

Areas of health-education of physicians and nurses in care for cardiac patients from the perspective of citizens of the Czech Republic

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Submitted: 2016-08-15 *Accepted:* 2016-10-20 *Published online:* 2016-12-18

Key words: health-educational actions; education; physician; nurse

Neuroendocrinol Lett 2016;37(Suppl. 2):5-10 PMID: 28233955 NEL371016A01 © 2016 Neuroendocrinology Letters • www.nel.edu

Abstract

OBJECTIVES: The goal of this article was to assess the delivery of patient health-education, relative to cardiovascular disease from the perspective of physicians and nurses, as well as from the perspective of citizens living in the Czech Republic.

METHODS: The article is based on data acquired from the “Intervention procedures in preventive cardiology” grant project. To evaluate patient health education, non-standardized questionnaires intended for physicians (n=1000) and nurses (n=1000) were used. A combination of a non-standardized questionnaire and a standardized questionnaire (SF-36) was used to assess citizen (n=1992) viewpoints. The actual investigation took place from April 1 to April 20, 2016 and was implemented over the entirety of the Czech Republic. Data were analyzed using the SASD v. 1.4.12 program. Both first and second degree sorting was used. The degree of dependence of selected characteristics was established based on the Chi-square test and the T-test.

RESULTS: A bit more than half (53.1%) of the physicians indicated that nurses carried out patient education regarding influenceable risk factors associated with cardiovascular diseases, while 71.6% of nurses reported carrying out this duty. The overwhelming majority of physicians (97.1%) and nurses (92.3%) report informing patients about how to improve their health condition. Citizen respondents reported that topics such as nutrition, exercise, smoking cessation, stress reduction, and the drug side effects use were discussed with them more frequently by physicians than by nurses. Citizen respondents reported that nutrition was discussed most frequently with them, while the issue of smoking cessation was discussed the least frequently.

CONCLUSION: Our analysis showed that physicians engage in patient education more frequently than nurses. At the same time, results suggest that a relatively significant number of physicians and nurses rarely or never educate regarding risk factors associated with cardiovascular diseases.

INTRODUCTION

Health-education constitutes an integral part of health care provided by the health care system of the Czech Republic. Such actions are aimed at creating and deepening the knowledge needed to improve and maintain the health of individuals and of different population groups (Čeledová and Čevela 2010). WHO (1998) defines health education as a goal-directed process aimed at passing along information directed at improving health literacy of the targeted groups. At the same time, it stresses the importance of motivation, improvement of skills, and strengthening the capability of patients to assume responsibility for their own health (WHO 2012).

For many years, the main topics of health education were based on elimination of risk factors related to inadequate exercise, poor nutrition, smoking, alcohol consumption, stress, and prevention of lifestyle and sexually transmitted diseases (Wurzbach 2002). Inadequate nutrition and poor eating habits, smoking, and insufficient exercise markedly increase the risk of cardiovascular diseases (CDC 2009). The issue of the above stated risk factors is also included in the “Health 2020 – National Strategy for Health Protection and Promotion and Disease Prevention” program. It is aimed primarily at stabilizing the prevention system and at creating efficient mechanisms, sustainable over the long term, and directed at improving the health of the population (MZČR 2014a).

In 2016, the European Cardiology Society issued new suggestions for clinical practice, for cardiovascular diseases (Piepoli *et al.* 2016). It defines the actual prevention of cardiovascular diseases as a set of actions aimed at eliminating or minimizing the impact of cardiovascular and associated diseases at the level of the individual as well as the whole population. At the same time, it emphasizes that cardiovascular diseases can be effectively influenced, in up to 80% of cases, by preventive steps.

To monitor the health condition of the inhabitants of the Czech Republic, numerous studies have been implemented, e.g. EHIS 2014, HELEN study, HAPPIE cohort study of health conditions, and the study of Smoking habits of the adult Czech population, 2011 (SZÚ 2016). The “Report of health of the inhabitants of the Czech Republic” (MZČR 2014b) suggests that the Czech population is not as healthy as perhaps it might want to be. This is primarily due to underestimation of the incidence of risk factors and underestimation of the importance of life-style changes in reducing risk factors. At the same time, activities directed toward primary prevention, i.e. prevention or delay of disease onset, also appear inadequate.

