge, where one approach was involving and participatory and one was less involving
Testing of selected tools in group-based patient education sessions (3 h on 3 days (6 women)	Session was video-recorded and analyzed by researchers. Meetings with researchers and dieticians were held between the three sessions	Tools for learning and knowledge were continuously modified in terms of pictures and content
Workshop	Discuss application of dialog tools based on selected video clips. Feedback from dieticians	One dietician noted that dialog tools promoted patient activation and involvement in video clips although this was not experienced by the dietician during the session. Dialog tools for knowledge and learning modified after feedback
Testing of selected tools in individual patient education (one women and one man) (1 h each)	Session was video-recorded	Tools supported dialog in dietary education about patients' experiences and challenges. Modifications of dialog tools after feedback
Final workshop	Discuss the individual approach in relation to the group-based approach. Decide which tools to implement in daily practice and how	Dieticians noted that during the process they would have liked more training in applying the dialog tools. Decision to prepare a toolkit for dieticians with selected tools to be applied in practice. Planning of further interviews with patients concerning acceptability of dialog tools in dietary education

The "consumers" of dietary education are health care professionals and patients, so both groups were highly involved in the development phase. The process of design thinking can be divided into three major phases: Inspiration, ideation, and implementation [Table 1]. Researchers with public health, behavioral and educational science backgrounds were drivers of all processes. In addition, four dieticians, an industrial designer, a nutritional scientist with managerial responsibility, and 18 patients with Pakistani background and type 2 diabetes were involved in the process. The nutritional scientist was also co-driver of the implementation phase. Patients were recruited within a specialist diabetes clinic in the Copenhagen area, using snowball sampling.

The iterative development process characterized as "research through mistake" required a great deal of dialog between researchers and dieticians.[9] Dieticians had a strong focus on the outcome, namely effective education, as opposed to the researchers' strong focus on the process leading to effective education through designing, testing, and redesigning tools. The number of tools and their content such as the amount of text and pictures were modified throughout the entire process, based on data from observations and interviews with patients, dieticians, and health care professionals with the goal of increasing the surface and deep structure dimensions of cultural sensitivity.[2] A consistent developmental pattern was a movement toward less text and more pictures in the dialog tools.

Some dialog tools were rooted in existing education materials and converted into interactive and engaging tools. Others emerged as ideas from patients or as a combination of patients' and dieticians' ideas. For example, patients preferred that the dietary education addressed low blood sugar in relation to diet, whereas dieticians expressed a need to address high blood sugar. Consequently, researchers merged the two ideas into a dialog tool addressing the symptoms of high and low blood sugar, as well as possible solutions to address high or low blood sugar as described by patients and dieticians. Some tools were not well-received

by patients. For instance, patients considered a food pyramid with familiar and commonly consumed food items irrelevant and difficult to interpret; it was consequently omitted early in the process.

In practice, how effective the tools were at activating and involved patients was highly dependent on the setting and the dieticians' skills in social learning, a person-centered approach, and cultural competence. Dieticians considered it is challenging to choose the "right tools at the right time." Knowledge and learning tools were chosen and tested more frequently by dieticians than were reflection tools. Barriers to applying reflection tools were that dieticians were less confident at using them and viewed them as time-consuming. In addition, dieticians were more familiar with applying knowledge-based materials in their usual patient counseling. Researchers perceived that dieticians' application of the tools was not always consistent with the intended person-centered approach, which encompassed a strong focus on patient experiences and patient-identified problems and challenges. Furthermore, researchers and dieticians did not always reach consensus about the educational philosophy with regards to pedagogy and process of learning. For example, one learning and knowledge tool contained pictures of food items patients reported eating if they experienced low blood sugar. One dietician was concerned that the images depicted inappropriate food items and could cause confusion for patients. These differences were explored and sought solved through dialog between researchers and dieticians during workshops.

