Magdalena FLOREK-ŁUSZCZKI, Jarosław CHMIELEWSKI, Stanisław LACHOWSKI, Monika SZPRINGER, Dorota ŻÓŁKOWSKA, Jarogniew J. ŁUSZCZKI

Education of patients with diabetes – an element creating their health core competences

Edukacja pacjentów chorych na cukrzycę elementem kształtującym ich kompetencje zdrowotne

Key words: education, health competence, diabetes.

Słowa kluczowe: edukacja, kompetencje zdrowotne, cukrzyca.

Streszczenie. Fachowa edukacja medyczna ma istotny wpływ na przebieg procesu leczenia pacjentów, zwłaszcza w przypadku chorób przewlekłych. Do tej grupy chorób należy cukrzyca. Ze względu na fakt, że co roku odnotowuje się stały wzrost zachorowań na tę jednostkę chorobową, uznawana jest ona za chorobę cywilizacyjną. Rzetelna wiedza o przyczynach cukrzycy, objawach i sposobie leczenia służy poprawie funkcjonowania pacjentów i daje lepsze rokowania na pomyślny proces terapeutyczny. Pozyskiwanie informacji o tematyce zdrowotnej, ich przetwarzanie i przekładanie na konkretne zachowania służące utrzymaniu zdrowia, zależne jest od poziomu kompetencji zdrowotnych prezentowanych przez pacjentów. Kompetencje zdrowotne są również niezwykle ważnym elementem w procesie podejmowania racjonalnych i świadomych decyzji w procesie leczenia.

Introduction. Diabetes mellitus is a metabolic, non-infectious disease that is considered to be an epidemic of the 21st century because of the range of disease. The number of people affected by this disease gradually increases in Poland. In 2000, approx. 1.3 million of diabetic patients were registered, while in 2010 the number of diabetic patients was estimated at 2–2.5 million (Szczyrba et al. 2010). At present, data from the National Health Fund and Coalition-Diabetes in Poland indicates that there are approximately 3.5 million of people affected by diabetes, of which about 1/3 (about 1 million) are undiagnosed. The number of people affected by diabetes is estimated to grow by 2.5% per year (http://cukrzycapolska.pl/cukrzyca/statystyki/).

Particularly fast growth concerns mainly adults with type 2 diabetes. The upward trend also applies to type 1 diabetes among children and adolescents. At present, the number of cases of type 1 diabetes in this age category is – 20–25 per 100 thousand of inhabitants per year, where in the 1990s the incidence rate for this type of diabetes was about 15 per 100 thousand of inhabitants per year (Niebieska Księga Cukrzycy).

Patients with diabetes suffer from this chronic disease for most of their lives. An important element of the therapeutic process in diabetes, especially after diagnosis, is the education of diabetics. The patients at each stage of the disease should be educated in such a way that the professional knowledge gained by them would give an opportunity for better treatment and coping with its symptoms, and thus to improve the quality of their lives.

In the therapeutic process of people with diabetes, a significant co-determinant of health is the patients' health core competencies. In literature, they are treated as the ability to obtain, process and use health information, and consequently to make informed decisions for health (Nielsen-Bohlman et al., 2004). According to some authors, a high level of health competencies, especially in the aspect of obtaining information about health, is necessary to protect from the risks resulting from the use of unreliable information about health care or ways of treatment (Niedźwiedzka 2013). This is particularly important in the current social reality, where the scale of creating and distributing materials propagating knowledge on health, in a manner devoid of substantive control, is enormous.

This article describes the role of education of patients suffering from diabetes, as a factor conditioning the increase of their health core competencies.

Therapeutic education of people with diabetes. An important element in the treatment process is the patient's education. It can be treated as a group of activities intentionally designed to improve health behaviors and / or the health status of the patient (Lorig 1991).

In current literature, it is often referred to the therapeutic education. This education focuses on human being, who is the recipient of interactions aimed at raising the awareness of patients and behavior related to health and disease, supporting self-education, motivating the patient to fight the disease. Its essential elements also include the work on the compliance of patients with medical prescriptions, such as the proper use of drugs and medicines, the use of curative treatments and rehabilitation, and the provision of information on healthcare organization and related services (Cylkowska-Nowak 2017). Generally, its aim is to change patient's behavior in that way that would be beneficial to health (Tatoń 2005, Tatoń and Bernas 2002).