From the perspective of individual risk factors, cardiovascular diseases remain the most frequent cause of death, although the death rate has been reduced by 20% since 2006, thanks mainly to more efficient diagnostic and therapeutic procedures. Diabetes mellitus is another

serious problem with a significant upward growth trend; about 7% of inhabitants suffer from diabetes mellitus, with 90–95% suffering from diabetes mellitus, type 2. Cardiovascular diseases and diabetes are significantly related to overweight, obesity, and inadequate exercise. Of the adult population, 57% are overweight, and the percentage has been unchanged over the long term. A significant increase has also been noticed in the recorded number of serious infections, particularly of sexually transmitted diseases (e.g., HIV, syphilis, etc.). Per the report, the trend in the use of tobacco products among adult citizens seems to have stabilized; it oscillates between 28–32%. On the other hand, the Czech Republic is infamous as being first among countries of the European region in consumption of pure alcohol, with an average annual recorded consumption of 16.6 liters of pure alcohol per adult (MZČR 2014b).

GOALS

The goal of this article was to assess the delivery of patient health-education, relative to cardiovascular disease, from the perspective of physicians and nurses, as well as from the perspective of citizens living in the Czech Republic

MATERIAL AND METHODS

The article is based on data from the “Intervention procedures in preventive cardiology” grant project. This project focused on the nurse’s role in preventive cardiology and on implementation of preventive interventions directed at the modification of influenceable risk factors associated with cardiovascular diseases, at the level of primary and secondary prevention. To assess patient health education, non-standardized questionnaires were used for physicians and nurses, consisting primarily of closed-ended questions complemented with a scale for answers. A combination of a non-standardized questionnaire and a standardized questionnaire (SF-36) were used for citizens. The actual investigation took place from April 1 to April 20, 2016 and was implemented over the entirety of the Czech Republic. Data collection was performed by professional questioners from the Institute for Study of Health and Life Style. After an electronic tabulation of the questionnaires, data were processed using the SASD (Statistical Analysis of Social Data) program, version 1.4.12. Both first and second degree sorting was used. The degree of dependence of selected characteristics was established based on the Chi-square test and *T*-test.

Based on the data of the Institute of Medical Information and Statistics of the Ministry of Health of the Czech Republic, valid on 31. 12. 2013, the size of the set of physicians (1000 respondents) and nurses (1000 respondents) was established. During the actual data collection, 1219 physicians and 1190 nurses were approached. The interview was refused by 219 (18%)

physicians and 190 (16%) nurses. To determine the size of the set of citizens (1992 respondents), we used data of the Czech Statistical Office valid on 31. 12. 2014. Respondents were chosen by quota selection. The selection set of physicians ($n=1000$) consisted of general practitioners for adults (54.7%), internal physicians (34.6%), and cardiologists (8.9%) working in outpatient departments. As for gender, there were 43.2% male and 56.8% female physicians included. The selection set of nurses ($n=1000$) included nurses working in offices of general practitioners for adults (54.7%), working in outpatient departments of internal physicians (36.3%), and working in offices of cardiologists (9%). With regard to gender, there were 97.8% female and 2.2% male nurses. The selection set of citizens ($n=1992$) consisted of 47% males and 53% females over 40 years old (yo) (see Table 1). As compared to the age structure of the basic set, it can be stated that the data are representative for individual groups of Czech citizens over 40 yo.

In connection with the goal of this article, we also evaluated data related to patient health-education by physicians and nurses, relative to cardiovascular disease, from the perspective of citizen respondents. We focus on education relative to influenceable risk factors and on the impact of patient health-education.

RESULTS

In connection with patient health-education relative to cardiac patients, attention was also paid to other diseases suffered by citizen respondents ($n=1992$). More than half of citizen respondents (52.9%) stated that they did not suffer from cardiovascular disease. Of those who acknowledged having a cardiovascular disease, most reported hypertension (34.8%). A statistically significant relationship ($p<0.001$) was identified between the respondent's age and disease. Younger age groups (40–49 yo and 50–59 yo) more frequently stated they did not suffer from any cardiovascular disease. The 60–69 yo group stated significantly more often that they suffered from heart disease and/or hypertension, while the ≥ 70 yo group, in addition to hypertension, also stated that they suffered from diseases of heart and lower extremity vessels.

Education is an integral part of high-quality nursing care. Therefore, both physicians and nurses were asked whether, in their outpatient department, nurses carried out patient education regarding influenceable risk factors linked to cardiovascular diseases. The answers from nurses ($n=1000$) and physicians ($n=1000$) showed a statistically significant difference ($p<0.001$). More than one half of the physicians (53.1%) stated that in their outpatient department, patient education was implemented by nurses. However, 71.6% of nurses reported that patient education was carried out by nurses. It is interesting that when answering the question, as to whether they instructed patients on how to improve their health condition, an overwhelming majority of

physicians (97.1%) and nurses (92.3%) stated that they did instruct patients on this issue. The time devoted to patient health-education was perceived as sufficient by most physicians and nurses (see Table 2).

