

# Economic & Time-varying Consequences of Smoking Addiction among Nurses on Work Performance from the Aspect of Nursing Management

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Original Article

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Source: *Clinical Social Work and Health Intervention*  
Pages: 12 – 17

Volume: 13

Issue: 5

Cited references: 21

## Reviewers:

Selvaraj Subramanian  
SAAaRMM, Kuala Lumpur, Malaysia  
Catherine Mulama  
Joshka, Kenya

## Keywords:

Nurses. Economic Aspect. Management. Smoking. Work Performance.

## Publisher:

International Society of Applied Preventive Medicine i-gap

CSWHI 2022; 13(5): 12 – 17; DOI: 10.22359/cswhi\_13\_5\_03 © Clinical Social Work and Health Intervention

## Abstract:

**Objective:** The aim of our study was to determine the impact of smoking addiction on nurses on their work performance and economic and time-varying consequences.

**Design:** Cross-sectional study.

**Participants:** The sample consisted of 381 nurses who worked in hospitals in Slovakia and the Czech Republic.

**Methods:** The data were collected through non-standardized questionnaires in the period July 2020-March 2021. The questionnaires were prepared in 3 versions according to the target sample for which they were intended.

**Results:** The financial loss caused by smoking during the working hours costs employer EUR 862.50 per smoking nurse per year and the time lost due to smoking takes up to 15 working days every year.

**Conclusion:** Managers are not interested in time lost due to smoking during working hours. Management's lack of interest or their indifferent attitude is alarming. Nurse managers should begin to perceive nurses' smoking as a limiting factor in nurses' work performance, given the shorter time devoted to the provision of nursing care.

## Introduction

Smoking is associated with significant economic consequences globally, including impairments in work productivity. In this article, we investigate the issue of smoking in relation to management in nursing and work-legal aspects. We would like to highlight the negative time consequences and economic loss caused by the smoking of nurses, and compare the opinions of the 3 groups of nurses on smoking during working time.

Smoking has health and economic consequences for individuals and society. However, despite many anti-smoking measures, about a billion people in the world still smoke (1). In Slovakia, 30% of doctors & 40% of non-medical workers smoked; in the Czech Republic 33% of doctors & 49% of nurses; in the USA 5% of doctors & 17% of nurses smoke (2).

## Aim of the research

Our study aimed to identify time and economic loss during working hours in smoking nurses; to compare the attitudes of non-smoking, smoking nurses, and nurse-managers about smoking during working hours, to assess the impact of smoking at work on work performance and on the providing the health care.

## Sample and Methods

The research sample consisted of 381 nurses working in medical facilities in Slovakia and the Czech Republic. The data were collected using a non-standardized questionnaire for non-smoking nurses, smoking nurses (smokers), and nurse managers. The questionnaires were administered electronically through contact persons. Data were collected from July 2020 to March 2021. Most non-smoking and smoking nurses were between the ages of 25-35, and manager nurses in age 40-

49 years. Data were statistically processed using McNemar test, chi-square, Fisher test, Spearman correlation.

## Results and Discussion

Published studies that deal with smoking among nurses focus on the prevalence of smoking among nurses, cessation options, health consequences. However, we were unable to search the databases for studies on the economic and time losses of smoking among nurses from a management perspective which is the focus of our research.

In our sample, 17% of nurses were smoking. This percentage is comparable with the findings of several authors: 11% nurses (3), 26% nurses (4), 25% nurses (5), 47% of nurses were smokers, of which 30% of nurses smoked regularly an average 10 cigarettes per day (6).

We asked the nurses if they considered smoking to be a work handicap. 49% of non-smoking nurses and 52% of manager nurses answered positively, while up to 70% of smoking nurses did not consider smoking as a working handicap. 78.5% of non-smoking nurses and 76% of managers think that non-smoking nurses perform or partially perform work instead of smoking nurses during their smoking break. It is important to note that only a small proportion of smoking nurses think that smoking affects their work performance. Only 30% of smoking nurses consider smoking to be a work handicap. Of the total number of 57 smoking nurses, only one admitted, that she spends less time in nursing care than a non-smoking nurse, and one nurse rounded out the answer: *partially less devoted to patients*.

In the study of Slater *et al.* nurses who smoked rated their effectiveness as lower than nurses who were ex-smokers or non-smokers.

