

# The Health Professionals' Views on Support and Perception of Individualized Care for Older Persons with Diabetes: Changes after the Education

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**Key words:** *patient-centered care, individualized care, education intervention, health care professionals, quality of care.*

**Summary.** *Patient-centered care becomes an important target for health care organizations because of the national and regional health care policy changes and the new incentives to address the high-quality care to all populations. The high-quality and effective health care have to be focused on population needs and patient-centered approach of care provision. The aim of this study was to assess the changes in health professionals' views and perception of individualized care for older adults with diabetes after the educational intervention.*

**Methods.** *A quantitative study with a cross-sectional survey design was conducted at 10 health care institutions where diabetes care for patients was provided. The Individualised Care Scale (the nurse version) was applied. In total, 126 nurses and physicians participated in the survey before the education and 70 of them responded after it.*

**Results.** *After the intervention, support and perception of individualized care among participants were rated differently ( $P = 0.029$ ): after education, the overall score for perception was higher than for the support for individual care. Moreover, after intervention, nurses and physicians, as one group, rated the perception of individualized care on the personal life situation ( $P = 0.046$ ) and decisional control over care ( $P = 0.037$ ) subscales significantly higher than the support for care individuality on these two subscales. Physicians scored the perception of individuality during the decisional control over care significantly higher than before education ( $P = 0.040$ ).*

**Conclusions.** *The education on patient-centered care for health care professionals revealed changes in professionals' perception of individuality in care they provide for older persons with diabetes, particularly when dealing with patient's personal life situation and decisional control over care. Health professionals need to pay more attention during diabetes care for discussing matters of patient's personal life situation, their preferences, and decisions about family involvement into care.*

## Introduction

The national and regional health care policy declares the new targets and actions to address the high-quality care to all populations (1). The Lithuanian Health Program 2014–2025 addresses important policy solutions to improve health of Lithuanian population by reducing health inequities and increasing the lifespan. To reach this goal, the development of health care infrastructure and improvement of health care service quality, safety, accessibility, and patient-centeredness should be implemented in the health care system (2).

Patient-centered care (PCC) is a complex phenomenon lacking the consensus in defining this concept and measuring it. PCC is defined as respectful and responsive to individual patient's preferences, needs, and values (3, 4). Patient-centered care together with other components of high-quality care (equity,

safety, effectiveness, efficiency, timeliness) were indicated as important attributes of value in care (4, 5). Jayadevappa (2017) argues that when patients are fully informed and engaged to participate in their care, the value of those patients may be completely expressed eliminating overuse and misuse of health care services (5). The importance and value of every patient as an individual is closely related to the rights of individuals as human beings and has legal implications as well (6).

The number of new diabetes cases has been increasing globally making this health condition highly prevalent in the aging population (7). American Diabetes Association highlights the importance of improvement of patient outcomes and quality of care relying on the most current evidence-based guidelines for people living with diabetes (8). The standards of care for older adults with diabetes mellitus require care decisions to be individualized and discussed collaboratively with patients. Specific goals for people with diabetes have to be based on individual preferences,

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comorbidities, and health prognosis (9).

At the time of the novel coronavirus disease (COVID-19) caused by SARS-CoV-2, diabetes is one of the most important comorbidities linked to the severity of COVID-19. Evidence states, that COVID-19 causes short-term complications of diabetes-related hypoglycemia, particularly in the elderly with type 2 diabetes (10). People with diabetes are more vulnerable to dying from this novel virus as they appear to develop more severe forms of the disease and to require intensive care more frequently than those people without diabetes (11).

Despite the fact that patient-centered care and the individual approach to patient's needs and preferences is associated with many positive outcomes such as quality of life and independence, adherence to care regimen, self-management, patient satisfaction with care and cost-effectiveness (3, 12–16), the individual approach to care has limited use in care on everyday basis. The care of older adults with diabetes is complicated by their clinical, cognitive, and functional heterogeneity and significant complications developed in the previous years of the disease (7). Patient-centered care provision for older adults with chronic diseases is challenging because of a knowledge gap about complex health care needs of older adults and their unique health care requirements.

