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Barriers of physical activity and consequences of inactivity in the population of nurses. A narrative review

Bariery w podejmowaniu aktywności ruchowej oraz konsekwencje niskiej aktywności w populacji pielęgniarek. Przegląd literatury

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STRESZCZENIE

BARIERY W PODEJMOWANIU AKTYWNOŚCI RUCHOWEJ ORAZ KONSEKWENCJE NISKIEJ AKTYWNOŚCI W POPULACJI PIELĘGNIAREK. PRZEGLĄD LITERATURY

Cel pracy. Pielęgniarki są największą grupą zawodową wśród pracowników ochrony zdrowia. Są narażone na wiele problemów zdrowotnych wynikających z ich aktywności zawodowej. Należą do nich: choroby mięśniowo-szkieletowe, niska jakość snu, choroby sercowo-naczyniowe, nietolerancja glukozy, otyłość oraz objawy depresyjne. Aktywność fizyczna zapobiega tym dysfunkcjom, jednak przestrzeganie zaleceń WHO dotyczących aktywności fizycznej jest niskie wśród pielęgniarek. Głównym celem przeglądu była identyfikacja najczęściej występujących barier w podejmowaniu aktywności fizycznej w populacji pielęgniarek.

Materiał i metody. Przeszukiwanie literatury w postaci artykułów opublikowanych w latach 1979-2020 w bazie PubMed obejmowało następujące słowa (Medical Subject Headings MeSH): 'Nurses' lub 'Nursing Personnel' lub 'Nursing Students' lub 'Health Personnel' lub 'Healthcare Workers' lub 'Health Care Professionals' lub 'Health Care Providers'; Physical Activity' lub 'Physical Fitness' lub 'Exercise' lub 'Exercise Training' lub 'Acute Exercise' lub 'Aerobic Exercise' lub 'Isometric Exercise'; 'Barriers" lub "Benefits'.

Wyniki. Jako najczęściej występujące bariery w podejmowaniu aktywności fizycznej zidentyfikowano: brak czasu, zmęczenie, obowiązki rodzinne, niedogodny rozkład zajęć, ale także stres, niezadowolenie z własnego wyglądu, koszty, bariery interpersonalne oraz brak wsparcia. Inną barierą był brak wiedzy o odpowiednim wymiarze aktywności fizycznej.

Podsumowanie. Promowanie aktywności fizycznej w grupie pielęgniarek wydaje się być konieczne.

Słowa kluczowe: aktywność fizyczna pielęgniarek, bariery w podejmowaniu aktywności fizycznej, brak aktywności fizycznej, korzyści aktywności fizycznej, kondycja fizyczna

ABSTRACT

BARRIERS OF PHYSICAL ACTIVITY AND CONSEQUENCES OF INACTIVITY IN THE POPULATION OF NURSES. A NARRATIVE REVIEW

Aim. Nurses are the largest professional group among health care workers. They encounter numerous health problems resulting from the specificity of their professional activity, including musculoskeletal diseases, low quality of sleep, cardiovascular diseases or glucose intolerance, obesity and depressive symptoms. Physical exercise protects against these disorders, but the compliance with the WHO recommendations of physical activity is low among nurses. The main purpose of the review was to identify the most frequently appearing barriers to undertaking physical activity in nurses population.

Material and methods. The literature search of articles published from 1979-2020 in PubMed included the following Medical Subject Headings (MeSH): 'Nurses' or 'Nursing Personnel' or 'Nursing Students' or 'Health Personnel' or 'Healthcare Workers' or 'Health Care Professionals' or 'Health Care Providers'; Physical Activity' or 'Physical Fitness' or 'Exercise' or 'Exercise Training' or 'Acute Exercise' or 'Aerobic Exercise' or 'Isometric Exercise'; 'Barriers' or 'Benefits'.

Results. The lack of time, tiredness, family responsibilities, inconvenient facilities or schedule, but also stress, physical appearance concerns, the cost of facilities, interpersonal barriers and the lack of support are identified as barriers to exercise. Another barrier is also the lack of knowledge of the proper dose of physical activity.

