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Education and health professionals training programs for people with type 2 diabetes: a review of quality criteria

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Abstract

Objective. To contribute to the development of a set of quality criteria for patient education and health professionals training that could be applied in European countries.

Methods. Literature review quality criteria, pre-selection based on a comparison of the criteria, peer group and expert based selection of the criteria.

Results. 14 quality criteria were selected: goals, rationale, target group, setting, scheduling of the education/training sessions, environmental requirements, qualification of the trainers/educators, core components of the educator/trainer's role, curriculum, education methods, education didactics, monitoring of the effectiveness and quality of the program, implementation level and source of funding.

Discussion. A set of preliminary quality criteria for patient education and health professionals training was developed, which could be applied in European countries.

Key words

- quality criteria
- patient education
- training
- diabetes
- review

INTRODUCTION

Diabetes education is an essential component of diabetes treatment. It is intended to prevent or delay the complications of diabetes [1]. In the context of patient education, an education program is an international accepted and vital intervention with a targeted structure of education for people with diabetes with an evident effect on therapy and prognosis of diabetes. Usually, in education program the core contents, goals, methods and didactics are described in a curriculum and materials or tools for the educators and participants are provided. Patient education is described as a complex intervention with special requirements on evidence and transparency regarding its rationale, methodology, performance and outcome representation [2, 3].

Systematic reviews on the effect of education of people with diabetes do exist. Several outcome measures were considered, *e.g*, on metabolic control, diabetes knowledge and measures regarding quality of live and empowerment to evaluate the programs [4]. A Cochrane Review identified 11 studies of group based patient-centred education for people with type 2 diabetes. The included studies were published between 1988 and 2002, mainly in US, UK, Austria, Italy, Argentina, Germany and Spain [4]. Another Cochrane Review reported 9 studies of individual patient education for people with type 2 diabetes compared with usual care ("receiving the standard care such as regular follow up with the health provider"). The included studies were published between 1996 and 2007 [5]. These studies were conducted mainly in US, UK, Australia, Netherlands, Spain, Japan and China.

Training of the professionals "(…) is required to enable health professionals to be effective diabetes educators. Within these areas, training programs and curricula are necessary to prepare people for the role of diabetes

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educator. Diabetes education is a specialty and requires knowledge and competence at an advanced level if it is to be delivered effectively" [6]. Since 2002, the International Diabetes Federation (IDF) has facilitated the development of curriculum, standards, diabetes education modules, didactic materials by diabetes experts that could be used by all members of IDF [6]. The American Association of Diabetes Educators (AADE) developed in 2009 a guideline and a standard to provide diabetes educators tools, training to empower people with diabetes [7]. Furthermore, trainings of health professionals were developed in UK in the line of the "The Quality Framework for the delivery of Education and Learning to the Health sector" from the National Skills Academy [8].

In the United States and in several states of the EU patient education and health professionals training programs, and quality criteria for their evaluation do exist. However, different numbers of quality criteria and particularly different definitions were used. Therefore, aim of this paper was to contribute to the development of a preliminary set of quality criteria for patient education and health professionals training that could be applied in European countries.

METHODS

Identification of quality criteria

A literature review of evaluation criteria of education and training programs was conducted searching the Cochrane library, Medline and Google scholar. Literature from 2000 to May 2014 was selected to identify the latest state of art.

The following search terms in English and German were used, using the Boolean operators: diabetes, curricula, educat*, trainer*, training, evaluation, quality criteria, indicator*, measures, quality, standard*, guideline*, and review*. MeSH terms were: standards, diabetes mellitus, quality indicators, guideline, education, and teaching.

Inclusion and exclusion criteria

Publications that provide criteria overviews as systematic reviews, curricula, standards and guidelines were included. Literature recommendations of the experts, if meeting the inclusion criteria, were considered.

The publications had to provide descripted quality criteria for patient education and health professionals training programs and they had to be described in German or English language.

Pre-selection and selection of the quality criteria

One reviewer (SK) reviewed all relevant literature in full-text. First, criteria resulting from the identified standards and recommendations were extracted, categorized and compared by using an extraction matrix. Because of a high variety in the presentation of quality requirements in the publications deriving from the organizations, the criteria were abstracted with the aim of a consistent description.

The quality criteria from different publications were then compared with each other separately for patient education programs and health professionals' training programs. Common aspects were summarized. It was aimed to provide a short list of criteria on high abstract level that is applicable for both types of programs (education and training). The criteria were reviewed and discussed by the author group until the core quality criteria were selected. The list of the quality criteria was sent to each expert (author) separately for commenting the selected criteria. After reviewing the comments, all experts discussed the criteria to consent the set of quality criteria.