Various care models have been designed to guide the implementation of individualized approach to care for patients with chronic conditions such as diabetes (17, 18). It has been recognized that for practical uses these models need to be adapted to fit a particular patient's and institution's need and available provider's expertise. The training for health care providers as an element of interventions to improve patient-centered care is common in practice and has the potential to result in positive impact for patients with chronic diseases (19). Health care professionals who participate in an integrated and patient-centered diabetes care as active members of the multidisciplinary team need the most current knowledge and skills in alternative care approaches to those traditional ones (20). Education interventions that are designed according to best practice guidelines and based on a solid theoretical framework might be effective for training specific skills of health professionals and reach better outcomes of care, i.e., improved quality of care and patient safety, and management of severe diabetes complications (21, 22).

In Lithuania, as in many other countries, the professional development required for health care professionals provides an opportunity for lifelong learning, as it is needed not only to update or deepen theoretical and practical knowledge but also

to comply with the professional standard of practice and to extend the license of medical practice (23). Professional development should be a flexible personal learning experience linked to a variety of educational activities aimed at maintaining, expanding, or improving the competencies (knowledge, skills and attitudes) and professional relationships with patients and their relatives (24, 25). A significant part of continuing education activities is oriented to cover a multidisciplinary target audience and to strengthen team approach in care at all service levels.

The aim of this study was to assess the changes in health professionals' views and perception of individualized care for older adults with diabetes after the educational intervention.

### Material and Methods

**Study Design.** A quantitative study with a cross-sectional methodology design was conducted. The study was performed from March 2019 till January 2021. Two interdisciplinary workshops were organized for health care professionals who provide treatment and care services for people with diabetes patients. The theme of the workshops was *Patient-centered care in older adults with diabetes*. The aim of the seminars was to present the model of patient-centered care and to discuss its significance for older adults with chronic diseases. The objective was to encourage the seminar participants to apply the principles of individual care, deepening and considering the patient's needs and choices, and available resources (knowledge, skills, financial, social opportunities, etc.) for self-care and disease management. It was emphasized to the participants that older adults with diabetes receiving health care services should be given the opportunity to participate in the nursing and treatment and decision-making process actively.

The first workshop, which was attended by 70 nurses and doctors, was held in March 2019. The second workshop was held in October 2019, and 60 nurses and doctors participated. A total of 130 nurses and doctors participated in the interdisciplinary workshops. Before each workshop, its participants read the informed research participant form, signed a consent form to participate in the study, and were asked to complete the nurse version of the Individualized Care Scale questionnaire. The paper-pencil survey method was used. After the workshops, 5 months later, the participants filled out the Individualized Care Scale and the person-centered health care for the older adult's questionnaire. These questionnaires were distributed to the participants and returned directly to the hands or through the nursing administrators of the institutions, and after the start of the pandemic COVID 19, by e-mail.

Only invitations to participate in the survey and active links to questionnaires were sent to the email address.

**Instrument.** The Individualized Care Scale (ICS) was applied for the data collection. The nurse version (ICS-Nurse) was filled in by nurses and physicians who take care of older adults with diabetes. The ICS-Nurse is a bipartite questionnaire initially designed to explore nurses' views about individualized care in two dimensions (ICSA-Nurse and ICSB-Nurse) (26). The current version of the scale includes part A and part B with 34 items altogether. ICSA is a 17-item 5-point Likert-type scale (1 = fully disagree and 5 = fully agree) designed to explore health professionals' views on how they support patient individuality through care activities in general. ICSB-Nurse is also a 17-item 5-point Likert-type scale exploring the extent to which health professionals perceive that the care they provide is individual. Both dimensions, i.e., ICSA and ICSB, share the same structure in terms of their content and consist of three sub-scales: (1) clinical situation (ClinA and B), (2) personal life situation (PersA and B), and (3) decisional control over care (DecA and B). The mean scores of the sub-dimensions are calculated by summing the scores from the items included in each sub-dimension and dividing it by the number of items. Higher scores indicate higher individuality in care from the patient perspective (26–28).