Conclusions. Promoting physical activity among nurses seems to be necessary.

Key words: physical activity in nurses, barriers to physical activity, inactivity, benefits of physical activity, physical fitness

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INTRODUCTION

Nurses are one of the largest professional groups of all health care workers. In Poland there are nearly 230 000 professionally active nurses (data as of 31.12.2019). The mean age of nurses registered in Poland exceeds 52 years [1].

According to the Global Burden of Disease Study 2019, six most important drivers of an increasing burden in adults over 50 years old are ischemic heart disease, diabetes, stroke, chronic kidney disease, lung cancer and age-related hearing loss [2]. Moreover, other musculoskeletal diseases were listed as the eleventh, while in a 1990 study they were ranked 26 [2].

Musculoskeletal diseases constitute one of the most frequent occupational health problem among nurses, which may be related to physical load [3-7]. The greatest prevalence of musculoskeletal disorder symptoms is observed in the shoulders, the neck, the right wrist and lower back [8]. Along with mental, cardiovascular and respiratory diseases, they are associated with low work ability and sick leave in all health care workers [9].

Nurses are also exposed to the consequences of shift work, which are: a poorer quality and quantity of sleep, chronic fatigue [10], higher glucose, insulin and triacylglycerol levels, elevated counts of white blood cells, increased levels of resistin (biomarker of atherosclerosis) [11], body weight gain and obesity [12]. Female shift workers are more likely to experience depressive symptoms than female non–shift workers [13]. All those factors increase the risk of developing various non-communicable diseases in nurses. Therefore, it is worth providing the special preventive care of this occupational group.

Regular physical activity is one of the best predictors in non-communicable disease prevention. Exercise and physical activity decrease the risk of developing coronary heart disease, stroke, type 2 diabetes, colon and breast cancer. They lower blood pressure, improve lipoprotein profile, enhance insulin sensitivity, simplify weight management, preserve bone mass and reduce the risk of falling in older adults. They also prevent depressive disorders and anxiety, improve cognitive function and lower the risk of cognitive decline and dementia [14].

AIM

The main purpose of the review was to identify the most frequently appearing barriers for undertaking physical activity in nurses population.

MATERIALS AND METHODS

Search strategies

The search strategy was based on literature search of articles published from 1979 to 2020 inPubMed. The following Medical Subject Headings (MeSH) were used:

- 'Nurses' or 'Nursing Personnel' or 'Nursing Students' or 'Health Personnel' or 'Healthcare Workers" or 'Health Care Professionals" or 'Health Care Providers'
- 'Physical Activity' or 'Physical Fitness' or 'Exercise' or 'Exercise Training' or 'Acute Exercise' or 'Aerobic Exercise' or 'Isometric Exercise'
- 'Barriers" or "Benefits'

The search strategy attempted to retrieve all relevant studies in a conventional review manner. The articles were submitted for review if they were in line with the objectives. All the articles were selected according to the following inclusion criteria:

- includes a study population of nurses,
- includes measurement of the level of physical activity in this population,
- provides information on barriers to exercise or benefits of physical activity in the population of nurses,
- provides information on consequences of inactivity in the population of nurses.

Letters to the editor, books and conference proceedings were excluded from the evaluation. The articles in other language than English or Polish or articles without full texts availability were also excluded. The manuscripts that met the inclusion criteria were retrieved, analyzed and interpreted and those that did not meet the above stated criteria were omitted.

Two reviewers reviewed each article independently based on the inclusion criteria. The review team assessed articles on the physical activity in population of nurses in terms of different aspects, such as: assessment of the level of physical activity, barriers to exercise or consequences of inactivity. After reaching an agreement by the review team over the inclusion criteria on the identified articles, full papers were obtained for the review. Any disagreement between the reviewers regarding the articles selection was resolved during a consensus meeting.

