Journal of Nursing, Social Studies, Public Health and Rehabilitation 3–4, 2016, pp. 134–140

ORIGINAL ARTICLE

THE ROLE OF NURSES IN THE PREVENTION OF CARDIOVASCULAR DISEASES

Helena Michálková, Lenka Šedová, Valérie Tóthová, Věra Olišarová

University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Nursing, Midwifery and Emergency Care, České Budějovice, Czech Republic

Submitted: 2015-11-16 **Accepted:** 2016-07-04 **Published online:** 2016-12-31

Abstract

Introduction: Support of cardiovascular health is an important part of the strategy of national and international health projects. In the primary prevention of cardiovascular public health, an important role may be played by nurse-educators.

Objective: The aim of this paper is to analyse available research surveys that focus on the activities of nurses in the primary prevention of cardiovascular diseases.

Materials and methods: We defined a search strategy based on the keywords. For the literature review we used the MEDVIK, MEDLINE and CINAHL databases. We also utilized the services of the National Medical Library in Prague and the National Centre of Nursing and Non-medical Health Professions in Brno. Based on the entry criteria we found 48 Czech and 113 international records. For further analysis we used 20 Czech records and 70 foreign records, containing full texts related to the topic. Before the analysis we also eliminated the duplicates of published research investigations. We used 23 scientific articles for the literature review. The analysis included a study results methodology analysis and a comparison of the data with other studies.

Conclusion: The research survey showed that the mere transmission of information is not sufficiently effective in the prevention of cardiovascular diseases. In this respect, long term cooperation with patients focusing on their approach to health seems crucial. The educational activities of nurses play a big role because nursing is traditionally associated with the care of the healthy and the ill. The development of nurses' educational skills provides them with quality professional foundations that they can fully utilize to support their clients' health. However, there arises the need for more research aimed at mapping nurses' interventions in preventive cardiology.

Key words: *preventive cardiology; cardiovascular diseases; prevention; cardiovascular risks; educational activities of nurses*

INTRODUCTION

Cardiovascular diseases are the main cause of morbidity and mortality in the Czech Republic and in all other economically developed countries (ÚZIS 2013). Compared with Western countries, the incidence of these diseases is still higher, although it has been decreasing since 1990. Cardiovascular diseases involve many forms of heart and blood vessel disorders (Býma and Hradec 2013). The most common ones are represented by ischemic heart disease, strokes, peripheral vascular disease and hypertension. They are diseases with a common cause

i.e. atherosclerosis. However, this is not a process which cannot be influenced. The modifiable factors are those of a healthy lifestyle, which are in case of cardiovascular disease prevention mostly represented by the cessation of smoking and drinking, a healthy (rational) diet with a restricted intake of animal fats, plenty of physical activity, and avoidance of extreme stress (Kotseva et al. 2009).

The role of the nurse in prevention is to educate the patient about his or her own risky behaviour, motivating them to cooperate and provide information that will improve their lifestyle. Cardiovascular diseases represent the most frequent cause of morbidity, despite the fact that there are many ways to reduce the risk of their manifestation. General nurses can implement activities contributing to successful prevention of cardiovascular diseases. Their primary role is to educate patients about the principles of healthy lifestyle, including the active promotion of non-smoking. It is often the motivational and educational work of the nurses that are responsible for the long-term success of preventive measures (Vilánková et al. 2010).

The aim of this paper is to analyse available research surveys which focus on the activities of nurses in primary prevention of cardiovascular diseases.