A statistically significant relationship ($p<0.001$) was identified between instructions regarding health conditions and having sufficient time reserved for patient education. We found that nurses who instructed patients on how to improve their health condition stated significantly more frequently that the time devoted by them to the activity was sufficient. However, nurses who did not take part in patient education stated significantly more frequently that the amount of time was insufficient.

We ascertained from the general population their perspective regarding how often physicians (Table 3) and nurses (Table 4) spoke with them about individual risk factors related to cardiovascular diseases. In the opinion of the citizen respondents, physicians spoke with them more often than nurses in all areas, i.e. nutrition modification, exercise, stopping smoking, stress reduction, and regarding undesirable effects of drugs. Nutrition was discussed most frequently with them, while stopping smoking was discussed least frequently.

Further data analysis revealed a relationship between the disease under therapy and education on influenceable risk factors, implemented by health care workers. It was found that people not suffering from any heart or vessel disease reported significantly more frequently that they were not educated about nutrition or that they did not remember receiving such information. On the contrary, patients suffering from some type of cardio-

Tab. 1. Age structure of the selection set of Czech citizens relative to gender.

Age group	MEN		WOMEN	
	n	%	n	%
40–49 years	284	14.3	275	13.8
50–59 years	242	12.1	245	12.3
60–69 years	237	11.9	270	13.6
70–79 years	126	6.3	167	8.4
80 and more years	48	2.4	98	4.9
Total	937	100	1055	100

Tab. 2. Time devoted to patient health-education.

	Physicians		Nurses	
	n	%	n	%
always	145	14.5	129	12.9
often	504	50.4	470	47.0
sometimes	328	32.8	376	37.6
rarely	23	2.3	25	2.5
Total	1000	100	1000	100

Tab. 3. Evaluation of patient health education by the general population – physicians' perspective

	Modification of nutrition		Exercise		Stopping smoking		Stress reduction		Undesirable effects of drugs	
	n	%	n	%	n	%	n	%	n	%
always	149	7.5	106	5.3	181	9.1	149	7.5	145	7.3
often	317	15.9	311	15.6	194	9.7	299	15.0	257	12.9
sometimes	623	31.3	603	30.3	333	16.7	542	27.2	574	28.8
rarely	452	22.7	480	24.1	227	11.4	408	20.5	444	22.3
never	451	22.6	492	24.7	1057	53.1	594	29.8	572	28.7
Total	1992	100	1992	100	1992	100	1992	100	1992	100

Tab. 4. Evaluation of patient education by the general population – nurses' perspective

	Modification of nutrition		Exercise		Stopping smoking		Stress reduction		Undesirable effects of drugs	
	n	%	n	%	n	%	n	%	n	%
always	69	3.5	60	3.0	81	4.1	74	3.7	82	4.1
often	198	9.9	167	8.4	154	7.7	197	9.9	151	7.6
sometimes	491	24.6	462	23.2	325	16.3	412	20.7	402	20.2
rarely	413	20.7	434	21.8	339	17.0	406	20.4	400	20.1
never	821	41.3	869	43.6	1093	54.9	903	45.3	957	48.0
Total	1992	100	1992	100	1992	100	1992	100	1992	100

vascular disease reported receiving significantly more education regarding nutrition. Similar results were also recorded with respect of education about home blood pressure measurement, adequate exercise, and the issues of smoking and alcohol abuse. As for education on adequate exercise, the data shows that those not suffering from any cardiovascular disease still considered such information very useful ($p < 0.05$). They also considered information on stopping smoking to be very useful ($p < 0.001$).

DISCUSSION

The results are associated with grant project No. 15-31000A that deals with the role of nurses in preventive cardiology and implementation of preventive interventions at the level of primary and secondary prevention. The results are related to individual areas of patient health-education carried out by physicians and nurses, in the care for cardiac patients, from the perspective of citizens of the Czech Republic. Specifically, this article focused on patient education carried out as well as the topics involved (e.g. nutrition, exercise, alcohol use/abuse, etc.).