RESULTS

Based on the literature search, a total of 2223 titles were identified by each reviewer. Among all the titles, the first reviewer eliminated 1935 manuscripts and the second one eliminated 1942 manuscripts. After consensus meeting the 88 manuscripts were selected to abstracts analysis, which resulted in the exclusion of another 56 manuscripts. A total number of 32 manuscripts was identified to be included in this review.

Physical activity in nurses

The World Health Organization recommends that adults aged 18–64 years should do at least 150 minutes of moderate-intensity aerobic physical activity, or 75 minutes of vigorous-intensity aerobic physical activity throughout the week, or an equivalent combination of moderate and vigorous-intensity activity. Aerobic activity should be performed in bouts of at least 10 minutes duration [15]. Recent research indicated that nurses did not meet current physical activity guidelines [16-23]. The lack of compliance with the recommendations for regular physical activity was observed at a very early stage of professional career [24-26]. Despite the significant education of nurses

regarding health promotion and health behaviors, it seems that such knowledge was not transferred to their own habits [24]. In the nurses' opinion physical activity would keep them healthy and was a priority in their lives, but still their own physical activity was insufficient [19]. Moreover, older nurses were less likely to engage in recommended physical activity levels at work [27].

Considering that exercise intensity is quite difficult to measure and regular physical activity is arduous to enforce, the recommendations may be replaced by a daily step number norm. The number of steps recommended for adults to maintain good health is 10 000. The basal activity involves less than 2 500 steps/day, sedentary lifestyle provides less than 5 000 steps/day, low active includes from 5 000 to 7 499 steps/day, somewhat active – from 7 500 to 9 999 steps/day, and active lifestyle includes over 10 000 steps/day. Very active people walk more than 12 500 steps/day and they are at the lowest risk of developing adverse cardiac events [28-30].

Physical activity expressed as the daily number of steps undertaken in the course of the professional work of nurses is also insufficient to fulfil the current recommendations [17]. Moreover, physically active nurses prior to a morning shift were less physically active and spent more time in a sitting position during working hours. Conversely, occupational walking time was associated with a lower activity level during leisure time [31]. It may therefore be suggested that there is a need to assess the daily number of steps during the whole week including working and non-working days. The number of steps taken in non-working days was lower than in working days in nurses [32] and in other healthy adults [33].

Barriers to exercise in nurses

Identifying the factors that affect physical activity in nurses is necessary for the proper promotion of participation in physical activity in health care professionals. The most notable barriers to exercise in nursing and medicine students included the lack of time and facilities having inconvenient schedules and exercises not fitting around study schedules [20,34]. Midwives identified tiredness, stress, family responsibilities and unpredictable breaks and patterns as barriers to participate in physical activity [35]. Health care professionals identified barriers which were similar to those reported by other populations [19,36-38]. One of the barriers is the lack of knowledge of the proper dose of physical activity. People did not engage in physical activity because they thought they performed sufficient physical activity through their daily activities or because they were unaware how much physical activity was enough to achieve health benefits [37]. The data confirmed the lack of correlation between the level of physical activity or sitting time assessed with objective and subjective methods [33,39], or unrealistically high levels of physical activity measured with questionnaires [40]. The reason for the high levels of the overestimation of self-reported daily activity may be associated with the lack of knowledge and lack of consistency between the perception of physical activity performed and the real level of activity they performed.

Body weight also has an impact on barriers to exercise [36,41]. Overweight adolescents have higher average points of physical social anxiety while doing physical activity than those within the recommended BMI [36]. It is similar to the population of nurses in which the confidence about one's body image was associated with higher physical activity level [19].

Health conditions (i.e. arthritis, diabetes, overweight/obesity, cardiovascular conditions) and physical activity-related health concerns may be perceived as a barrier to being physically active. One of the causes of avoiding physical activity is the fear of inducing fatigue, muscle soreness, injury, or other adverse health conditions. Other barriers to physical activity are physical appearance concerns, the cost of facilities, interpersonal barriers, e.g. the role of family and gender, or lack of social support, community and environmental barriers including weather conditions [37].