RESULTS

In total, 10 publications [1, 2, 4, 6, 9-14] that met the inclusion criteria were identified out of a number of 46 full-texts. Six dealt with education programs and four with professionals training (*Table 1*).

Quality criteria for patient education (*Table 2*) were selected from four publications being standards, guidance and guidelines of four organizations: the American Diabetes Association (ADA) [1], the American Association of Diabetes Educators (AADE) [9], The National Collaborating Centre for Chronic Conditions (NCC-CC, UK) [10] and the Bundesärztekammer (BÄK, Germany) and its other collaborating partners [2]. The publications from the USA were summarized because they focussed on the same quality criteria [1, 9]. Two further publications were a Systematic Cochrane Review [4] and a RCT [14].

Quality criteria for professionals trainings (*Table 3*) were selected from four core publications of three organizations: the International Diabetes Federation (IDF) [6, 12], the American Diabetes Association (ADA) [13] and the Department of Health (DH) [11]. The IDF publications [6, 12] were summarized because the publication of 2003 contained the standards which were the starting point of the developed curriculum in 2008.

Quality criteria for patient education

The publication of the American Association of Diabetes Educators [9] including Haas *et al.* [1] was based on a Task Force review. The Task Force was convened by AADE and ADA and included experts, *e.g.,* from the areas of public health, individuals with diabetes, diabetes researchers, certified diabetes educators, registered nurses, registered dietitians, physicians, pharmacists, and a psychologist. They reviewed the current National Standards for Diabetes Self-Management Education for their appropriateness, relevance, and scientific basis and updated them using available evidence based on expert consensus [1, 9]. The selected criteria from the national guideline of the Bundesärztekammer *et al.* [2] were based on a 3 step approach. First, there was a selection of source-guidelines based on a systematic guideline search using the following inclusion criteria: topic relevance, aim of the guideline, applicability and transferability, evidence, consensus and other augmented reasons. Second, a full text evaluation was performed based on the following criteria: methodological quality, accepted institutions, and medical relevance. Third, an evaluation of the methodological quality of final guidelines was conducted using the DELBI-Instrument [2].

Table 1
Overview of the publications considered

Author/year	Aim	Type of publication/ country	Findings	Methods
Patient education				
Haas *et al*. 2012	Recognition and accreditation	National standard, USA	Quality requirements based on standards	Review of current National Standards for Diabetes Self-Management Education by a task force
American Association of Diabetes Educators 2013	Recognition and accreditation	National standard and guidance, USA	Quality requirements based on standards	Guidance based on current National Standards of the American Diabetes Association
The National Collaborating Centre for Chronic Conditions	Clinical recommendations for the management	National clinical guideline, UK	Quality requirements based on quality standards	Systematic search for evidence, critical appraisal, extraction and synthesis of data, development of recommendations and grading, consenting the recommendations
Bundesärztekammer *et al.* 2012	Recommendation, implementation, definition, increasing the number of educated patients	National guideline, Germany	Quality requirements based on quality standards	Systematic guideline search, full text evaluation and evaluation of the methodical quality of final guidelines using the DELBI-Instrument
Kulzer *et al*. 2007	To evaluate the efficacy of education programs	RCT, Germany	Outcome measures	Prospective, randomized trial comparing three different treatment programs
Deakin *et al.* 2005	To assess the effects of group-based, patient-centred training	Cochrane Review, UK	Outcome measures	Systematic review
Professionals trainings				
International Diabetes Federation 2003	Provision of structure and framework	Standard, International	Quality indicators based in structure, process and outcome standards	Standard setting in 1997, consensus process, if possible on evidence based standards
International Diabetes Federation 2008	Framework and a common standard	Curriculum, International	Quality requirements based on quality standards	Framework based on standards and developments from the IDF in 1998, 2003, 2008
American Diabetes Association 2014	General standards for care	Standard, position statement, USA	Quality requirements based on quality standards	Literature review
Department of Health 2015	Reference point, framework for developing and evaluating local programs	Report, framework, UK	Quality requirements based on education programs	Agreement of criteria by the Patient Education Working Group

The National clinical guideline of the National Collaborating Centre for Chronic Conditions was developed based on clinical evidence-based questions, a systematic search for evidence, and a critical appraisal of the evidence including incorporating health economic evidence, an extraction and synthesis of data, development of recommendations and grading, consenting the recommendations. At the end of the development process literature was updated [10]. The study of Kulzer *et al*. aimed to investigate a didactic-oriented training program compared with a self-management-oriented program delivered in group sessions, or in a more individualized approach. It was based on a RCT including 181 diabetes type 2 patients, measuring efficacy 3 month after baseline, including a follow up after 15 months after baseline [14]. The Systematic Review of Deakin *et al.* aimed to assess the effects of group-based training on clinical, lifestyle and psychosocial outcomes. RCTs and CTs that measured group-based education programs compared with routine treatment, waiting list control or no intervention were included [4].