In case of diabetic patients, education about diabetes is focused on activities promoting the increased knowledge and skills necessary for diabetes care, implementing lifestyle principles that enable the patients to cope with the disease and learning to cope with crises occurring at its various stages (Clement 1995, Lagger et al. 2008). Education in diabetes, along with a strictly therapeutic process, is a key element of care for the patient and encourages diabetic patients to manage their illness. This education should be implemented along with the detection of the disease.

A particular importance is given to the education of sick children and adolescents who will have to deal with diabetes and its consequences throughout the rest of their lives. Educational programs dedicated to young patients should take into account their perceptual abilities, maturity, as well as adequately formulated guidelines for the treatment of certain symptoms. In particular, the effectiveness of insulin therapy depends on knowledge, skills, self-discipline as well as the motivation of the whole family (Hass et al. 2012, Martin et al. 2012, Lange et al. 2014).

Therapeutic education is a continuous process and should be repeated in order to consolidate the information received so far and to provide new information, consistent with the current state of scientific knowledge.

Today, the education is treated as one of the necessary elements in the treatment of chronic and terminal diseases. Its propagated model consists of a deliberate action, aimed at increasing level of competence of both, patients and their families, focused on the fight the disease and health threatening factors. A practical aspect of this kind of education is of particular importance (Uchmanowicz and Kubera-Jaroszewicz 2012).

Basic goals of education in diabetes are as follows: the acquisition by a patient a high level of knowledge, skills and psycho-emotional motivations that will enable the patient's communication with the doctor; creating and promoting health behaviors; strengthening the patient's psychological resistance, counteracting fear, fatigue, frustration, depression; education of a creative approach to difficulties associated with diabetes; strengthening the patient's contact and relationship with relatives and the environment as well as eliminating social discrimination; enabling important social tasks; achieving a good quality of life (Tatoń 2001).

In Poland, educational activities addressed to people with diabetes are usually carried out by diabetes care teams. They usually include a doctor, nurse and midwife, and in about 30% of the facilities, an additional qualified educator for diabetology, whose competencies and methods of specialization are described in *the Regulation of the Minister of Health of 20 July 2011 on qualifications required from employees on particular types of job positions in medical non-business entities* (Rozporządzenie Ministra Zdrowia 2011). Research has shown that better educational effects with respect to diabetic patients are reached by the educators, dieticians and nurses rather than doctors (Strojek 2014). Particular importance in this matter is attributed to the work of the family nurse, especially, in the implementation of the individualized educational process of diabetics. As a result of performing a daily professional role, the family nurse has knowledge about the patient's life and health situation and identifies the patients' educational and therapeutic needs, which allows for rapid and targeted intervention (Dębska et al. 2012).

In 1999, the European Diabetes Policy Group, comprising experts in the field of diabetology, emphasized that members of diabetes teams are responsible for preparing such diabetic patients so that they could lead a healthy lifestyle based on conscious choice, independence, knowledge and responsibility for themselves. The experts attributed to diabetes' educators a leading role in affecting the patients, which would result in motivating them to self-care (Boratyn-Dubiel and Chmiel 2010).

The propagated model of therapeutic education clearly stressed the need to understand and involve patients by themselves in this process. Their attitude to disease and treatment, as well as the therapeutic regime, determines the effectiveness of the antidiabetic therapy.

A positive change noticed in recent years among diabetics is the more frequent independent search for knowledge from various sources about the proper therapeutic treatment, and linking better treatment efficiency with lifestyle rather than with the quality of health care and services (Funell et al. 2011, Polikandrioti 2010). The more involvement in the treatment process and the more active approach in the battle for a better quality of life are, the greater the chance to participate in the therapeutic regime and the greater effects of treatment (Quinn et al. 2011).

To increase chances in reaching such goals one can include the patients' family members in the educational process, to whom should be dedicated programs with thematic scope adequate to the needs of diabetic patients, but also to the educational needs of caregivers and diabetics' families.

Research conducted on a nationwide sample of diabetics' families showed that the majority of them express openness to raise their competencies and to declare their expectations in the field of education in diabetes (74%). Among the expectations is the desire to raise the level of knowledge on issues related to the symptoms of diabetes mellitus, complications and prevention of acute complications, nutrition in diabetes, symptoms of hyperglycemia and hypoglycemia, as well as life threatening behaviors and behaviors promoting healthy lifestyle by diabetics (Adamczyk 2013).

