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CONCEPT ANALYSIS

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Diabetic education in nursing: A Rodgers' evolutionary concept analysis

Gloria Anderson BMid, PhD student[1] | Daniela Casasanta RN, MSN[2] | Paolo Carlo Motta RN, PhD[3] | Eugenio Sacco RN, MSN[4] | Antonello Cocchieri RN, PhD[5,6] | Gianfranco Damiani MD[5,6] | Maria Luisa Rega RN, PhD[7]

[1]Department of Biomedicine and Prevention, University of Rome Tor Vergata, Rome, Italy

[2]Department of Occupational Medicine Unit, UdR & HTA Research Unit, Children's Hospital Bambino Gesù, IRCCS, Rome, Italy

[3]Department of Public Health, University of Brescia vl., Brescia, Italy

[4]Azienda Ospedaliera-Universitaria Sant'Andrea, Rome, Italy

[5]Fondazione Policlinico Universitario A. Gemelli, IRCCS, Rome, Italy

[6]Università Cattolica del Sacro Cuore, Rome, Italy

[7]School of Nursing, Università Cattolica del Sacro Cuore, Rome, Italy

Correspondence
Gloria Anderson, BMid, PhD student, Department of Biomedicine and Prevention, University of Rome Tor Vergata, Via Montpellier, 1, Rome 00133, Italy.
Email: andersongloria0@gmail.com

Daniela Casasanta, RN, MSN, Health Directorate, Department of Occupational Medicine Unit, UdR & HTA Research Unit, Children's Hospital Bambino Gesù, IRCCS, Rome 00165, Italy.
Email: danielacasa92@hotmail.it

Abstract

Aim: This concept analysis aims to clarify the concept of diabetic education in nursing to provide guidance for the further conceptualization and clarification of diabetic education in nursing.

Background: Patient education is a fundamental component of diabetes care. Nurses have taken up a major role in educating people with diabetes to manage their conditions. However, the exact meaning of diabetic education in nursing remains challenging.

Design: Rodgers' evolutionary method of concept analysis was performed to explore the concept of diabetic education in nursing.

Data Source: We conducted a literature search on Cumulative Index to Nursing and Allied Health Literature (CINAHL), MedLine, and PsycInfo for works published until October 2020 using "patient education," "diabetes," and "nursing" as key terms.

Results: The concept analysis revealed that key attributes of diabetic education in nursing include patient-centered and interactive approaches, planning, and problem solving. Antecedents related to individuals with diabetes are their backgrounds, needs, and motivations, while the antecedents related to nurses are experience and attitude. Finally, three different consequences of the concept emerged: an increase in knowledge and skills, a behavioral change, and the improvement of clinical outcomes.

KEYWORDS

concept analysis, diabetics, nursing, patient education

1 | INTRODUCTION

Interest in diabetic education has been rising globally as a consequence of the disease's increasing burden.[1] In 2016, 1.6 million deaths were directly caused by diabetes, and almost half were related to high blood glucose levels before the age of 70 years.[1] Diabetes is a chronic disease that can be treated, and its consequences can be delayed or avoided with a change in lifestyle.[1–3] Diabetics can learn to live and cope with their disease by building the knowledge, skills, and abilities necessary to gain control of their own

Gloria Anderson and Daniela Casasanta contributed equally to this study.

lives.[1,4,5] Many studies have proven the efficacy of educational interventions in improving diabetics' knowledge, skills, clinical outcomes, and quality of life.[6–8] Therefore, diabetic education has become a necessary tool to help diabetics implement and sustain coping skills and behaviors.

The concept of diabetic education has evolved over time, with its focus shifting from patient instruction to patient participation. Today, diabetic education not only focuses on the biomedical aspects of the disease, but it also accounts for the wide range of biopsychosocial factors associated with the condition.[9,10] The concept of diabetic education is increasingly linked to the concept of patient-centered care. Through the acquisition of new knowledge, skills, and abilities, diabetics are able to take an active role in managing their health and making decisions about their care.[11] This conceptual evolution has had an important impact on the clinical practice of nursing and the related literature.