Quality criteria for professionals training

Recommendations were described predominantly in the context of a framework, including, *e.g.*, guiding principles and a glossary. Some documents were also based on standards and a framework containing quality criteria for education as well as training programs.

Table 2
Initial 27 quality criteria for evaluating diabetes education programs

Quality criteria	Sources				
	BÄK [2]	NCC-CC [10]	AADE/ADA [1, 9]	Kulzer *et al.* [14]	Deakin *et al.* [4]
Structure level					
Defined goals	x	x	x		
Defined mission statement			x		
Defined target group (inclusion and exclusion criteria)	x				
Defined setting (*e.g.* inpatient, outpatient)	x				
Description of the number of the education units (45 minutes)	x				
Description of the scheduling of the education units (45 minutes) per program: (type 1 diabetes -24 education units; type 2 diabetes -20 education units; type 2 diabetes and a low risk of secondary diseases - 8 education units)	x				
Limitation of the number of participants (6-11 participants)	x			x	x
Defined settings (*e.g.,* group setting, inclusion of relatives)	x				
Description of the environmental requirements	x		x		
Provided education material for patient information	x	x			
Evaluated curricula	x	x	x		
Evidence based curricula (resource-effective, supporting materials, documented)		x	x		
Defined qualification of the trainers	x	x	x		
Individualized educational plan of care based on assessment and behavioural goal	x	x	x		
Documented individualized follow-up on education and goals			x		
Description of information exchange between all stakeholders incl. physicians	x		x		
Description of the inclusion of relatives	x		x		
Description of appropriate media	x				
Description of specific didactics (what to learn and why)	x	x	x		
Description of specific methods (how to give lessons)	x	x	x		
Description of the evaluation/ measurement of the education program	x	x	x		
Provision of the evaluation results	x	x	x		
Theory driven and evidence based program (reliable, valid, relevant)		x	x		
Five year evaluation of the education institution regular audit	x	x	x		
Outcome level					
Clinical: Metabolic control: HbA1c values	x	x	x	x	x
Lifestyle: Diabetes knowledge	x	x	x	x	x
Psychosocial: Quality of life; Empowerment/self-efficacy.	x	x	x	x	x

BÄK: Bundesärztekammer; NCC-CC: National Collaborating Centre for Chronic Conditions; AADE/ADA: The American Association of Diabetes Educators/American Diabetes Association.

Additionally, the report of the Department of Health contained a theoretical model to consider the need in patient education [11, 13].

The standards of the IDF [6, 12] were developed since 1997. They were revised by performing a consensus process using focus groups. These standards, when possible evidence based, derived from the American Diabetes Association 1995, the Australian Diabetes Educators Association, the Canadian Diabetes Association 2000, the Declaration of the Americas, Finland 2000-2010, Hong Kong 2001 and the United Kingdom 2001.

The ADA [13] provided general standards for diabetes care that were developed based on literature review. The standards considered all types of diabetes and focussed on several aspects of diabetes care. The recommendations considered also standards and evidence regarding education and support with the aim to assist diabetes educators in education and self-management support.

Finally, the DH [11] provided a reference point, framework for developing and evaluating local programs by describing criteria on learning needs assessment, health professional training, assuring quality,