MATERIALS AND METHODS

The research strategy was defined on the basis of the keywords. The method of research was carried out using several databases to identify the relevant material. For the literature review the MEDVIK, MEDLINE and CINAHL databases were used. We also utilized the services of the National Medical Library in Prague (the database) and the National Centre of Nursing and Other Health Professions in Brno. The selected key words were: preventive cardiology; cardiovascular diseases; primary prevention; cardiovascular risks; educational activities of nurses; nursing care in cardiology; the role of nurses in preventive cardiology; cardiovascular nursing. The research was limited to the years 1996–2015. Based on entry criteria, we found 48 Czech records and 113 international records. From these records we used 20 Czech and 70 foreign records with full texts related to the topic for further analysis. Before the analysis we also eliminated the duplicates of published research investigations and pilot surveys. Then we analysed the abstracts and resource names. We did not use very specific selection criteria in order to include a wide range of research studies into the contribution. The analysis of the texts took their research expertise into consideration. Selected research studies were included in the analysis according to the following criteria: the texts were in English or Czech language; works had to be published in peer-reviewed journals; and the included studies had to contain: the role of nurses, knowledge and skills of nurses and other factors that allow nurses to implement the support of cardiovascular health. The main criteria for rejection of materials for the study were subjective evaluations, discussions and textbooks. Finally, 23 scientific articles were used for the literature review. The analysis included an analysis of the methodology and results of the study and a further comparison of the data with other studies (Whittemore and Knafl 2005). Studies with different research methods, both qualitative and quantitative, were also included. Thus the analysed data have the potential to lead to a deeper understanding based on separate results of previous studies' issues related to preventive care in cardiology.

RESULTS

The paper contains an analysis of surveys that were methodologically very diverse. They included both qualitative and quantitative methods, conceptual analysis and combined methods.

Scientific studies in the prevention of cardiovascular disease demonstrated that interventions in lifestyle reduce the risk factors and can reduce the mortality and morbidity of the disease caused by atherosclerosis. However, the results of the management of risk factors in patients with coronary heart disease in the EUROASPIRE (European Action on Secondary and Primary Prevention trough Intervention to Reduce Events) programme (1997) show that prevention in the common practice is inadequate. Most patients do not participate in health intervention

programs. This situation was described in the EUROASPIRE summary (2001) as a failure of health care. Therefore, the EUROACTION model was developed. The survey of 2008 investigated whether these programmes led by nurses affect preventive care (Wood et al. 2008). An annual controlled trial was conducted in eight European countries (Denmark, France, Italy, Poland, Spain, the Netherlands, Sweden and England). 1189 and 1128 asymptomatic respondents with risk factors were involved. The respondents from the first group received usual care, and the second group participated in the intervention programme (IP). The groups were compared in terms of smoking, consumption of fats, vegetables and fruits, blood pressure and cholesterol. After a year of the intervention programme, the observed values were in favour of the groups that participated in the intervention programme, compared with the control group that received usual care. The EUROACTION program implemented intervention procedures for couples. These people had gone through repeated inspections and regular consultations and were evaluated by a whole team of professionals. Nurses (as the programme coordinators in the interventions) alternated with nutritionists and physiotherapists. The EUROACTION programme showed encouraging results, because it reduced the risk factors in the group (IP), unlike the usual care. Participating families changed their eating habits and increased their physical activity (Wood et al. 2008).

In cases of preventive interventions for cardiovascular diseases, the duration of the educational activity of nurses is substantial. Research in Scotland (Murchie et al. 2003) focused on the long-term effectiveness of nursing interventions. The research was conducted among 1343 persons (58% men, mean age 66 years). The first group of 673 people were involved in the intervention and preventive care, where nurses conducted an assessment of lifestyle factors and proposed measures to improve the situation. The second group consisted of 670 patients who received routine care. After the first year of nursing interventions there were no significant differences between the groups, but the results of the analysis after 5 years show a high improvement in the first group that collaborated with nurses. This was proof of the long-term efficacy of these interventions implemented by nurses.

Research has shown that the most effective strategies for influencing the risk factors in cardio-prevention include team management carried out by specially trained nurses (Allen 2000, Allen and Dennison 2010). Several studies have shown that the management of prevention of cardiovascular diseases carried out by nurses is equally effective in achieving its objectives as prevention provided by doctors. This leads to improved outcomes, including the satisfaction and the use of health care services. (Brown and Cofer 2000, LaBresh et al. 2000, Allen et al. 2002, Hill et al. 2003).

Many research studies have focused on primary and secondary prevention. These studies have shown that the management of secondary preventive care by nurses has led to improved medication compliance, improved compliance with the guidelines of healthy lifestyle and reduced LDL-cholesterol (Allison et al. 1999, Brown et al. 2000, Hill et al. 2003). Positive results have been associated with the educational activities of nurses, repeated inspections and a longer duration of individual counselling with nurses than with the doctors.