It is worth noting that the participation of diabetics' family members in the diabetic therapeutic process fulfills the desired function only when they are appropriately educated. Lack of adequate education may result not only from lack of improvement of the psycho-somatic state of diabetic patients, but may even have negative implications. The required recommendation for diabetic patients is to provide professional education to their families / caregivers, which in turn may lead to improved effectiveness of treatment and significant reduction of complications associated with diabetes (Whitford et al. 2009).

Undoubtedly, various educational activities in diabetics and their families are the basic elements for improving their health literacy (Bik and Przewoźniak 2005, Woynarowska 2018, Nutbeam 2000).

The World Health Organization (WHO), by defining health literacy emphasizes the role of cognitive and social skills of individuals, who decide about their motivation and opportunities to access, understand and use information to maintain and promote health (World Health Organization 2013).

According to Nutbeam's concept, the scope of health competencies held by a patient can be divided into three levels:

1. Functional (basic) level – is defined as the ability to read medical information (forms, drug labels, tables) and to understand the content written and spoken by medical care professionals (doctor, nurse, pharmacist) necessary to comply with the recommendations and to perform self-care at home.

2. Interactive level – is a wide range of skills and competencies that people acquire in the process of socialization, which enable them to make conscious choices promoting health.
3. Critical level – is defined as the ability to undertake advanced activities in the field of disease prevention and health promotion. People with this level of competencies usually effectively manage their own and other diseases (e.g. family members) (Nutbeam 1999).

Based on this three-level division of health competencies, it can be assumed that people suffering from diabetes, who possess the first (functional) level will have the ability to understand medical recommendations and other information related to a medical condition such as medicine leaflets or research results. Another, interactive level will allow the patients with diabetes to actively participate in the treatment process by searching for additional information about their illness and by making informed health decisions (e.g., changing the existing lifestyle) to improve their health. The third, critical level of health competencies provides the ability of patients to interpret information about their illness, draw critical conclusions that constitute the foundation for further advanced actions in the area of promoting their health (Iwanowicz 2009).

The most desirable, giving the chance to achieve the best therapeutic effects is the critical level of health competencies. People suffering from a chronic disease, including diabetes should constantly and systematically control their health, follow medical recommendations, and take measures to improve their knowledge about the disease. Possession of competencies at the critical level enables the patients to participate more effectively in their treatment process by co-deciding about medical procedures and provides them with the possibility of more effective enforcement of their medical services.

The results of previous studies dealing with relationships between health literacy and health effects regarding patients suffering from diabetes have shown the existence of a positive correlation between glycemic control and health competencies. People with the ability to obtain information about their own disease and with proper reading and interpretation, achieved better therapeutic effects, and less likely they developed serious complications (Levin-Zamir 2001, Schillinger et al. 2004, Cavanaugh 2011).

In the 21st century, the chances of achieving a high level of health competencies have information societies, i.e. those that have databases (information) on health, with full access to them and the ability to use these databases by the public (Webster 2006). Presently both, the dynamic technological development and dissemination of the access to the Internet are the main sources of knowledge about health. There is no doubt that media create health competencies and influence the relationship with medical staff (Szymczuk et al. 2011).

Due to free access to information and by building the idea of e-Health, we have more favorable conditions for the development of health literacy (Olejniczak 2016). On the other hand, the multiplicity of sources of health information posted on the web and lack of control over their substantive content make that the recipients (generally, the patients) have a problem with their classification and choice of the most reliable

information. Therefore, it seems important to implement the idea of certifying sources of health information that will ensure high quality of propagated educational materials, supported by scientific research.

Conclusions. It should be emphasized that one of the aims of adult education should be „strengthening" through the development of health competencies. Among the main activities aimed at achieving this goal is health / therapeutic education. In the case of people with diabetes, the increase in the level of health literacy should result in a substantial change in lifestyle, increased ability to adhere to the recommended treatment model, as well as raising the level of knowledge and understanding of professional concepts and the ability to undertake health-oriented activities. An interactive and critical involvement in the state of one's health is a key element conditioning the improvement of health by the individuals.