Support for health education has been an integral part of high-quality health care for many years. It is implemented at the level of prevention to improve the overall health of the population, to increase resistance to disease, and to strengthen physical, mental, and

social wellbeing (Machová *et al.* 2016). Patient health education is known to directly influence patient behaviour and decisions as well as increase patient responsibility for their own health (Kalua and Nyasulu 2007). Education is also an integral part of the nursing process and one of the key competences of current nurses (Šulistová and Trešlová 2012, Mikšová *et al.* 2014, Tóthová *et al.* 2014). Those competences are stipulated in Decree 55/2011 Coll., which defined the activities of health care workers and other professionals (Vyhláška č. 55/2011 Sb.). But the results our analysis show that 53.1% of physicians ($n=1000$) report that nurses carry out patient education in their outpatient department. However, 71.6% nurses ($n=1000$) reported that they carried out patient education as one of their roles in outpatient departments. Significantly higher values were recorded for patient instructions with respect to improvement of their health condition, with 97.1% of physicians and 92.3% of nurses reporting that they participated in providing such education, perceiving the time devoted to patient health-education as sufficient.

From the perspective of citizen respondents, we determined how often physicians and nurses discussed with them the individual risk factors related to cardiovascular diseases. Specifically, attention was paid to nutrition modification, exercise, smoking, stress reduction, and undesirable effects of drugs. As Tóthová *et al.* (2016) states, optimal nutrition and good nutritional habits help maintain a normal body weight and

reduce the risk of becoming overweight or obese, and reduce the consequential effects on disease processes. In our study, citizen respondents reported that 54.7% of physicians discussed nutrition modification with them (always, often or sometimes), while reporting the same for nurses in only 38% of cases. The topic of exercise revealed lower values. According to citizen respondents, 51.2% of physicians discussed the issue with them (always, often or sometimes), while nurses did it only in 34.6% of cases. However, as Machová *et al.* (2016) stated, active exercise is an indispensable and the most natural precondition for maintenance and strengthening of normal physiological functions of the organism. Additionally, the impact of exercise on improvement of an individual's health condition, mental wellbeing (Tóthová *et al.* 2015) and socialization is considerable as well.

Although smoking ranks among the most significant preventable risk factors causing serious diseases (Müllerová 2014), citizen respondents reported that only 35.5% of physicians and only 28.1% of nurses spoke about ways to stop smoking (always, often or sometimes). Yet Müllerová (2014) reports the smoking prevalence in the Czech population as 33.8% of the 25–44 yo group, 28.9% of the 45–64 yo group, and 20.8% of the ≥ 65 yo group.

With respect to exercise and smoking, it was further found that citizens not suffering from any cardiovascular disease still considered receiving information on this topic very useful.

Risk behavior in the form of smoking or alcohol abuse is closely related to stress, since they both can constitute ways of coping with stress (Křivohlavý 2002). In such cases, health care workers should help individuals find other ways to reduce or eliminate stress without incorporating high-risk behaviors. The citizen respondents reported that almost half of the physicians (49%) and only 34.3% of nurses discussed stress reduction with them (always, often, or sometimes).

Undesirable drug effect is defined as each unexpected and harmful response emerging after taking a drug at the dose intended for preventive, diagnostic, or therapeutic purposes (Ferenčík *et al.* 2005). Marek *et al.* (2010) states that undesirable effects are more frequent in older patients than in younger ones; occurring primarily in geriatric patients with low health potential. It must be noted that the citizen respondents reporting on this issue were over 40 yo (Table 1), with almost half (47.5% (946 persons)) being ≥ 60 yo. The citizen respondents reported that close to half (49%) of physicians and only 32.2% of nurses spoke with them about undesirable drugs effects (always, often or sometimes).

CONCLUSION

Our analysis showed that physicians engaged in health-education more frequently than nurses. Nevertheless, according to citizen respondents' there are some areas

where both physicians and nurses rarely or never educate patients, in particular, regarding how to avoid or minimize the risk factors for developing cardiovascular disease. These findings should serve as useful feedback for physicians and nurses, and both challenge and motivate them to implement changes in patient health-education. As Sulo *et al.* (2016) stated, heart diseases exist on a steep socio-economic gradient. Their socio-economic impacts, as well as the incidence of the related complications can be reduced by adequate and efficient education, which is now supported in the Czech Republic by clinical suggestions created for European countries (Doležel and Jarošová 2015).

ACKNOWLEDGEMENT

Supported by the Ministry of Health of the Czech Republic grant No. 15-31000A. All rights reserved.

Conflict of interest. *The authors report no conflicts of interest.*

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