Consequences of inactivity and benefits of physical activity in the population of nurses

Insufficient physical activity level observed in nurses and health care professional may lead to serious health consequences. Data suggested that over 30% of registered nurses were overweight and 17-25% were obese [18,21,42]. Moreover, a significant association was demonstrated between physical activity level and BMI and waist circumference in the population of nurses [43,44]. Abdominal obesity and physical activity constitute modifiable risk factors of myocardial infarction. Additionally, the following risk factors of myocardial infarction were defined as the most common worldwide for both sexes and all ages in all regions: abnormal lipid levels, smoking, hypertension, diabetes, psychosocial factors, and alcohol use [44]. Therefore, even though nearly 20% of nurses were reported to have some risk factors of cardiovascular diseases, they still had more favorable lifestyle profiles compared to national samples [45] and their five-year cardiovascular risk score was low [16]. Nonetheless, cardiovascular disease risk factors, e.g. being obese/overweight, poor mental health, smoking, hypertension, high cholesterol and diabetes, require attention in this occupational group [16] and improving physical activity levels in nurses may be important for their cardiovascular health [16,46,47].

Numerous studies confirmed that health care workers were most at risk of musculoskeletal disorders as regards occupational groups. An association was noted between leisure-time physical activity and musculoskeletal disorder occurrence. The percentage of reported musculoskeletal disorders was lower in nurses participating in at least moderate physical activity [48]. On the other hand, nurses with higher musculoskeletal symptom index scores tended to show slightly higher leisure-time physical activity rates than nurses with low symptom index scores. It may suggest that having musculoskeletal symptoms negatively affects leisure-time physical activity, but experiencing greater symptoms may increase their motivation to perform physical activity [49]. It is well known that regular physical activity is associated with a better physical condition and a better condition of the musculoskeletal system.

Workplace physical activity interventions significantly reduce general musculoskeletal pain and neck or shoulder pain [50], which may be beneficial for health care workers, especially for nurses [38,51]. However, further research is needed to define whether physical activity may be protective against musculoskeletal disorders or musculoskeletal disorders are the barrier to be physically active in health care workers.

Physical activity may be beneficial for the quality and quantity of sleep in nurses. It is essential, especially considering the consequences of shift working in the nursing profession. Regular exercise exerts a beneficial effect on total sleep time and sleep efficiency, sleep onset latency and sleep quality [52]. Shift work also influences mental health and physical activity may confer protection against the emergence of depression. It was also confirmed that physical activity had a protective effect against the emergence of depression in all age groups and all geographical regions. People with high levels of physical activity had lower odds of developing depression [53]. Both rotating night shift work and unhealthy lifestyle have been associated with a higher risk of type 2 diabetes, which could be prevented by adherence to a healthy lifestyle, including regular physical activity [54].

Despite the fact that contemporary nursing is focused on the need to educate the society in the principles of healthy lifestyle, health care professionals should implement such measures in relation to themselves, their immediate environment and the society as a whole. It is one of the WHO recommendations for health promotion in hospitals [55]. Physiotherapists are not employed in many health care facilities, so nurses are the main providers of physical activity advice to their patients. The most common barriers to physical activity promotion by nurses are the lack of time, lack of adequate support structures and a risk to patients [56].

CONCLUSIONS

The analysis of recent research demonstrated that physical activity promotion in nurses seems to be necessary. Physical activity promotion and motivation to be active in daily living may be effective in increasing the level of physical activity in nurses. A pedometer may promote the total and non-workday physical activity of nursing staff as a part of a comprehensive motivational intervention [32]. The attitudes towards physical activity and perceived behavioral control in nurses affect their behavioral intention of undertaking physical activity. Higher behavioral intention improves their physical activity behavior. Therefore, it is recommended to encourage nurses to face their own health situation, help them develop physical activity plans and encourage them to develop motivation to be physically active. [57].

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