

**“LUCIAN BLAGA” UNIVERSITY SIBIU
”VICTOR PAPILIAN”
FACULTY OF MEDICINE**

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**RESEARCH ON
WORKPLACE HEALTH PROMOTION
AND SOCIAL MARKETING
IN AN INDUSTRIAL COLLECTIVITY
IN THE COUNTY OF BIHOR**

**SUMMARY OF THE DOCTORAL
THESIS**

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**SIBIU
2009**

The present paper reports on the studies concerned with the medical actions aimed at workplace and work-related diseases prophylaxis, based on a new concept: "Workplace Health Promotion", as well as on social marketing techniques.

The main motivation of this approach has been: the decrease in the request for medical services, the improvement of the medical and medical-related services, the reduction of absenteeism, the decrease of morbidity and mortality, the alteration of the attitude towards work and the workplace. From the perspective of the future, WHP considers employees to be a key-resource of the companies viability. Health management creatively combines behaviour prophylaxis (prevention) with the technical and organizational modifications (circumstantial prevention). WHP meets the new challenges on the labour market.

The phenomenon of tobacco consumption is widely spread within the active population, with significant implications on the health state and on the professional activity. In Romania, there is an increase in morbidity due to professional diseases (including morbidity due to professional or professional related diseases induced by irritant and/or allergenic respiratory noxa), associated to the smoking habit (1,2).

The present thesis covers 405 pages and includes 216 bibliographic references, 91 figures, 282 tables, 14 annexes and 7 specific materials used in the programme implementation. The thesis consists of two parts. The general part describes the theoretical elements of the Workplace Health Promotion concept; the professional diseases of the respiratory system, the unspecific profession-related chronic respiratory diseases, as well as the contributing factors; the main favouring etiologic factors; the exposed workplaces, technological processes and professions; the exposure time before the occurrence of the diseases; the elements of pathogenesis; the clinical aspects and consequences of the exposure to organic solvents and wood ashes (on the respiratory system) in the wood processing industry (3,4,5,6,7,8,9).

We analyzed the epidemiological diagnosis stages and the professional and/or profession-related diseases prophylactic actions and levels. We proceeded at describing the Social Marketing conceptual elements and the Workplace Health Promotion principles of giving up smoking (10,11,12,13,14,15,16,17).

The second part includes the personal research on the Workplace Health Promotion and social marketing in an industrial collectivity in the county of Bihor.

The work hypothesis considered that the associated exposure to professional irritants (ashes, gases, vapours) and tobacco determines a synergic enhancement action on the respiratory system. The WHP actions regarding giving up smoking lead to an improvement of the situation: a decrease in the number of smokers and an improvement of the respiratory function.

The aim was to determine the effects of the chronic professional exposure to the respiratory irritants in the working environment and to the substances found in cigarette smoke (extraprofessional exposure); as well as the embracement of technical-organizational and medical actions, so as to prevent professional and profession-related morbidity. The objectives were: highlighting the clinical and para-clinical semeiology in the individuals professionally-exposed and unexposed to the respiratory irritants; the sociologic and statistical analysis of the professionally exposed and unexposed individuals' knowledge, attitudes and practices towards the medical-social intervention programme aimed at reducing the workplace smoking habit; proposals of technical-organizational and medical actions for the development of the WHP project.

The research was carried out at S.C. "ELMOBEROM" S.A. in the city of Beiuș, the county of Bihor, a wood processing and furniture production unit. The study groups were established at the beginning of the research, in 2003, using the same investigational protocol on a representative sample group of individuals.