We wanted to find the number of smoking

breaks the nurses use for smoking during working hours, by which the smoking nurses knowingly violate the law of the Labor Code (7) with the “silent” consent of their colleagues and superiors. 63% of smoking nurses take 1-3 breaks during a work shift for smoking, 25% take 4-6 breaks while 12% of smoking nurses take 7 and over. The results are identical to the data provided by the Czech wholesale supplier of tobacco and alcohol products PEAL. According to the calculation of this company smoking one cigarette during working hours costs the company almost 1 EURO (96 cents). Smoking one cigarette takes about 6 minutes. The average smoker smokes about 5 cigarettes during working hours, or 30 minutes a day, and as many as 15 days a year (8). The smoking nurses in our study smoke an average of 5 cigarettes during five smoking breaks, which means that they are out of work for at least 30 minutes of their working time each day. The real loss of time is, however, much greater and is related to leaving the workplace, moving to a place designated for smokers, and returning to the workplace. One cigarette “costs” an employer about 1 EURO, about 5 EUR per day and 75 EUR per month, if counting the average 15 days per month in the shift work of nurses. Every year, the time lost due to smoking takes up to 15 working days. If the value of the average nominal monthly salary of an employee in the Slovak economy in the 3rd quarter of 2021 reached EUR 1,185 (9), or about EUR 57.50 per day, the financial loss caused by smoking during the working hours costs employer EUR 862.50 per smoking nurse per year.

### In study

The relationship between smoking and health care; workers' compensation; and productivity costs for a large employer, USA, from 2008 to 2010 (10) smokers had higher absenteeism costs.

Overall, employees who smoke were estimated to cost employers \$900 to \$1,383 more than their nonsmoking counterparts. Current smokers experience incrementally greater lost productivity than nonsmokers, contributing to employer costs associated with smoking.

In Japan (11) 2011 collected and analyzed data (n=30 000) about association of smoking with work productivity and associated costs. Current smokers reported the greatest overall work impairment, including absenteeism and reported the highest indirect costs. Large research realized in 2013 (12) in United States (US), EU5 (UK, France, Germany, Italy, Spain) and China. Working-aged respondents 18-64 were used in the analyses (US n=58 500; EU5 n=50 417; China n=17 987) and were categorized into: current smokers; trying to quit; former smokers; never smokers. Authors examined the relationship of smoking status with work productivity. Current smokers reported greater absenteeism in the US and China and greater presentism, overall work impairment, and activity impairment than former and never smokers across the three regions.

When calculating the correlation between the number of smoked cigarettes and lost time using the Spearman test, we have got a statistically significant correlation ( $R = 0.40, p=0.002$ ), (Table 1). This means that there is a significant correlation between smoking dependence and loss of time during working hours. The moderately low value of the correlation coefficient may be caused by the two factors. The first is the construction of a questionnaire where the initial number of smoking breaks was put into three categories. The second can be the subjective perception of the insignificance of the lost time caused by smoking, or under evaluation of the frequency of time lost due to smoking.

The smoking breaks are regulated by very few companies. PEAL company itself regulates

**Table 1** Correlation of the number of the cigarettes with the lost time in smoking nurses

Parameter	n	R	I.S.		p
			+95%	-95%	
# of cigarettes vs smoking break	56	0,40	0,15	0,61	0,002

Legend: n-number, R Spearman coefficient of correlation p-statistical significance I.S. confidence interval

cigarette breaks for its employees. Workers must smoke in front of the building and check out by the card attendance system on the way out. Then they have to make up for this time. 75% of companies do not deal with the time their employees spend smoking, and up to 86% of employers do not provide programs to help smokers who would like to quit smoking (8). The legislation prohibits smoking in the workplace, including health care facilities (13,14,15). We also assessed the managers' perception of time lost by smoking nurses ( $n = 46$ ). We focused on the question: "Do you think that non-smoking nurses work instead of smoking nurses during their smoking break?". We have got the answers from smoking ( $n = 7$ ) and non-smoking nurse managers ( $n = 39$ ). Due to the lower number of categories, we have merged the answers Yes and Partially into one category, answer "no" to another category. The results are shown in Table 2. Due to the small group, the Fisher test was used. The results show that the differences are statistically significant ( $p = 0.05$ ). Although the results should be interpreted with caution, there seems to be a double discrepancy in the perception of nicotine in the workplace. The majority of non-smoking manager nurses (82.1%) perceive the smoking of nurses as a reason for replacement work that non-smokers have to do instead (Table 2). On the contrary, most of the small number of smoking manager nurses ( $n = 4$ ) do not observe nicotine as a problem that forces non-smoking nurses to do the work instead of their fellow smokers. It seems that nurses' views on smoking during working hours do not depend on the job position; even in

**Table 2** Perception of replacement work of non-smoking nurses instead of smoking nurses from the point of view of manager nurses

Manager nurses	replacement work		All	p
	Yes	No		
smoking	3	4	7	0,046
nonsmoking	32	7	39	
all	35	11	46	

Legend:  $p$ -statistical significance, Fisher test

the case of manager nurses, the perception of time lost on smoking is the same as in nurses: smokers do not perceive replacement work as such a significant problem as do non-smokers independent on the position in the job.