The ICS-Nurse has been translated and validated in many languages: Spanish (29) Flemish and Dutch (30), Turkish (31) and others (32). The ICS-Nurse was translated and validated in Lithuania by Bartkeviciute et al. (2021) demonstrating good psychometric properties of the instrument (33).

**Study Sample.** Relying on the team approach in

care of older adults with diabetes, the items of the ICS-Nurse were applied for nurses and physicians who provide care for these patients. The background data about health professionals' characteristics comprised the following variables: gender, age, education level, professional role (nurse, physician, family doctor), years of working experience as health professional, and years of experience in the unit.

An important choice is the selection of an adequate sample size. Unfortunately, there is no criterion to be universally accepted in the literature (34). Most of studies are based on rules of thumb, which vary from 2 to 10 subjects per variable. The ICS-Nurse scale in total has 34 items and the 126 included individuals are within the previous range. Focusing on the construct validity and both scales, since the theoretical structure is 17 + 17, considering, for example, 5 individuals per item ( $5 \times 17 = 85$ ) would be also within the limit.

Nurses and physicians ( $n = 126$ , response rate – 96.9%) participated in the survey before the education. Two of the largest cities (Kaunas, Alytus) and four regional cities (Prienai, Kedainiai, Vilkaviskis, Birštonas) of Lithuania were selected as study sites. Inclusion criteria for health professionals were as follows: provision of care for older adults with diabetes more than one year; public and private health care institution. Most respondents were from the primary health care level (care provided by family doctors and nurses), also from the secondary (municipal outpatient departments) and tertiary (national hospitals) levels of services. Two health care organizations did not agree to participate in the study because of the lack of human (staff) resources. After education, 70 health care professionals responded to the survey for the second time.

Table 1. Sociodemographic characteristics of the respondents

Category		Before intervention n = 126	After intervention n = 70
		n (%)	n (%)
Gender	Women	121 (96.0)	70 (100)
	Men	5 (4.0)	0 (0)
Age	≤ 50	62 (49.2)	38 (54.3)
	> 51	64 (50.8)	32 (45.7)
Work experience	≤ 24	44 (34.9)	33 (47.1)
	> 25	82 (65.1)	37 (52.9)
Education level	University	72 (57.1)	37 (52.9)
	Higher (non-university)	54 (42.9)	33 (47.1)
Professional qualification	Nurse	94 (74.6)	57 (81.4)
	Physician	32 (25.4)	13 (18.6)

The mean age of the respondents (nurses and doctors) who answered the survey before the education session was 50.12 years (SD 10.04, min 25, max 81), and after the education session, it was 48.57 years (SD 9.33, min 25, max 65). The average duration of professional experience of the respondents during the first round of the survey was 26.33 years (SD 11.23, min 2, max 57), and during the second round, it was 24.37 years (SD 11.00, min 2, max 43). No statistical difference was found in relation to the respondents' age and professional experience duration during both survey rounds.

**Intervention.** For the intervention, two interdisciplinary workshops were held for health care professionals, i.e., nurses and physicians, who provided care for older adults with diabetes across 10 medical care centers.

During group education, general knowledge on patient-centered care approach was delivered, trying to correspond to the basic needs of patients with different types of diabetes and creating a possibility to actively participate and learn from others' experiences. The duration of the interactive teaching session was 5 contact hours each with the involved lecturers from Lithuania and the United States. The following topics were discussed:

- Patient-centered care in primary care: understanding the approach, practical applications, and achievements;
- Patient-centered care in the care of older adults with diabetes;
- Delivering PCC to aging, geriatric populations;
- Providing Individualized diabetes care, self-management, and treatment for older adults with diabetes;
- Individualized treatment targets in patients with type-2 diabetes;
- Patient-centered, individualized education for patients with diabetes, team-based diabetes management with endocrinologists and diabetes nurses;
- Patient-centered care, improving self-management of the disease skills of type 2 diabetes patients, structured measurement training;
- Self-care for people with diabetes;
- Patient-centered communication.