Initially, the study material also included a sample group of 380 individuals made up of: the "case" group including 190 individuals chronically exposed to professional noxa (ashes and/or respiratory irritant vapours); and the witness group made up of 190 individuals with no exposure to professional noxa (figure nr.1 and figure nr.2). The sample groups were also investigated from the point of view of their smoking habit. The work methodology presupposed the staging of the research in three distinct phases:

- the reference moment in which the study began, in 2003/2004, when we assessed:
 - the exposure to the professional risk factors: organic solvents, formaldehyde, wood ashes, noise, microclimate
 - the health state of the workers through: ITM morbidity analysis, the prevalence of the ITM chronic morbidity, the prophylactic medical examinations (periodic medical check-up), respiratory functional investigations, the smoker/non-smoker status (interview, questionnaire)

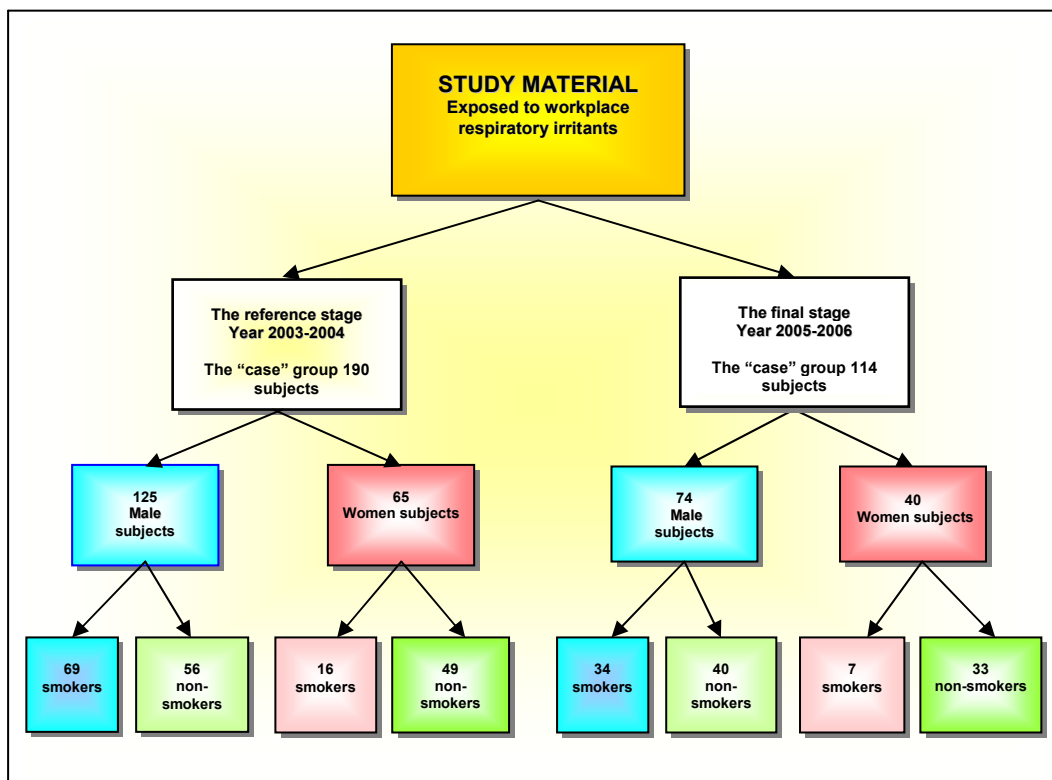


Figure nr.1 The study material, the subjects exposed to professional respiratory irritants.