Healthcare / therapeutic education of diabetic patients should be considered as an investment that in the future will bring tangible benefits, manifesting in improving the quality of life of diabetics, reducing the range of complications associated with this disease, reducing the economic costs resulting from the treatment process, absenteeism at work, sick leave, etc.

Its effective implementation is possible exclusively due to orderly, based on clearly defined rules of cooperation of medical staff and patients with diabetes. The proper communication of doctors, nurses and diabetes educators with patients is an important element to achieve the therapeutic goals.

References

1. Adamczyk A. (2013). *Oczekiwania środowiska rodziny/opiekunów pacjentów chorych na cukrzycę w zakresie edukacji w cukrzycy – w świetle badań ogólnopolskich.* Medycyna Środowiskowa – Environmental Medicine, 16(1): 58–66.
2. Bik B., Przewoźniak L. (2005). *Historia profesji promotora (edukatora) zdrowia*. W: Piątkowski W., Brodniak W. [red.]. Zdrowie i choroba. Perspektywa socjologiczna. Wyższa Szkoła Społeczno-Gospodarcza, Tyczyn.
3. Boratyn-Dubiel L., Chmiel Z. (2010). *Znaczenie edukacji zdrowotnej dla pacjentów z cukrzycą.* Zdrowie Publiczne, 120(3): 316–323.
4. Cavanaugh K.L. (2011). *Health literacy in diabetes care: explanation, evidence and equipment.* Diabetes Management (London), 1(2): 191–199.
5. Clement S. (1995). *Diabetes self-management education*. Diabetes Care, 18: 1204–1214.
6. Cylkowska-Nowak M. 2017, *Edukacja zdrowotna w terapii chorób*. W: red. B. Woynarowska, Edukacja Zdrowotna, Warszawa, pp. 108–112.
7. Dębska G., Rogala-Pawelczyk G., Zięba E. (2012). *Projekt edukacji chorego z zespołem stopy cukrzycowej oparty na teorii Dorothy Orem*. Pielęgniarstwo i Zdrowie Publiczne, 2(1): 57–65.
8. Funell M.M., Brown T.L., Childs B.P., et al. (2011). *National standards for diabetes self-management education.* Diabetes Care, 34 (suppl. 1): 89–96.
9. Hass L., Maryniuk M., Beck J., et al. (2012). *Standard revision task force. National standards for diabetes self-management education and support*. Diabetes Care, 37(suppl. 1): 144–153.
10. http://cukrzycapolska.pl/cukrzyca/statystyki/ [data dostępu 25.03.2018]
11. Iwanowicz E. (2009). *„Health literacy" jako jedno ze współczesnych wyzwań zdrowia publicznego*. Medycyna Praktyczna, 60(5): 427–437.