**Ethical considerations.** The Kaunas Regional Committee on Bioethics issued permission to conduct the study on 13 March 2019, No. BE-2-29. Permission to conduct the study was obtained from the chief nursing or medical managers of each hospital or health care center. Health care professionals received written information about the

aim of the study and signed an informed consent. All questionnaires contained no information to identify individuals. For the purpose of paired sample comparison before and after the intervention, the respondents were anonymously coded.

**Statistical Analysis.** Data were recorded and analyzed using the Statistical Package for Social Sciences (IBM SPSS Statistics, Armonk, NY, IBM Corp.) version 24.0. Descriptive statistics were used to examine socio-demographic data and study variables. Mean scores, median and range for each sub-scale were calculated. For ICS, the higher the sub-scale mean score, the better the patient individuality was supported (ICSA-Nurse) and the better were the perceptions of the maintenance of individuality in care (ICSB-Nurse).

The nonparametric Kolmogorov–Smirnov normality test was used to test normal distribution of the data. As normality was absent, the non-parametric test Mann-Whitney U test was used to compare distributions of quantitative variables for independent groups from the same participants “before” and “after” the health care professionals' workshops, because the groups were not paired. The Wilcoxon signed ranks test was applied to compare the results on two ICS dimensions and from the same participants “before” and “after” the health care professionals' workshops. The significance of the differences was defined by a value of  $< 0.05$ .

## Results

The ratings of individualized care support and perception provided by health care professionals ( $n = 126$ ) were analyzed and compared before and after the education session. The mean scores on the clinical situation subscale on both dimensions (ICSA and ICSB) and on the decisional control over care subscale of ICSB before and after intervention exceeded 4 points and were at the highest. Overall, the mean scores after education were slightly higher for each subscale on both dimensions but this difference was not significant (Table 2).

The results revealed that during the first round of the survey, i.e., before education, there were no significant differences between health professionals' views on how, in general, they support patient individuality (ICSA) and how they perceived the care they provide as individual (ICSB). However, after the intervention, support and perception of individualized care among participants were rated differently ( $P = 0.029$ , Wilcoxon signed ranks test): after education, the overall score for perception was higher than for the support for individual care (Fig. 1). Moreover, after intervention, nurses and physicians, as one group, rated the perception of

Table 2. Differences in health professionals' (nurses and physicians all together) responses about individualized care of diabetes patients before and after education intervention.

ICS-Nurse scale	Mean (SD), median, min-max		P*
	Before education (n = 126)	After education (n = 70)	
	mean (SD), median, range		
Overall ICSA	4.00 (0.54), 4.00, 2.71–5.00	4.00 (0.55), 4.00, 2.71–5.00	0.879
Clinical situation	4.12 (0.50), 4.07, 2.43–5.00	4.13 (0.55), 4.14, 2.71–5.00	0.811
Personal life situation	3.82 (0.83), 4.00, 1.25–5.00	3.82 (0.78), 3.87, 2.00–5.00	0.860
Decisional control over care	3.97 (0.56), 4.00, 2.50–5.00	3.99 (0.55), 4.00, 2.67–5.00	0.872
Overall ICSB	4.01 (0.52), 3.94, 2.94–5.00	4.08 (0.54), 4.00, 2.82–5.00	0.400
Clinical situation	4.11 (0.48), 4.00, 3.00–5.00	4.18 (0.51), 4.00, 2.71–5.00	0.241
Personal life situation	3.81 (0.72), 4.00, 1.50–5.00	3.95 (0.60), 4.00, 2.75–5.00	0.286
Decisional control over care	4.02 (0.55), 4.00, 2.89–5.00	4.07 (0.61), 4.00, 2.50–5.00	0.652
Overall ICS-Nurse	4.00 (0.50), 3.94, 2.82–5.00	4.05 (0.52), 3.98, 2.82–4.97	0.678

\*- Mann-Whitney U test. \*P < 0.05. ICSA, support of patient individuality in care; ICSB, perception of individuality in care; ICS, Individualized Care Scale.