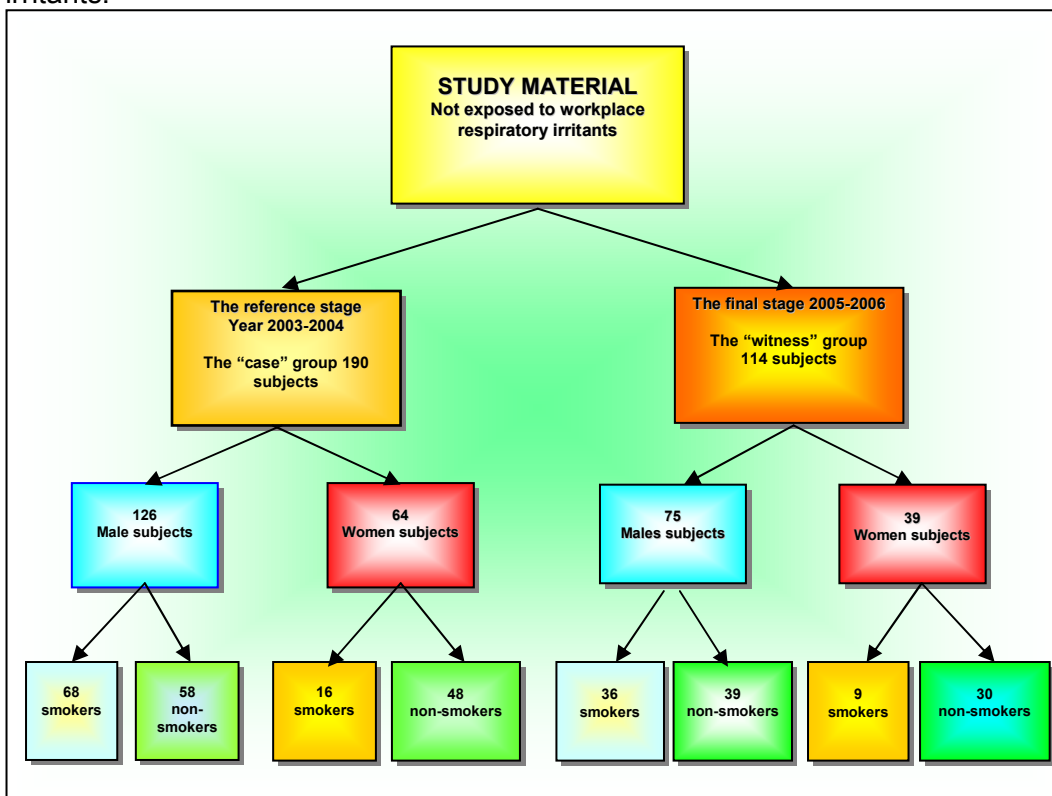


Figure nr. 2. The study material, the subjects not exposed to professional respiratory irritants.

- The second phase, which covered the years 2005, 2006 and 2007 and consisted in the social Marketing and WHP, including: the workers' needs, giving up smoking, the creation of a sanogenetic behaviour at the workplace.
- The third phase which included the final assessment in 2008, consisting in the comparative analysis of the workplace environment factors and of the workers' health state as contrasted with the one from the reference moment (2003-2004)

We determined the noxa concentrations (organic solvents, wood ashes) in the atmosphere, in the exposure departments, as well as the concentrations of noise and microclimate. We assessed the health state and analyzed the morbidity, the ITM chronic diseases prevalence and the contrastive analysis in dynamics of the noxa determinations corroborated with the periodical medical check-ups carried out between 2004-2008. The epidemiologic study approached the analytical, observational, "case based witness-case" retrospective component, in cohort (II type) as well as the operational, interventional, cohort, "field", longitudinal, health education programme assessment.

The statistical data analysis used the SPSS programme pack (Statistical Package for Social Sciences)(18,19,20,21,22,23,24).

The social marketing programme intervention to modify behaviour and encourage giving up smoking was done based on a formative research of identification of needs, knowledge assessment, attitudes and smoking related practices (25). The WHP consisted of health educational actions of an informative-educational type, with direct objectives related to the reaching of the informational-educational level necessary to maintain the general and specific health state. The indirect objectives were: the increase of the general, unspecific resistance of the organism and an improvement of the professional environment conditions. Individual and group communication techniques were employed and specific materials were eventually distributed (table nr. 1).

Table nr.1.

Schedule of the workplace health promotion activities:

Activity	Material used	Date
Lesson nr 1	Leaflet: "health without tobacco"	July 2004
Lesson nr 2	Specifically adapted flyers, video-film	August 2004
Lesson nr 3	Leaflet: "healthy lifestyle"	September 2004
Presentation	Presentation of audio-visual materials (thematic video film and video clips)	October 2004
Debate	Adapted refresher flyers	November 2004

The assessment research after the completion of the workplace health promotion intervention, was carried out in the period between 2004-2005 on a group of 114 subjects, exposed and unexposed to professional noxa. The assessment process was a systematic and continuous one and was aimed at monitoring the indicators of the proposed objectives: the level of knowledge quantified at the end of the intervention, the impact of the programme (behaviour modification) as well as long-term health state.