Over the years, nurses have taken up a major role in diabetic education. New professional nursing roles, such as the Diabetic Specialist Nurse (DSN),[12,13] have been created to address the needs of diabetics and educate them on the management of their disease. Nurses working with diabetics have developed new curricula and skills, shifting from care directed only toward the alteration of illness, diseases, and disability states to the enabling and maintaining of diabetics in addressing their own well-being and positive health states.

The current literature shows that nurses have developed and adopted different frameworks to fulfill their roles as educators. Theories, such as King's theory of goal attainment,[14] Orem's self-care theory,[15] or the diabetes self-management education (DSME) framework[16] have guided the development of nurse-led educational interventions by shaping the educational content and measurement of the outcomes. However, due to the variety of educational interventions existing in the nursing literature, translating the exact meaning of diabetic education in nursing into practice remains challenging. Nurses often seem to confuse the term “patient education” with other related terms, such as therapeutic education, health education, and coaching. Consequently, diabetic education in nursing lacks a univocal theoretical operationalization. This could have an impact on its potential benefits in clinical practice. Defining a univocal theoretical operationalization helps to move toward a more punctual meaning, role clarity, and the identification of a baseline to validate current practice.[17]

Given the increasing amount of attention being paid to diabetic education in policy work and related associations,[1,2] as well as the increasing number of citations of the term “patient education” in the literature, the meaning of the concept of diabetic education in nursing deserves further scrutiny to inform future practice and research. Specifically, nurses need clear insight into the core elements of diabetic education to improve the quality of care and the lives of diabetics.

The purpose of this concept analysis was to clarify the concept of diabetic education in nursing to provide guidance for the further conceptualization and clarification of diabetic education in nursing.