Adopting a healthy lifestyle is a fundamental point of primary prevention of cardiovascular diseases. Nurses have a major role in strengthening and motivating patients to make changes and to adopt a healthy lifestyle (Glanville 2000). Therefore, nurses should learn to use innovative educational strategies such as motivational talks. A survey of Roberts and Davis (2013) aimed at the prevention of cardiovascular diseases in women brought interesting findings in connection with the occurrence of depression in women. Although depression may not directly affect the results of cardiovascular diseases, signs of risk of not complying with the preventive interventions were found in 26% (N = 2432) of women who were interviewed for this very reason. Since the responsibility for prevention has been passed to the nurses, it has been crucial to train them in educational activities in this respect. A study (Steptoe et al. 1999) charted the opinions of nurses in patient education and found that 49% (N = 165) of the surveyed nurses believed that health counselling is

a challenging area and that the impact of health professionals is very limited. The main problem that nurses mentioned was a lack of interest or initiative from the patients.

The fundamental characteristics of education prove that it does not only provide information, but depends on the continued motivation and patient compliance with health professionals. A study by Roberts and Davis (2013) compared the awareness of women in the field of cardio-prevention. The authors addressed 2432 women over 25 years of age to assess their knowledge on the prevention of cardiovascular diseases. Compared to a study from 1997, the knowledge of cardiovascular diseases deepened from 30% to 56%. The knowledge of the risks remains very low; there was an increase from 10% to 18%. A study from the US showed lower levels of awareness among black and Hispanic populations. This issue was also analysed in a research study from 2001, which focused on analysing the field of preventive programmes in the work places of the target group (Williams et al. 2001). It was shown that people with low incomes are less informed about prevention and there is obviously less interest in following a healthy lifestyle (Allen et al. 2011). For this reason, the research focused primarily on this group. The research team contacted the respondents in their place of employment; the target group were selected asymptomatic Afro-American women. They were employed by employers who had fewer employees, no company nurse in their workplaces, and no provision of health care. These workplaces were selected by the implementers of a research study (Williams et al. 2001) in which an informational interview was conducted with the respondents and a basic cardio-screening examination was performed. In this research, culturally sensitive prevention interventions were applied. Researchers worked intensely with people from the target group (black women, average age 40 years). At the beginning 26% were involved in the surveyed respondents. However, with the involvement of culturally sensitive strategies, this number rose to 73%. This study highlights the risk of using guidelines (best practices) for the minorities.

An analysis of eight clinical guidelines (Doležal and Jarošová 2015) failed to prove that the guidelines focus on minorities. The analysed guidelines are not oriented towards the members of minorities. For the Czech Republic, the authors recommend the European guidelines on cardiovascular disease prevention in clinical practice, which were created for European countries and best suit the socio-economic conditions in the Czech Republic.

The UK considers prevention as an important part of national strategies and activities to promote cardiovascular health. They were supported by subsidies that facilitated the collection of information on the current status of cardiovascular disease prevention (NHS 1996). The data from 1996 focused on smoking, BMI and recommendations concerning an active lifestyle. These results provided the basis for the recommendation of activities to promote the prevention of cardiovascular health that is still being adjusted. Research shows that general practitioners (GPs) are positive in respect to cardio-prevention, but do not have time and do not want to engage in these activities (Grant et al. 1999). This opens up a space for the educational activities of nurses. Research surveys (Steptoe et al. 1999) show that the main responsibility lies with the nurses who feel less qualified to change the attitudes of patients on healthy lifestyle and thus they doubt the effectiveness of their activities. The effectiveness of prevention is also influenced by the attitudes of health professionals towards health. There is no proven link between their attitude to the enlightenment and their own capabilities in this area. Conversely, the study showed that nurses are trained and have the necessary skills and abilities. Even so, 49% of nurses surveyed believe that health counselling is a challenging area and the influence of health professionals is very limited (Steptoe et al. 1999). According to nurses, the main problem in the prevention of cardiovascular diseases is the lack of interest and initiative of individual patients. It is obvious that education involves more than simply the transmission of information. The attitudes of health workers are essential for preventative strategies and require regular review, because nurses have the necessary skills to educate but do not have the necessary confidence. Since the responsibility for prevention has been moved to nurses, it has been necessary

to find out their opinion. Another topic for research is the assumption that nurses have a positive attitude towards prevention, which is an important factor for the prevention to work successfully.