Table 3
Initial quality criteria for professionals training

Quality criteria	Sources		
	IDF [6, 12]	ADA [13]	DH [11]
Defined goals		x	x
Written statement containing the philosophy for structured self-management education	x		
Rationale that clearly identifies the need to train health professionals and demonstrates that there has been consultation with key stakeholders and consumers	x		
Written core components of the health professionals role: (*e.g.*, clinical practice, education, which includes prevention at every level, and health promotion, counseling and behavioural change techniques, research and quality improvement/audit processes, administration/management, which incorporates leadership)	x		
Documented of student workload	x		
Evidence based curricula (resource-effective, has supporting materials, and is written down)	x		x
Agreed written statement containing the theories	x		x
Teaching methods that are used within the program and can be identified within the curriculum	x		
Identified person to be responsible for the organization and administration of the diabetes education service in such a way that the process and outcome standards can be met	x		
Physical space and education resources are conducive to learning and based on individual/ community needs	x		
An advisory committee is established to ensure that the views and values of all stakeholders are represented in the ongoing planning and delivery of diabetes education	x		
Teamwork and communication are evident among those providing diabetes education and management	x		
The competence and performance of personnel involved in diabetes education is reviewed at least annually	x		
Professional staff in the diabetes service is appointed on a permanent basis, not on a rotational basis	x		
Diabetes education covers topics based on individual assessment and fosters acquisition of knowledge leading to self-management of diabetes	x		
The program includes the individual education needs assessment	x	x	x
The program addresses clinical aspects as well as psychosocial issues and emotional well-being		x	
A structured curriculum needs to be reliable, valid, relevant and comprehensive			x
A structured curriculum needs to be flexible and able to cope with diversity			x
Relationships are fostered with available community resources such as diabetes associations, social services	x		
Personnel involved in diabetes education have a sound clinical understanding of diabetes, are knowledgeable about teaching and learning skills and diabetes self-management practices (the program approach is focused on promoting skills and empowerment (versus didactic information-providing approach)	x	x	x
Plans for individual diabetes education and diabetes education programs are learner-centered with regard to the people with diabetes and subject to ongoing review and modification (the program is offered to the individual regularly, on an ongoing basis)	x	x	x
Implementation of diabetes education is learner-centered with regard to the people with diabetes and facilitates cognitive learning, behaviour change and self-management and is extended to families, caregivers and communities where appropriate	x		
Education is provided in a professional and ethical manner and is learner-centered with regard to the people with diabetes and evidence-based where possible	x		
The effectiveness and quality of education will be annually assessed, linked to outcomes, and the services will be reviewed on the basis of the assessment	x		
Educational and clinical research are undertaken to provide an evidence base for practice.	x		
The program includes peer and lay leaders as part of the educational team		x	
The program is adequately reimbursed by third-party payers (i.e. supported by local/central government or other public system)		x	

IDF: International Diabetes Federation; ADA: American Diabetes Association; DH: Department of Health.

Table 4
Selected quality criteria for patient education and health professionals training programs

Defined criteria on structure level	Description
Goals	Education is a systematic and targeted process to empower people with diabetes and to strengthen their health literacy, self-management, health skills promotion, prevention of diabetes complications, stress management
Rationale	A clear identification of the need to train health professionals A justification with regard to the evidence level
Target group	Inclusion and exclusion criteria regarding the program participation
Setting	Location of the program (*e.g.* inpatient, outpatient) or social environment (*e.g.* group sessions)
Scheduling of the education/training sessions	Description of the number of the education/training units (45 minutes)
Environmental requirements	Definition of an appropriate and accessible facility
Qualification of the trainers/educators	Certified trainers/educators regarding content and methodology
Core components of the educator/trainer's role	Definition of roles regarding clinical practice, health promotion, counselling and behavioural change techniques
Curriculum	Description if and in which way the program is evaluated, theory driven and evidence based
Education methods	Approaches to education that are interactive and patient-centred have been shown to be effective
Education didactics	Description how the didactical principles consider the individual needs and learning styles of the participants
Monitoring of the effectiveness and quality of the programme	Description how the quality of the program is measured (*e.g.* audit, indicators (structure, process, outcome level), frequency of measurement)
Implementation level	How the program is implemented (*e.g.*, local, regional or national level)
Source of funding	Supported by local/central government or other public system

accreditation and research and development. It also showed gaps in education provision. The criteria resulted from an agreement process by the Patient Education Working Group.

Selected quality criteria

After the comparison and evaluation of the 55 individual criteria of the 10 publications (*Table 2* and *3*), a set of 14 quality criteria (*Table 4*) was developed. Predominantly, criteria were chosen that were mentioned in most of the publications. There were two exceptions, the "source of funding" and "implementation level". The source of funding was deducted from the ADA recommendations, and the implementation level from the IDF. The set contained only criteria on structure level to provide a basic set on a consistent measurement level.

DISCUSSION

By performing a literature review a set of 14 core quality criteria was developed by a peer-group based approach. These quality criteria for patient education and health professionals' training could be applied in European countries.