2 | METHODS

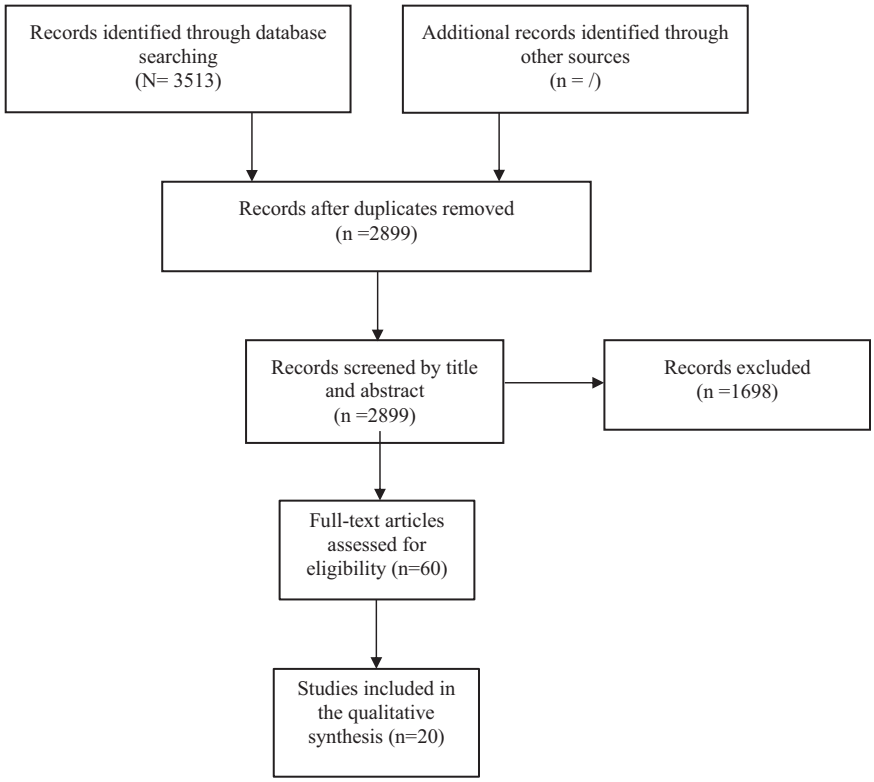
2.1 | Design

Rodgers' evolutionary concept analysis was utilized as a methodology to clarify the concept of diabetic education in nursing.[18] Our vision was not to develop an operational definition of diabetic education in nursing, but rather to explore, clarify, and provide future research direction. According to Rodgers' theory, concepts evolve and are affected by the context in which they are used. Rodgers' method outlines six distinct steps in a concept analysis: (1) identify the concept of interest and its associated expressions; (2) identify and select an appropriate realm for data collection; (3) collect data; (4) analyze and summarize it; (5) identify a case exemplar; and (6) identify implications for further development. To identify key diabetic education components, we used Thomas and Harden's[19] thematic synthesis method as follows: (a) thoroughly reading the literature, (b) inductively identifying common codes, (c) organizing similar codes under a specific sub-dimension, and then (d) synthesizing each sub-dimension under a univocal dimension (e.g., attributes, antecedents, and consequences). Each included article was read by two researchers independently to identify general themes and the tone of the work. The complete list of attributes, antecedents, and consequences was reduced by combining synonyms and like phrases. Any discrepancies were resolved by consensus.

2.2 | Data collection

A medical reference librarian assisted in formulating the search strategy. Two authors independently conducted a literature search on the Cumulative Index to Nursing and Allied Health Literature, MedLine, and PsycInfo for all works published until October 2020. Based on the current literature, the following terms were deemed relevant and were included in the search: patient education, diabetes, and nursing. We chose not to add further interchangeable terms for patient education in the search strategy, since the exploration of surrogate terms was conducted at a later step in the concept analysis. Search limits were language (English or Italian) and publication dates (from January 1986, the date of the release of the Ottawa Charter of Health Promotion, and the introduction of a new conception of education in public health).[20] Articles were selected based on the following inclusion criteria: (1) studies involving persons with type I or II diabetes, (2) studies focusing on education, and (3) studies in which the patients' education was described, assessed, or conducted primarily by nurses. Criteria for exclusion were (1) studies on pediatric patients and (2) dissertations. We chose not to exclude any article based on the intervention setting (e.g., hospital or primary care) or the disease type (types I or II diabetes) to be as inclusive as possible.[18] The search process is illustrated in Figure 1. Of the 3513 articles retrieved, 2899 articles were screened after accounting for duplicate publications, and 60 articles were assessed by full text. At the end of the screening process, 20 articles were

FIGURE 1 Search strategy



considered relevant and included in the concept analysis. The reference management software Zotero (v.5.0.82) was used to review each study via a title-first approach and to obtain the pertinent records for the abstract screening.

3 | RESULTS

3.1 | Surrogate and related terms

The literature search revealed four terms often used in relation to diabetic education in nursing in the included studies[20–40]: "therapeutic education,"[20–25,27,30–33,37,41] "health education,"[24,25,29,35,37,42] "counseling,"[22,25,30,33,39] and "coaching."[21,26,28,29,32,33]

Therapeutic education[41] is defined by the World Health Organization (WHO) as an intervention "designed to train patients in the skill of self-managing or adapting treatment to their particular chronic disease and in coping, processing and skills," and it is conducted by healthcare staff trained to improve diabetics' quality of life and outcomes. While therapeutic education is related to diabetic education in nursing, it does not emphasize the importance of the relationship between patient and nurse, which is a core element of diabetic education in nursing. Therefore, the concept was classified as a surrogate term.

The concept of "health education" has a close relationship with the primary concept in this study, since it aims at building opportunities for learning and improving life skills, but as stated by WHO,[18] it is specifically designed to improve clients' health literacy and is not bounded to diabetics or chronic patients. Many studies linked the concept of "counseling" and "coaching" with diabetic education in nursing, and both terms ground their action on the patient-provider relationship to foster a behavioral change, and both techniques are used often to provide health information and psychological support to patients alongside the educational intervention. However, none of these three concepts possess all the same attributes as diabetic education in nursing; therefore, we decided to consider all of them as related terms.

3.2 | Attributes

We synthesized four main attributes of diabetic education in nursing: (1) patient-centered and (2) interactive approaches, (3) planning, and (4) problem solving.