Results

1. At the unit in question: analysis of the noxa determinations revealed pollution with wood ashes, organic solvents and an above the limit level of noise.
2. The periodic medical check-up carried out between 2004-2008 included a total of 8661 medical examinations and 975 spirographmes.
 - the respiratory functional explorations revealed the obstruction of the distal bronchial tract (with statistical value) in both exposed and unexposed, smoker and non-smoker, men and women subjects.
 - the examination of the respiratory functional samples after quitting smoking in subjects exposed and unexposed to the workplace irritant noxa revealed that in both male and female smokers there was an increase of all the respiratory function parameters (with statistical value)
3. Analysis of ITM morbidity (2004-2008) revealed the indicators to be within the accepted limits and the dynamic evolution to be constantly decreasing.
4. Analysis of the ITM chronic diseases prevalence established the top 4 diseases for the respiratory, cardiovascular, digestive and skeletal-articulatory system.
5. The analytical epidemiologic study in both men and women, smokers and non-smokers indicates with statistical significance that exposure to workplace irritant respiratory agents and to cigarette smoke increases the risk of developing pulmonary diseases, the risk being higher in the case of smokers.
6. The assessment of the WHP medical social intervention and of the smoking related practices underlined the following statistically relevant aspects:
 - decrease in the number of smokers, in the number of the cigarettes smoked per day, as well as in the number of the cigarettes smoked in time
 - reduction of the practice of smoking, especially due to a decrease in the number of smokers and in the total number of cigarettes smoked in time

- a decrease by 2.88 times in the total number of cigarettes at the “case” group, in both men and women and a decrease by 2.06 times at the “witness” group.
- smokers represent approximately a third of the subjects investigated and there are more male than female smokers.
- men smoke more cigarettes a day than women
- 2/3 of the smokers have tried to give up smoking
- 50% of the smokers wish to quit smoking within the next 6 months.

Discussions

Analyzing the evolution of smoking on a European scale in the period between 1950-2000, one can notice that there was an increase in the prevalence of smoking in people over 15, as well as an increase of mortality caused by smoking in the case of men as compared to women. The number of smokers in the EU has dropped from 33% in 2002 to 27% in 2005 while the number of those claiming to have never smoked has increased from 42% to 47% since 2002; 57% of the women have never smoked as contrasted with 35% of the men; the number of those who have given up smoking has increased from 19% to 22%. Passive smoking is considered by 75% of the Europeans to be dangerous and 80% of the people would like smoking in public places to be forbidden.

In Romania, the legal trade of cigarettes has had an ascending course rising from 15,3 milliards cigarettes in 1960 to over 30,8 milliards in 2000 and to over 32,25 milliards in 2001; at the same time, cigarette consumption per capita has constantly increased rising from 2,1 pieces/day and 788 pieces/year in 1990 to 4 pieces/day and 1.442 pieces/year in 2001 (26). The percentage of Romanians who smoke cigarettes is higher than in the EU, and the percentage of those who have given up smoking is much smaller (only 11%). Moreover, the percentage of the people who agree to the forbiddance of the smoking in public places and at the workplace is high, but smaller than in the EU. Protection and consideration for the non-smokers is almost inexistent within the larger context of modest anti-smoking advertising campaigns.

The studies on the giving up of smoking at the workplace show that there is insufficient information accompanied by insufficient education (25). It is believed that through brief seminars and intensive counselling sustained by professional medical assistance, one can determine 40-50% of the smokers to give up smoking without medication (27).

Forbiddance of smoking at the workplace in the European countries resulted in a decrease of the incidence of smoking from 29,6% to 25,0%, significant for both men and women; concomitantly with the reduction of the air pollution with nicotine at the workplace. Interdiction to smoke at the workplace might reduce the incidence of pulmonary cancers by 8% and the occurrence of asthma or chronic bronchitis by up to 30% (28). Approximately 7,5 million persons are exposed to passive smoking at the workplace in 14 EU countries and 24,6 million in the USA (29). An anti-tobacco at the workplace legislation would allow for an avoidance of the pulmonary cancers and of the coronary diseases by 4% up to 9%; and of the chronic obstructive bronchopathies (COBP), asthma and severe pneumonia by 8% up to 32% (30).