A Chinese study tested the knowledge of nurses in the prevention of cardiovascular diseases and risk factors. Unfortunately, only 58% of the respondents (N = 447) were aware of the effective interventions to reduce risk (Wu et al. 2011).

Cardiovascular diseases such as coronary artery disease and heart failure are now major causes of death worldwide. One of the important ways of solving this problem is prevention; therefore, primary prevention is the main concern of nurses. Allen (2010) carried out an analysis of randomized trials published in English between 2000 and 2008 in the PubMed and CINAHL databases. According to this study, he states that research into nursing intervention of cardio-prevention shows a 57% improvement in at least one risk factor. Allen and Dennison (2010) carried out an evaluation of this research and confirmed the positive impact of nursing interventions to prevent cardiovascular diseases, but also pointed to inconsistencies in these studies. Allen and Dennison (2010) emphasize the need for further testing of nursing interventions, especially the exact testing using well-established measurable results.

CONCLUSION

The investigation confirmed that nursing interventions had a positive impact on at least one risk factor – e.g. blood pressure levels, cessation of smoking, treatment of lipids in the blood, adoption of a healthy diet, reducing obesity, and increasing knowledge about healthy lifestyle. Positive results were obtained in physical activity, healthy food intake and weight loss. However, no interventions have been defined as the most effective for the achievement of the results.

According to the results of most research surveys, the exact role of nurses in the implementation of activities in health promotion failed to be proved. Instead, nurses can be characterized as promoters of health, who often carry out their activities spontaneously without any concept and without a nursing model. Research investigations have shown that the mere transfer of information is not effective in the prevention of cardiovascular diseases. Therefore, long-term cooperation with patients is essential in their approach to health. Educational activities of nurses prove successful in this field. Nursing is a suitable profession for health promotion. There is a need for more research on mapping nursing interventions and their roles in a variety of medical services. Here comes the need for further testing of nursing interventions, and especially exact testing using well-established measurable results.

CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

ACKNOWLEDGEMENT

Supported by the programme project of the Ministry of Health of the Czech Republic, reg. No. 15-31000A.

REFERENCES

1. Allen JK (2000). Cholesterol management: an opportunity for nurse case managers. J Cardiovasc Nurs. 14: 50–58.
2. Allen JK, Dennison CR (2010). Randomized trials of nursing interventions for secondary prevention in patients with coronary artery disease and heart failure: systematic review. J Cardiovasc Nurs. 25: 207–220.