3.2.1 | Patient-centered approach

In all the included articles,[20–40] diabetic education in nursing was person-centered. In diabetic education, the nurse must constantly change the educational content to adapt it to the diabetics' needs.[23,26,32,34,35,37] Diabetic education is tailored to diabetics' preferences and perspectives, and it is designed to account for their cultural, religious, and socioeconomic backgrounds. Nurses engage diabetics in diabetic education by asking for feedback, assigning specific tasks, or involving them in the decision-making process.

The educational content of the intervention is shaped and changed by this continuous exchange of information between nurses and diabetics. Through the exchange of information, nurses assess the diabetic's needs and then implement and evaluate the educational intervention again.

3.2.2 | Interactive approach

An interactive relationship between diabetics and nurses, based on equal and ongoing communication,[20–27,30,34,36,37,39] is essential to diabetic education in nursing. Educational content is periodically reviewed by the nurses, who actively involve diabetics in the process by soliciting constant feedback until the establishment of a cooperative dialog referred to as a partnership.[23,27,33,40] The interactive relationship allows diabetics to share their needs, concerns, and doubts. Nurses often shared their educational content in group discussions, allowing diabetics to interact with peers with the same issues or backgrounds.[21,24,25,30,31,34,36]

3.2.3 | Planning

Diabetic education in nursing is carried out through pre-planned interventions, with the times, settings, and resources being previously established by nurses.[21,26–29,32,38,40] All the educational content is developed following the best evidence-based procedures and adapted to a defined setting with clear planning of how the available resources will be used.[21–24,28,33,36] However, the timing of the educational interventions is flexible and should be adjusted to each diabetic's progress or needs.[26,31,37] We also found that diabetic education in nursing is planned with the aid of tools that are specifically developed to help both nurses and diabetics, such as brochures, videos or pamphlets.[21,26,29,34,38] These tools are also used as a reinforcement for the educational sessions.[22,32,35] Diabetic education in nursing is also planned in such a way as to ensure that personalized patient goals are achieved in time, with progress being assessed through specific checklists or scales.[20–24,28,31–35,38] Validated tools are also necessary to keep track of changes in knowledge, skills, and behaviors among diabetics.

3.2.4 | Problem solving

Diabetic education in nursing embraces a practical approach to improve problem-solving skills among diabetics and motivate them to set specific goals. Specifically, diabetics are encouraged by nurses to define a problem and apply a strategy to solve it.[20–23,26,29–33,38] Through diabetic education, nurses are able to improve diabetics' knowledge, skills, and deficits and thus help them manage their disease. With this end in mind, nurses generally plan educational interventions with a good balance between theoretical knowledge and practical exercise that are delivered via interactive face-to-face lessons.[21,26–29,34,36,37,39,40] Diabetic education in nursing is to be delivered through a practical approach using educational tools, demonstrations, exercises, and problem-oriented strategies to simulate daily challenges and help diabetics solve them.

3.3 | Antecedents

The concept of diabetic education in nursing comprises two main categories of antecedents: those related to the patient, and those related to the nurse.

The first category includes all the antecedents related to the patient, such as their background, needs, and motivation. The background in this case includes both the diabetic's characteristics, such as age, race, or social status,[20,25–28,30,33–35,38] and abilities,[24,27,33–35,39] including health literacy or physical status. Needs refer to the individual expectations,[20,25,33,37] hopes,[21,28,34,39] or goals of diabetics.[23,24,27,30,38] Motivation encompasses the awareness, confidence, and attitude of the diabetic at the beginning of their educational journey.

The second category is related to nurses and involves both their experience and their attitudes. Included studies reported that nurses involved in diabetic education possessed advanced training[20–24,27–31,36,38] and/or multiple years of care experience in the field.[25,35,39] Nurses must remain confident in their skills as educators,[21,26,32,37] be motivating,[21,27,35] not be judgmental,[27,37–39] and display a positive attitude toward the diabetics and the development of the educational program.