12. Lagger G., Giordan A., Chambouleyron M., et al. (2008). *Therapeutic education*. *Part 2. Practice implication of 5 dimensional model.* Medicine, 4: 269–73.
13. Lange K., Swift P, Pankowska E., Danne T. (2014). *Diabetes education children and adolescents*. Pediatric Diabetes, 15 (Suppl. 20): 77–85.
14. Levin-Zamir D. (2001). *Health literacy in health systems: Perspectives on patient self-management in Israel*. Health Promotion International, 16: 87–94.
15. Lorig K. (1991). *Common sense patient education*, Ivanhoe, Victoria.
16. Martin D., Lange K., Sima A., et al. (2012). *On behalf of the SWEET group. Recommendations for age-appropriate education of children and adolescents with diabetes and their parents in the European Union*. Pediatric Diabetes, 13(Suppl. 16): 20–28.
17. Niebieska Księga Cukrzycy [http://cukrzyca.ippez.pl/cukrzyca2/wp-content/uploads/2017/08/blue_paper_raport_cukrzyca_to.pdf.pdf] [data dostępu 25.03.2018].
18. Niedźwiedzka B. (2013). *Zdrowotne kompetencje informacyjne jako ważna składowa kompetencji zdrowotnych*. Zdrowie Publiczne, 123(1): 98–103.
19. Nielsen-Bohlman L., Panzer A.M., Hamlin B., et al. (2004). *Health literacy: a prescription to end confusion*. Institute of Medicine of the National Academies. National Academies Press. Washington.
20. Nutbeam D. (1999). *Literacies across the lifespan: Health literacy*. Literacy and Numeracy Studies, 9: 47–55.
21. Nutbeam D. (2000). *Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into 21st centur*y. Health Promotion International, 15: 259–267.
22. Olejniczak D. (2016). *Praktyczne wykorzystanie health literacy-alfabetyzmu zdrowotnego, jako narzędzia osiągania celów zdrowotnych*. Journal of Education, Health and Sport, 6(2): 238–243.
23. Polikandrioti M. (2010). *The role of education in diabetes mellitus type 2 management*. Health Science Journal, 4(4): 201–202.
24. Quinn Ch., Royak-Schaler R., Dan Lender D., et al. (2011), *Patient understanding of diabetes self-management: participatory decision-making in diabetes care*. Journal of Diabetes Science and Technology, 5(3): 723–730.
25. Rozporządzenie Ministra Zdrowia z dnia 20 lipca 2011 r. w sprawie kwalifikacji wymaganych od pracowników na poszczególnych rodzajach stanowisk pracy w podmiotach leczniczych niebędących przedsiębiorcami. Dziennik Ustaw Nr 151 poz. 896.
26. Schillinger D., Grumbach K., Piette J., et al. (2004). *Association of health literacy with diabetes outcomes*. Journal of American Medical Association, 288: 475–482.
27. Strojek K. (2014). *Diabetologia. Praktyczny poradnik*, TerMedia, Poznań.
28. Szczyrba S., Kozera G., Bieniaszewski L., Nyka W.M. (2010). *Neuropatia cukrzycowa – patogeneza, rozpoznawanie, zapobieganie, leczenie. Wybrane Problemy Kliniczne*. Forum Medycyny Rodzinnej, 4(5): 339–355
29. Szymczuk E., Zajchowska J., Dominik A., et al. (2011). *Media jako źródło wiedzy o zdrowiu*, Medycyna Ogólna i Nauki o Zdrowiu, 17(4): 165–168.
30. Tatoń J. (2001). *Edukacja terapeutyczna osób z cukrzycą – fundament metodologiczny leczenia*. W: Tatoń J., Czech A. Diabetologia. Wydawnictwo Lekarskie PZWL, Warszawa.
31. Tatoń J. (2005). *Edukacja i psychologia terapeutyczna – nowy kierunek ulepszania wyników leczenia i jakości życia przewlekle chorych*, Medycyna Metaboliczna, 9: 3–6.
32. Tatoń J., Bernas M. (2002). *Pedagogika zdrowotna w cukrzycy*. Medycyna Metaboliczna, 6: 25–33.
33. Uchmanowicz I., Kubera-Jaroszewicz K. (2012). *Edukacja diabetologiczna. Standard opieki pielęgnacyjnej chorego na cukrzycę*. Wydawnictwo Continuo, Wrocław.
34. Webster F. (2006). *Theories of the information society*, Wydawnictwo Taylor & Francis Group, New York.

35. Whitford D.L., McGee H., O'Sullivan B. (2009). *Will people with type 2 diabetes speak to family members about health risk?* Diabetes Care, 32: 251–253.
36. World Health Organization. The Solid Facts. Health Literacy 2013. [http://www.euro.who.int/__data/assets/pdf_file/0008/190655/ e96854.pdf] [dostęp: 2018.03.22].
37. Woynarowska B. (2018). *Edukacja zdrowotna. Podręcznik akademicki*. Wydawnictwo Naukowe PWN, Warszawa.

dr hab. Magdalena FLOREK-ŁUSZCZKI
Institute of Rural Health, Lublin, Poland
Correspondence to: Prof. Magdalena Florek-Łuszczki, Department of Medical Anthropology, Institute of Rural Health, Jaczewskiego 2, PL-20-950 Lublin, Poland. Tel: +48-81-718-45-32

prof. zw. dr hab. Jarogniew J. ŁUSZCZKI
Medical University, Lublin, Poland

prof. nadzw. dr hab. Stanisław LACHOWSKI
Maria Curie Skłodowska University, Lublin, Poland

prof. nadzw. dr hab. Monika SZPRINGER
The Jan Kochanowski University, Kielce, Poland

dr hab. Dorota ŻÓŁKOWSKA
School of Medicine, University of California–Davis, Sacramento CA, USA

dr Jarosław CHMIELEWSKI
Institute of Environmental Protection – National Research Institute, Warsaw, Poland