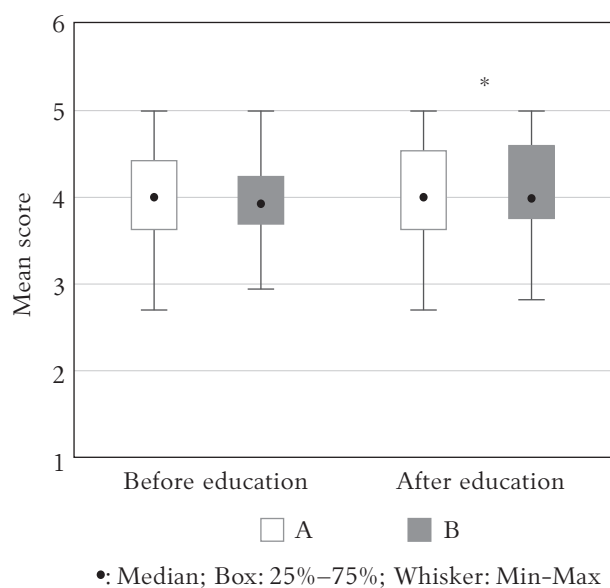


Fig. 1. Health professionals' overall scores of support and perception dimensions of ICS after education

Note: \*Wilcoxon signed ranks test. A – support of patient individuality in care; B – perception of individuality in care.

individualized care on the personal life situation ( $P = 0.046$ ) and decisional control over care ( $P = 0.037$ ) subscales significantly higher than the support for care individuality on these two subscales (Fig. 2).

The correlations between age, work experience,

and education level were insignificant.

In relation to professional qualification, after education, the physicians scored the perception of individuality during the decisional control over care significantly higher than before education ( $P = 0.040$ ) (Table 3).

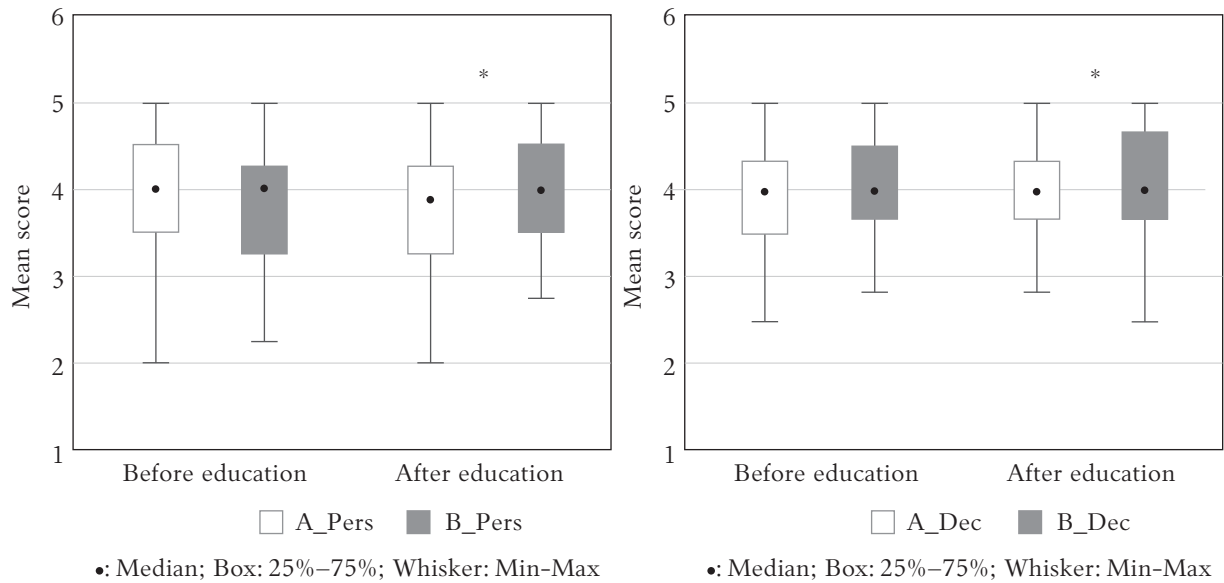


Fig. 2. Health professionals' scores of personal life situation and decisional control over care subscales on two dimensions of ICS (support and perception) before and after education

Note: \*Wilcoxon signed ranks test. A\_Pers – support of patient individuality: personal life situation; A\_Dec – support of patient individuality: decisional control; B\_Pers – perception of individuality: personal life situation; B\_Dec – perception of individuality: decisional control.