The evidence of the identified literature for selecting the criteria varied. However, the final selected criteria were based on consensus processes [1, 2, 10-12] with the result of agreed quality requirements mostly based on standards. The task force approaches included experts on diabetes from the field of public health, politics or health services. Organisations developed research questions, defined core terms and conducted a literature searches [1, 2, 10, 11, 15]. Some of them evaluated the identified guidelines by using a critical appraisal instrument [2]. All publications confirmed the importance of consented quality requirements in diabetes education and health professionals' trainings with the aim to increase diabetes education, *e.g.*, on self-management.

In our approach one researcher conducted the literature search, the abstraction of the structure criteria, and their comparison. Therefore, a selection bias is presumable. However, the process was reviewed by an expert peer group.

In conclusion a set of preliminary quality criteria for patient education and health professionals' training was developed, which could be applied in European countries.

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Conflict of interest statement

There is no conflict of interest.

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REFERENCES

1. Haas L, Maryniuk M, Beck J, Cox C E, Duker P, Edwards L, Fisher EB, Hanson L, Kent D, Kolb L, McLaughlin S, Orzeck E, Piette JD, Rhinehart AS, Rothman R, Sklaroff S, Tomky D, Youssef G. National Standards for Diabetes Self-Management Education and Support. *Diabetes Care* 2012;35(11):2393-401.
2. Bundesärztekammer (BÄK), Kassenärztliche Bundesvereinigung (KBV), Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften. Nationale Versorgungs Leitlinie Diabetes – Strukturierte Schulungsprogramme – Langfassung, 1. Auflage. Version 3; 2013 Available from: www.awmf.org/uploads/tx_szleitlinien/nvl-001fl_S3_NVL_Diabetes_Schulung_2013-07.
3. Funnell MM, Anderson RM, Arnold MS, Barr PA, Donnelly M, Johnson PD, Taylor-Moon D, White NH. National Standards for Diabetes Self-Management Education. *Diabetes Care* 2010;33(Suppl. 1):S89.
4. Deakin T, McShane CE, Cade JE, Williams RD. Group based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2005;18(2):CD003417.
5. Duke SA, Colagiuri S, Colagiuri R. Individual patient education for people with type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2009;21(1):CD005268.
6. International Diabetes Federation. *International Curriculum for Diabetes Health Professional Education*. 2008. Available from: www.idf.org/webdata/docs/Curriculum_Final%20041108_EN.pdf.
7. American Association of Diabetes Educators. *AADE Guidelines for the Practice of Diabetes Self-Management Education and Training (DSME/T)*. 2009. Available from: www.diabeteseducator.org/export/sites/aade/_resources/pdf/research/guidelines_final_2_1_11.pdf.
8. Barnett AH. Clinical challenges in diabetes. Oxford: Clinical publishing; 2010. Available from: http://hfs1.duytan.edu.vn/upload/ebooks/5292.pdf.
9. American Association of Diabetes Educators. Crosswalk for AAD'S Diabetes education accreditation program. DEAP Diabetes Education Accreditation Educators. 2013. Available from: www.diabeteseducator.org/export/sites/aade/_resources/pdf/accred/Final_Crosswalk_–_3-2013.pdf.
10. National Collaborating Centre for Chronic Conditions. *Type 2 Diabetes National clinical guideline for management in primary and secondary care (update). National Institute for Health and Clinical Excellence: Guidance*. London: Royal College of Physicians of London; 2008. Available from: www.nice.org.uk/guidance/cg87/resources/cg66-type-2-diabetes-full-guideline2.
11. Department of Health. *Structured patient education in diabetes: Report from the patient education working group*. 2005. Available from: www.diabetes.org.uk/Documents/Reports/StructuredPatientEd.pdf.
12. International Diabetes Federation. International Standards for Diabetes Education. Brussels: IDF; 2003. Available from: www.msssi.gob.es/organizacion/sns/planCalidadSNS/pdf/excelencia/cuidadospaliativos-diabetes/DIABETES/opsc_est12.pdf.pdf.
13. American Diabetes Association. Standards of medical care in diabetes-2014. *Diabetes Care* 2014;(Supp. 1):14-80.
14. Kulzer B, Hermanns N, Reinecker H, Haak T. Effects of self-management training in Type 2 diabetes: a randomized, prospective trial. *Diabetic Med* 2007;24(4):415-23.
15. American Association of Diabetes Educators. *Technical Review: Diabetes Self- Management Education and Training (DSME/T) Outcomes Measures*. 2013. Available from: www.diabeteseducator.org/export/sites/aade/_resources/pdf/general/Outcomes_Technical_Review_Aug_2013.pdf.