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**Determinanty aktywności fizycznej w populacji pielęgniarek:  
rola motywacji i przeszkód w kształtowaniu prozdrowotnych  
zachowań**

Determinants of Physical Activity in the Nursing Population:  
The Role of Motivation and Barriers in Shaping Health-Promoting  
Behaviors

Rozprawa doktorska na stopień doktora  
w dziedzinie nauk medycznych i nauk o zdrowiu  
w dyscyplinie nauki o zdrowiu  
przedkładana Radzie Dyscypliny Nauk o Zdrowiu

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Warszawa, 2025

## **Abstract**

Physical activity is recognized as a key determinant of health and plays an important role in public health, contributing to an improvement of physical fitness, mental health and overall quality of life. For many years it has been regarded as one of the most effective elements of preventive healthcare.

Scientific literature stresses its importance in the reduction of the risk of development of many non-infectious diseases and in slowing down of their course. Physical activity constitutes also an integral element of the official recommendations concerning a healthy lifestyle. In the context of individual health, the key importance is ascribed to daily choices and habits which make up the lifestyle of a given individual.

Female and male nurses constitute one of the most numerous professional groups in the healthcare system, and their work is physically highly demanding. Despite their knowledge and experience, the nursing staff are exposed to many health risks associated with their professional activity. The most frequently observed problems include: skeletomuscular system diseases, sleep disorders, cardiovascular system diseases, insulin resistance, obesity and depressive disorder symptoms. A regular physical activity may contribute to prevention of the problems mentioned. Nevertheless, the level of adherence to the World Health Organization (WHO) recommendations concerning physical activity remains low among nurses, which may contribute to dysfunctions of various body systems and organs,

In light of the above, a two stage study was conducted to expand knowledge about the daily physical activity of nurses and the factors determining its level. The aim of the study was to identify sociodemographic, professional, and motivational factors influencing nurses physical activity and to examine it in relation to their self reported level of physical activity, as well as to assess the effectiveness of motivational methods that may contribute to increasing physical activity levels among nurses.

The series of articles published on that basis include two original papers describing the results of a prospective study and a review paper complementing the series, concerning identification of barriers for taking physical activity by nurses.

In the paper "Barriers of physical activity and consequences of inactivity in the population of nurses. A narrative review" an analysis was performed of 32 publications from the years 1979-2020, identifying mainly barriers limiting physical activity in nurses and consequences resulting from insufficient activity. The studies included in the review demonstrated that most nurses failed to meet the WHO recommendations considering the weekly amount of physical exercise. The most frequently reported obstacles included: lack of

time, fatigue, family responsibilities, unfavourable work schedule, lack of adequate infrastructure, occupational stress, dissatisfaction with own appearance, interpersonal barriers, and also insufficient knowledge of the optimal amount of exercise. The review has confirmed that insufficient physical activity in that professional group involves an increased risk of development of obesity, cardiovascular diseases, metabolic disorders, problems with sleep, depressive disorders and skeletomuscular complaints, which translate into increased sickness absenteeism and reduced professional efficacy, while a regular physical activity may bring tangible health benefits, improving the general feeling and ability to work. It has been also demonstrated that interventions realised at the place of work, such as using pedometers or mobile health applications may constitute effective tools supporting the change of the lifestyle. The conclusions drawn from that literature review stress the necessity of implementation of multidimensional strategies promoting physical activity among nursing staff, taking into account the specificity of their work and organizational and educational needs.

In the cross-sectional study titled “The Relationship between Sociodemographic, Professional, and Incentive Factors and Self-Reported Level of Physical Activity in the Nurse Population” the relationship was analysed between sociodemographic, professional and incentive factors and the level of physical activity declared by nurses. The study involved 350 professionally active nurses, who filled the IPAQ and authors’ questionnaire concerning the barriers and incentives to start physical activities. The results revealed that the total physical activity level in that group was high, however with a predominance of occupational activity, its share being over two times higher than that of non-occupational activity. The variables differentiating the activity level only included occupational factors such as the place of work, type of changes, or taking up a managerial position – but individuals working in shifts and in hospital departments showed a higher level of activity. On the other hand, the activity level in the free time was significantly related to the motivation level, while the fear of pain after effort was the most important barrier identified in the cluster analysis. An important conclusion summarizing the study was that the physical activity-promoting interventions should concentrate on increasing the activity in leisure time, should support regeneration and should implement the principles of workplace ergonomics in order to prevent skeletomuscular system disorders.

In the interventional study “Enhancing feedback by health coaching: the effectiveness of mixed methods approach to long-term physical activity changes in nurses” the effectiveness was assessed of application of multifactorial incentive intervention for increasing the physical activity level in nurses. The study involved 71 occupationally active nurses, in whom physical

activity was assessed by the mixed method – by means of the full version of the International Physical Activity Questionnaire (IPAQ) and step count recorded by pedometers. The results revealed a significant increase of physical activity in recreational domain and an increase of the mean daily step count in measurements three months after completion of the intervention. Importantly, the higher index of cardiovascular risk assessed in the study was a predictive factor of physical activity increasing. The study demonstrated that application of health coaching elements and individual feedback may constitute effective tools for long-term support of health-promoting behaviour among the nursing staff.