General conclusions:

By implementing the WHP and social marketing we have succeeded to develop:

- a complex medical-social intervention in a company aiming at obtaining benefits in as far as the workers health state is concerned.
- a Health Promotion programme, an interdisciplinary medical activity involving Labour medicine, Epidemiology and Public Health.
- an inter-institutional public-private joint collaboration (A.S.P. Bihor, the private industrial unit, Labour medicine private practice).
- functional, efficient communication channels
- changes in the management policy of conjugated approach of the technical administrative actions to reduce the level of noxa and to improve medical assistance in the company (WHP), materialized in a decrease of the morbidity indexes, specific morbidity due to the diseases of the respiratory system, and to absenteeism (for medical reasons).
- administrative changes of the workplace smoking regulations
- changes of behaviour in smokers: the general rate of giving up smoking was of 17,2% (29 subjects), 16% male (22 subjects) and 21,9% women (7 subjects). There was an improvement of the respiratory function parameters in the case of those who had permanently given up smoking, shown through PVT.
- improvement of the medical assistance in the company through team work: pluri-disciplinary, inter-institutional medical assistance and the application of new concepts and methods regarding behaviour aspects WHP

- the method has proven its use through the realization of persuasive inter-personal bonds, of functional and efficient information communication channels and of the implementation of the social marketing product.
- workplace Health Promotion offers a new conceptual and methodological perspective of approaching behaviour changes, ensures the possibility for the employer to integrate it in the quality organizational culture and systems: policies, human resources, labour organization, social responsabilization, etc.

As a result of the WHP activity in the wood processing company in the county of Bihor, of the outputs and of the experience acquired, we propose the framework intervention model – prevention.

Recommendations for the realization of a healthy work and life environment

1. The future support of tobacco consumption prevention and reduction actions (both during work time and in the extra-professional life).
2. The workplace health prevention and social marketing strategy requires an approach based on several dedicated actions of specific and support information.
3. The intensive continuation of the information, education, communication interventions differentiated on small groups and levels at the workplace.
4. The energetic implementation of the support actions in the unit: a unit specialized on giving up smoking, a psychological unit, a counsellor for those who wish to give up of smoking, a pharmaceutical unit, material resources, etc.
5. The decrease of the environmental factors impeding the adoption of the desired behaviour (ensuring the necessary resources, the counsellor for the target-group, the psychological-social environment that should favour change etc.).
6. A continuous implication of the unit board in the sustained mediatization and implementation of the organisational policy and of the anti-smoking actions aiming at the reduction of workplace smoking phenomenon.
7. Continuation of the information and education at the workplace with regard to the knowledge on the various health risk factors (tobacco, alcohol, drugs, physical activity, etc) as well as to the preoccupation for the protection of non-smoking colleagues.

8. As the results of the study reveal that the great majority of the respondents do not realize the dimension of the various health risk factors harmful potential and more specifically of smoking, it is recommended to emphasize the medical aspects of the consequences of the harmful potential of the various health risk factors and of tobacco consumption, of passive smoking.
9. Continuation of the information at the workplace with regard to the specific knowledge on the various health risk factors in the work environment (ashes, organic solvents, irritant gases, etc.), with intensive educational actions.
10. Involving the non-smokers into the activities of information, communication, education and implementation of the anti-tobacco measures at the workplace.
11. Intensifying the activities of “advocay” and “loby”, of health protection so as to create a legislation oriented framework for a smoke-less environment.

List of abbreviations

- E.N.S.P. – The European Network of Smoking Prevention
- ENWHP – European Net-Work Health Promotion
- EU – The European Union.
- H HPE – Health and Health Promotion Education
- LPGR – Labour Protection General Regulations
- PEF – Professional Ethologic Fraction
- PVT- Pulmonary ventilatory tests
- O.C.B.P. – Obstructive Chronic Bronchopneumopathy
- SRTIS – Superior Respiratory Tract Irritation Syndrome
- W.H.O. – World Health Organization
- WHP – Workplace Health Promotion

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