We observed differences in how the tools were received by patients in individual and group settings. One reflection tool intended to create awareness of the patient's role in the family regarding food (e.g. planning, grocery shopping, and social practices) was well-received when tested in family interviews but not in a group setting. Interviews with patients revealed that the tool was considered inappropriate in group settings due to cultural expectations about a family's role in practices around food. If the family pattern diverged from the expectations, it was considered inappropriate to share this information in a group setting. In this way, cultural sensitivity was also embedded in the application of dialog tools.

Conclusion

A design thinking approach appears to be a promising method to develop dialog tools for patient education that are culturally sensitive, thereby increasing their acceptability among the target population. Forthcoming interviews will explore the perspectives of the patients further. The process also emphasizes the importance of adequate training and competencies in the application of dialog tools and of alignment between researchers and health care professionals with regards to the educational philosophy underlying their use.

Acknowledgments

Thanks to all the participants for taking time to participate and be interviewed and special thanks to Kamran Akram for helping with recruitment of participants. Also, thanks to Ulla Møller Hansen, Sara Nicic, Annemarie Varming and Ingrid Willaing for useful and valuable recommendations on this project. We thank Jennifer Green, Caduceus Strategies, for editorial assistance.

References

1. Hawthorne K, Robles Y, Cannings-John R, Edwards AG. Culturally appropriate health education for Type 2 diabetes in ethnic minority groups: A systematic and narrative review of randomized controlled trials. Diabet Med 2010;27:613-23.
2. Resnicow K, Baranowski T, Ahluwalia JS, Braithwaite RL. Cultural sensitivity in public health: Defined and demystified. Ethn Dis 1999;9:10-21.
3. Mian SI, Brauer PM. Dietary education tools for South Asians with diabetes. Can J Diet Pract Res 2009;70:28-35.
4. Morrison Z, Douglas A, Bhopal R, Sheikh A, trial investigators. Understanding experiences of participating in a weight loss lifestyle intervention trial: A qualitative evaluation of South Asians at high risk of diabetes. BMJ Open 2014;4:e004736.
5. Davidson EM, Liu JJ, Bhopal RS, White M, Johnson MR, Netto G, *et al*. Consideration of ethnicity in guidelines and systematic reviews promoting lifestyle interventions: A thematic analysis. Eur J Public Health 2014;24:508-13.
6. Singhammer J, Storgaard R, Mygind A, Blom A, Hempler NF, Breddam E, *et al*. Etniske minoriteters Sundhed. [Ethnic Minorities' Health]. 2008.
7. Danish Health and Medication Authority. Strategi for Indsats Vedrørende Diabetes Blandt Etniske Minoriteter. Arbejdsgruppens Indstilling. Strategy for intervention concerning diabetes among ethnic minorities. The Working Group's Recommendation; 2007. Available from: http://sundhedsstyrelsen.dk/publ/PUBL2007/CFF/DIABETES/TYPE2STRATEGI_APR07.PDF [Last accessed on 2014 Dec 04].
8. Dolmans DH, Tigelaar D. Building bridges between theory and practice in medical education using a design-based research approach: AMEE Guide No 60. Med Teach 2012;34:1-10.
9. Anderson T, Shattuck J. Design-based research: A decade of progress in education research? Educ Res 2012;41:16-25.
10. Brown T, Wyatt J. Design thinking for social innovation. Stanford Social Innovation Review; 2010. Available from: http://www.ssireview.org/articles/entry/design_thinking_for_social_innovation [Last accessed on 2014 Dec 04].

Cite this article as: Hempler NF, Ewers B. Development of culturally sensitive dialog tools in diabetes education. Indian J Endocr Metab 2015;19:178-81.

Source of Support: Nil, **Conflict of Interest:** The authors are employed by Steno Diabetes Center A/S, a research hospital working in the Danish National Health Service and owned by Novo Nordisk A/S. Steno Diabetes Center receives part of its core funding from unrestricted grants from the Novo Foundation and Novo Nordisk A/S.