3.4 | Consequences

Three different consequences of diabetic education in nursing emerged from this analysis: an increase in knowledge and skills,[20,24–26,29,30,37,39] a behavioral change,[20,24,28,31,35] and an improvement in clinical outcomes.[20–26,28–33,37–40]

Many articles linked behavioral change and improvement of clinical outcomes among diabetics to a reduction in healthcare costs,[24,27,33,36] since nurses' education has been reported to help prevent complications. Through an educational intervention, nurses help diabetics increase their knowledge of self-care and secure their skills in managing all the practical aspects of the disease on a daily basis, such as healthy eating habits, physical activity, or medication management. Therefore, diabetics are able to acquire a new awareness of their disease and manifest a behavioral change that positively affects their quality of life and clinical outcomes, such as body weight reductions, glycemic control, and blood pressure improvements.

3.5 | Exemplar

After defining the attributes of diabetic education in nursing, we identified an exemplar through an additional literature search. The exemplar, "Effect of a Nurse-Led Diabetes Self-Management Education Program on

Glycosylated Hemoglobin among Adults with Type 2 Diabetes,"[21] presented a realistic model of the concept in a relevant context.

In this particular study, Azami et al.[21] carried out an interactive and ongoing educational intervention to engage diabetics. Specialized nurses led weekly group discussions focused on improving diabetics' self-management skills and knowledge of the disease with a problem-solving approach. Nurses used tailored educational tools, designed, and developed by a multidisciplinary team in accordance with a chosen theoretical framework (Bandura's self-efficacy theory and the DSME) and the participants' backgrounds, to help the participants in the management of their disease and provide them with a protected space to share their experiences with peers. Diabetics received telephone calls, during which nurses assessed their current self-care behaviors and motivation to change and encouraged them to discuss their doubts or concerns regarding all the aspects of the disease. Nurses were able to improve patients' outcomes following a patient-centered approach, whereby the participants' backgrounds, needs, and experiences were constantly taken into account and assessed. The diabetics had access to evidence-based material and a platform for discussion with peers and nurses. Nurses' teaching approaches were based on motivational interview techniques and helped the nurses establish partnerships with the patients to develop their knowledge, skills, and abilities in dealing with everyday problems and making decisions about their health. As a result, the patients were able to gain control over their disease and promote a positive behavior change. The educational intervention successfully improved diabetics' HbA1c levels and positively changed their self-management behaviors, thus enhancing their quality of life and psychological status.[21]

We chose this article as an exemplar of diabetic education in nursing because it incorporated the main defining components of the concept (i.e., patient-centered and interactive approaches, planning, and problem solving).

3.6 | Implications

Another major outcome of Rodgers' method is the formulation of implications that can guide further concept development and analysis. To our knowledge, the concept of diabetic education in nursing has not yet been formally defined. Identifying the antecedent, the attributes, and the consequences of diabetic education in nursing thus raises awareness of nurses' roles and competences as educators. This conceptualization can also help nurses improve their core curriculum. We defined specific competences that diabetic educators should improve, such as problem-solving skills and communicative strategies. This conceptualization provides clear attributes of diabetic education to help in the planning of specific interventions. Diabetic educators should account for elements such as available resources, timing, and setting before developing an educational intervention. Diabetic educators can benefit from this conceptualization and use it as a theoretical framework in the development of future educational interventions.

Clarifying the concept of diabetic education in nursing can help nurses improve their active role in diabetic care. Specifically, knowing both the antecedents and the consequences of diabetic education in nursing can lead to an improvement of the tools used to assess it. Nurses should develop and use validated tools to periodically assess diabetics' needs, self-management behaviors, and knowledge. The psychosocial evaluation and assessment of patients' needs should always be matched by a monitoring of the diabetic's clinical outcomes. A consequence of diabetic education in nursing seems to be the prevention of complications that have a positive impact on healthcare costs. Further, studies should focus on the relationship between nurse-led diabetic education and a possible reduction in healthcare costs.