Table 3. Comparison of the scores in nurses' and physicians' groups before and after education intervention.

Professional qualification	Overall ICS	ISCA	ISCB	Individualised Care Scale – ICS					
				Clinical situation		Personal life situation		Decisional control over care	
				A	B	A	B	A	B
<b>Nurses</b>	Mean (SD)								
before	4.02 (0.48)	4.02 (0.52)	4.02 (0.50)	4.15 (0.48)	4.10 (0.48)	3.84 (0.83)	3.84 (0.67)	3.99 (0.54)	4.04 (0.55)
after	4.02 (0.52)	4.00 (0.54)	4.04 (0.54)	4.12 (0.54)	4.12 (0.51)	3.83 (0.79)	3.94 (0.62)	3.98 (0.55)	4.00 (0.62)
P*	0.881	0.678	0.911	0.798	0.708	0.766	0.456	0.467	0.612
<b>Physicians</b>	Mean (SD)								
before	3.95 (0.55)	3.91 (0.59)	3.98 (0.56)	4.02 (0.57)	4.13 (0.50)	3.75 (0.84)	3.72 (0.87)	3.91 (0.61)	3.97 (0.54)
after	4.15 (0.53)	4.02 (0.59)	4.28 (0.49)	4.16 (0.60)	4.40 (0.50)	3.78 (0.76)	3.98 (0.50)	4.02 (0.56)	4.33 (0.52)
P*	0.184	0.373	0.100	0.442	0.150	0.850	0.395	0.319	<b>0.040</b>

\* – Mann-Whitney U test, \* $P < 0.05$ . ISCA, support of patient individuality in care; ISCB, perception of individuality in care. A, support of patient individuality in care; B, perception of individuality in care. ICS, Individualized Care Scale.

## Discussion

The lack of nurses' knowledge and their reluctance to implement internationally established recommendations and guidelines regarding the care of patients with diabetes is widely discussed in the scientific literature. Despite the improvements in nurse's knowledge about diabetes-related complications, advising patients on laboratory results, and improving outcomes through lifestyle changes, the gaps still remain for specific areas of nurses' competence such as cardiovascular outcomes and associated modifiable risk factors, or medication management (35).

It is known that providing training seminars to health professionals increases and updates their knowledge on diabetes self-care management and strengthening the proficiency, confidence and motivation of nurses to participate in challenging and ever-changing diabetes management at the primary care level (36). Similarly, in hospital settings, an educational program on diabetes management with multiple sessions of 45 minutes improved nursing knowledge of management of hospitalized patients with diabetes (37). Moreover, nurses from the community health center that are educated through a diabetes training program increase their skills and gain confidence in delivering individualized diabetes self-management education to patients (38).

With this research, we aimed to study how the short education sessions change, if any, the health professionals' support for individual patient care and perception of it while taking care of diabetes patients. A description of the competencies for diabetes care and education specialists that include a diverse set of health disciplines (nurses, dietitians, pharmacists, physicians, podiatrists, etc.) defines that such specialists provide collaborative, comprehensive, and person-centered care and education people with diabetes and related conditions (39) where an individual approach to the patients and their care is essential. This study showed that the education changed the professionals' perception of individuality in patient care they provide for older persons with diabetes. After education, this dimension of individual care, in particular, personal life situation and decisional control over care aspects, was assessed better than the demonstrating support for individual care. It might be that by learning more about the components of individual care and their practical implementation, professionals were encouraged to apply specific actions, for example, patient-centered communication and shared decision making in their everyday work to assure a more individual approach towards their patients.