3. Allen JK, Blumenthal RS, Margolis S, Young DR, Miller ER, Kelly K (2002). Nurse case management of hypercholesterolemia in patients with coronary heart disease: results of a randomized clinical trial. Am Heart J. 144: 678–686.
4. Allen JK, Dennison Himmelfarb CR, Szanton SL, Bone L, Hill MN, Levine DM (2011). COACH trial: A randomized controlled trial of nurse practitioner/community health worker cardiovascular disease risk reduction in urban community health centers: Rationale and design. Contemp Clin Trials. 32/3: 403–411.
5. Allison TG, Squires RW, Johnson BD, Gau GT (1999). Achieving National Cholesterol Education Program Goals for Low-Density Lipoprotein Cholesterol in Cardiac Patients: Importance of Diet, Exercise, Weight Control, and Drug Therapy. Medical Education and Research. 74/5: 466–473.
6. Brown AS, Cofer LA (2000). Lipid management in a private cardiology practice (the Midwest Heart experience) Am J Cardiol. 85: 18A–22A.
7. Býma S, Hradec J (2013). Prevence kardiovaskulárních onemocnění, novelizace 2013 [Prevention of cardiovascular diseases, amended in 2013]. Praha: Společnost všeobecného lékařství České lékařské společnosti Jana Evangelisty Purkyně (Czech).
8. Doležal J, Jarošová D (2015). Analýza klinických doporučených postupů prevence kardiovaskulárních onemocnění [Analysis of clinical practice guidelines for cardiovascular disease prevention]. Kontakt. 2: 111–118 (Czech).
9. EUROASPIRE Study Group (1997). EUROASPIRE. A European Society of Cardiology survey of secondary prevention of coronary heart disease: Principal results. Eur Heart. 18: 1569–1582.
10. EUROASPIRE Study Group (2001). Clinical reality of coronary prevention guidelines a comparison of EUROASPIRE in nine countries. Lancet, 357: 995–1001.
11. Glanville IK (2000). Moving towards health oriented patient education (HOPE). Holist Nurs Pract. 14/2: 57–66.
12. Grant AM, Niyonsenga T, Dion I, Delisle E, Xhignesse M, Bernier R (1998). Cardiovascular disease. Physician attitudes toward prevention and treatment. Can Fam Physician. 44: 780–787.
13. Hill MN, Han HR, Dennison CR, Kim MT, Roary MC, Blumenthal RS et al. (2003). Hypertension care and control in underserved urban African American men: behavioral and physiologic outcomes at 36 months. Am J Hypertens. 16: 906–913.
14. Kotseva K, Wood D, De Backer G, De Bacquer D (2009). Cardiovascular prevention guidelines in daily practice: a comparison of EUROASPIRE. Lancet. 373/9667: 929–940.
15. LaBresh KA, Owen P, Alteri C, Reilly S, Albright PS, Hordes AR et al. (2000). Secondary prevention in a cardiology group practice and hospital setting after a heart-care initiative. Am J Cardiol. 85: 23A–29A.
16. Murchie P, Campbell NC, Ritchie LD, Simpson JA, Thain J (2003). Secondary prevention clinics for coronary heart disease: four year follow up of a randomized controlled trial in primary care. BMJ. 326: 84–87.
17. NHS (1996). Executive. GB Health Promotion. Leeds: National Health Service (NHS) Executive.
18. Roberts ME, Davis LL (2013). Cardiovascular Disease in Woman: A Nurse Practitioners Guide to prevention. The Journal for Nurse Practitioners. 9/10: 679–687.
19. Steptoe A, Doherty S, Kendrick T, Rink E, Hilton S (1999). Attitudes to cardiovascular health promotion among GPs and practice nurses. Family Practice. 16: 158–163.
20. Ústav zdravotnických informací a statistiky ČR – ÚZIS (2013). Zemřelí 2012. Zdravotní statistika 2013 [Deaths 2012. Health Statistics 2013]. [online] [cit. 2015-11-16). Available from: http://www.uzis.cz/publikace/zemreli-2012 (Czech).
21. Vilánková A, Prusíková M, Vrablík M, Češka R (2010). Úloha sestry v prevenci kardiovaskulárních onemocnění [The role of nurses in the prevention of cardiovascular diseases]. Medicína pro praxi. 7/12: 501–503 (Czech).
22. Whittemore R, Knafl K (2005). The integrative review: updated methodology. Journal of Advanced Nursing. 52: 546–553.
23. Williams A, Mason A, Wold J (2001). Cultural Sensitivity and Day Care Workers. Examination of a worksite based cardiovascular disease prevention project. AAOHN Journal. 49/1: 35–43.
24. Wood DA, Kotseva K, Connolly S, Jenings C, Mead A, Jones J et al. (2008). Nurse-coordinated multidisciplinary, family-based cardiovascular disease prevention programme EUROACTION for

patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease a paired, cluster – randomised controlled trial. The Lancet. 371/9629: 1999–2012.

25. Wu Y, Deng Y, Zhang Y (2011). Knowledge, Attitudes, and Behaviors of Nursing Professionals and Students in Beijing Toward Cardiovascular Disease Risk Reduction. Research in Nursing Health. 34: 228–240.

Contact:

Mgr. Helena Michálková, Ph.D., University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Nursing, Midwifery and Emergency Care,
U Výstaviště 26, 370 05 České Budějovice, Czech Republic
Email: michalkova.hela@seznam.cz