We could not help noticing how significantly the concept of diabetic education in nursing is influenced by the standards developed by the American Association of Diabetes Educators in the DSME framework.[16] As an example, many of the attributes of diabetic education in nursing, such as the importance of planning educational interventions, the use of problem-solving strategies, and the tailoring of the educational content following a rigorous assessment, are consistent with the current DSME standards of practice.[16] However, a unique characteristic of diabetic education in nursing is the importance given to both the constant assessment of patients' needs and the interaction between nurses, diabetics, and their peers until the development of a good nurse-patient relationship. Whether the nurse-patient relationship can moderate the effect of nurse-led educational intervention, enhancing it should be investigated further.

4 | DISCUSSION

This evolutionary concept analysis provided guidance for the further conceptualization and clarification of diabetic education in nursing.[18] Several attributes, antecedents, and consequences related to the concept of diabetic education in nursing were synthesized. Diabetic patients' education in nursing is related to the characteristics of both diabetics and nurses. Diabetics' characteristics, such as their social or cultural background, needs, and motivations, are important antecedents of diabetic education in nursing. Through a rigorous assessment, one of the five essential steps of the nursing process,[43] nurses manage to tailor the educational intervention to the diabetics' needs and characteristics.

Patient-centered care is a well-known and effective strategy to improve diabetic outcomes and promote behavioral changes.[44,45] Nurses who participate in diabetic education generally have years of experience or advanced training and a positive attitude. In the last few decades, many specialist nursing roles have emerged, such as DSNs or nurse educators.[9,10] Both diabetics' motivation and nurses' competencies are important and unique antecedents of diabetic education in nursing, and future studies should examine whether they, either alone or together, can mediate or moderate the educational process.

Diabetic education in nursing is both a person-centered and interaction-focused concept. Nurses spend far longer than other health care providers with diabetics, providing assistance, meeting their needs, and developing close relationships.[46,47] In the concept of diabetic education in nursing, the relationship between diabetics and

nurses is defined as interactive, with constant exchanges that help tailor the educational intervention. Such an interactive relationship is a unique feature of diabetic education in nursing. When the nurse-patient relationship is lacking in interactivity, it can impact both the quality of care and patient satisfaction.[46]

The concept of diabetic education in nursing involves both planning and problem solving. Diabetes is a complex and lifelong disease,[1,2] and nurses must make detailed plans for the required resources (e.g., setting, tools, and scales) to provide an ongoing education. The planning of a nursing intervention is another essential step in the nursing process,[43] since it helps diabetics reach the goals that have been set for them. Diabetic education in nursing also relies on a problem-solving approach to teach diabetics how to respond to the disease's challenges. Both problem solving and goal-oriented interventions have proven effective in improving management of the disease on the part of the diabetics themselves.[46]

The current literature shows that nurse-led educational interventions have a positive impact on diabetics' self-management skills or clinical outcomes.[21,26–28,47,48,49] This is because nurses monitor diabetics' self-management skills, changes in their glycated hemoglobin levels, medication management, and hospitalizations. Further studies should investigate the impact of nurse-led educational interventions on both diabetics' quality of life and the appropriateness of health care resource utilization.

There are several limitations in this concept analysis. First, although the search was conducted systematically, relevant articles might still have been missing. Second, the exploration of the use and influence of diabetic education in nursing across related health care disciplines was not examined, as we only focused on nursing. According to Rodgers' method,[18] this information can be considered secondary when a single discipline is the focus. Finally, the concept was investigated only in adult patients and in articles published in English or Italian.

5 | CONCLUSIONS

Diabetic education in nursing is a dynamic and ongoing process aimed at improving the knowledge, skills, and abilities of diabetics. It is implemented by a trained expert nurse through problem-solving interventions, encompassing a global assessment of the diabetics' needs, a rigorous planning of the educational content and resources, an implementation of the designed program with a close involvement of diabetics, and an evaluation of its effectiveness through the measurement of selected outcomes. When all the attributes are present in an educative intervention—patient centered and interactive approaches, planning, problem solving—the full meaning of diabetic education in nursing is translated into care practice.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

ORCID

Gloria Anderson https://orcid.org/0000-0003-2929-9328
Daniela Casasanta https://orcid.org/0000-0002-8577-9281

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