Another promising result on physicians solely was that, responding for the second time after they had time to practice relying on gained knowledge

about individual care for diabetes patients, physicians perceived themselves more involved in individual decision control over care than before education. It was expectable that shared decision making is still not enough prevalent, as a traditional paternalistic approach to patient care, historically prevalent during a purely biomedical model of care, is still emergent and the patient's active role in his own care has to be emphasized even more among health care providers and consumers. A Lithuanian study on the patients' participation in the health care process and medical decision-making conducted two decades ago highlighted the importance to strengthen the social role of the patient in the health care system by changing paternalistic physician-patient relationships with the more advanced partnership-based physician-patient relationships (40). Later, despite the actualization of the issue in health policy and media, similar results were provided. Chronically ill patients' participation in shared decision-making was insufficient because patients tend to rely upon the physicians' authority and underestimate the significance of their participation in primary health care (41). The expected changes towards a more active role of the patient in his health care emerge with the improved general education and health literacy skills, global tendencies of consumerism in health care, expansion of patients' rights and social-economic growth in the country.

This study revealed that an individual approach to the care of the person with diabetes from the perspective of nurses and physicians is mostly associated with the clinical situation of the patient and with the individuality in care perception, which relates to decisional control over care. This is not surprising, as clinical targets such as glycemic control, cardiovascular risk factors and foot care are fundamental to the management of diabetes. Although, the attention to a personal life situation of the patient during diabetes care, particularly asking patients what kinds of things they do in their everyday life or whether they want their family to take part in their care, should not be underestimated. To meet the evolving needs of the people with diabetes, the mutual collaboration between the patient and the health care provider is important to encourage the patient to take part in his care planning and implementation. The individual approach to care is supported when an integrated health care team develops treatment priorities and a care plan in consultation with patients and further collaboratively managed patient care when major changes to patients' treatment plans (e.g., insulin initiation, prescriptions for supplies, dose titration) are considered (42).

For future research, it would be important to

explore the nurses' view about individual patient care in a larger sample with a more detailed analysis in relation to social-demographic characteristics as results of other studies confirm such a relationship. Other researchers found that total support and perceptions scores of ICS were to be higher in female nurses and those who had bachelor's and postgraduate degrees, worked day shifts, were satisfied with their job and had an employment duration of 21 years or more. Moreover, personal characteristics and the value system also matter as nurses with high personal achievement and closer proximity to the patients were highly supportive of individualize care (43). Other studies also confirm that, having adequate resources, time, and access to diabetes specialists, nurses will be able to correctly perform their diabetes care roles, including patient education, advanced care, and psychological support (44). It would be rational to investigate the organization variables such as work environment, culture and leadership to determine the main barriers of individual care implementation for persons with diabetes care.

One of the goals and objectives is to ensure society's well-being, and high quality and efficient health care focused on the needs of the Lithuanian population (2). It shows the state's concern for the Lithuanian people and their health. With the incremental increases and accelerating cost of diabetes, there is a necessity, to expand strategies and health policy documents that enhance access and mitigate the financial and human burden of the disease (45). Legislation and requirements governing the practice of diabetes care and education specialists are made. The health care system must focus on developing diabetes care by integrating education specialists in diabetes care delivery as these professionals have a significant impact on the

lives of people with diabetes.

The increasing need for the remote services of diabetes care and education was considered and remote consultative outpatient personal health care services for patients with diabetes were initiated due to the emergency in the Republic of Lithuania (46). To bring benefits to health care providers and patients, health care managers should organize training and other assistance that health care professionals need providing e-health service.

### Conclusions

The education on patient-centered care for health care professionals, i.e., nurses and physicians, revealed changes in professionals' perception of individuality in care they provide for older persons with diabetes. After intervention, the perception of the individual approach when dealing with a patient's personal life situation and decisional control over care improved in relation to professionals' views on how they support patient's individuality through care activities in general. After education, physicians but not nurses significantly strengthened their perception of shared decisional control over care they provide to patients with diabetes. Health professionals need to pay more attention during diabetes care to discussing matters of a patient's personal life situation, their preferences, and decisions about family involvement into care. The results on the subjective health professionals' views and perceptions of individual care implementation must be supported with more comprehensive investigations on related organizational factors.

### Conflict of Interest

No conflict of interest has been declared by the authors.

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