#### **Managers are not interested in time lost due to smoking during working hours.**

Management's lack of interest or their indifferent attitude is alarming. The higher the number of cigarettes smoked per day, the higher is time lost due to smoking. More breaks due to smoking have a negative impact on nursing care. It is therefore clear that, when considering the time spent out of working place due to smoking, the provision of nursing care is limited.

#### **Employers do not deal with time and economic loss caused by smoking workers.**

82.5% of smoking nurses stated that smoking and the efficient use of working time at their workplaces were not solved; 82% of non-smoking nurses and 70% of managers gave the same answer. The lack of interest of employers in solving this labor-legal issue was also confirmed when the nurses were asked if the employer provides smoking nurses with any programs aimed to stop smoking; 93.5% of nurse managers and 88% of nurses gave a negative answer. At the same time, 54% of nurses stated that they would be willing to quit smoking if the employer-provided them with some benefits to support a healthy lifestyle. Nursing is a demanding profession and many nurses are not capable to change of stereotypes, and bad habits by themselves. They need help from the employers, and the system (6,16).

A French study (18) collected the data about smoking in nurses working in hospitals in the south of France 3 years after the introduction of the law prohibiting smoking in working place. 30% nurses in the observed sample were smokers. Following the adoption of the law, as many as 72% of smoking nurses stated that they reduced the daily consumption of cigarettes during working hours. 20% of smoking nurses stopped smoking.

Ireland was, according to (19) the first country that forbids smoking at working place since 29 March 2004. The author conducted the study on 430 Irish nurses using a questionnaire and found that as many as 44% of nurses are smokers, with the highest prevalence of smoking in the age

group of 20-30 years. The calculation of the correlation between smoking and type of working place showed that the highest number of smoking nurses were working in psychiatry (47%) and coronary units (33%). Only 14% of the nurses attended education on smoking cessation.

Kapka *et al.* (19) published a meta-analysis of 229 studies related to smoking in health care workers. As many as 45% of the nurses were smoking. They reported the decreasing number of smoking nurses in the USA and New Zealand. In 2015, an international study about smoking in nurses was performed. It was found that the number of smoking nurses ranges from 2% in China, 26% in Northern Ireland, to over 30% in Italy, Serbia, and Spain. Out of the 142 countries, only 44% of countries offer health care assistance to tobacco addicts. Sarna *et al.* (20) have found that smoking nurses spent less time with patients than non-smoking nurses and had more smoking breaks during working hours.

## Conclusion

### Smoking at work decrease productivity and increase absence.

By offering smoking cessation programs in the workplace, organizations can improve the health of workers: and looking at the long term, they can improve economic performance by reducing health care costs and by improving productivity. Some organizations do not employ or hire smokers due to the negative effects of smoking on other employees and the whole organization or the smoker employee's working time does not include a 30-minute smoking break in addition to rest and eating breaks under Section 91 of the Labor Law (7,14,15).

The smoking ban in healthcare facilities is not fully respected, neither by patients nor by nursing staff. This is due, among other things, to the fact that there is still a high number of smokers among health professionals. Indoors, the smoking ban is respected, but staff often smoke in work clothes in front of the building, aside from the entrance, which makes a bad impression.

### Smoking nurses use their working time inefficiently.

In smoking nurses, a clear interaction exists between the time-consuming nursing care and the need to satisfy their nicotine addiction. The consequences of smoking will result in a deterioration

in health, which will affect the requirements for the profession of nurse. Smoking limits the provision of nursing care and nurse management. Nurses should be a good example for the public. Every day, they come into contact with patients who cause illness through their irresponsible behavior (16,21). Our findings should be a challenge for employers, who should start with an active approach to solve the issue and thus protect health.

## Limitations

Some groups of participants are not homogeneous. The limiting factor is the size of the sample. On the other hand, we assume that the results can be considered acceptable. The results clearly show the need for targeted efforts to resolve the situation. It is necessary to take into account these issues when developing the strategic plans for management in nursing; providing support and programs for smoking nurses to stop smoking; introducing of smoking policy in health care facilities. Smoking dependence in nursing is from the point of management neglected.

## Conflict of interest

The authors declare no conflict of interest.

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