



A FIVE-YEAR RETROSPECTIVE PERIOD STUDY OF PERIOD PREVALENCE WITH VIEW TO WORKING ENVIRONMENT AND WORK PROCESS IN TWO DIAGNOSTIC AND CONSULTING CENTERS IN VARNA

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ABSTRACT:

A retrospective five-year period study of the temporary incapacity of the workers employed at the two largest diagnostic and consulting centers in Varna Municipality revealed the health status and tendencies of healthcare workers under specific working conditions. The high level of temporary incapacity for work among healthcare workers is associated with age, feminization, specific working conditions and work process organization. The statistical parameters of the study have been evaluated in accordance with the approved methodology described in Regulation No. 3 of 2008 on the terms and procedure for the operation of the occupational health services. In the analysis of the results, we have used alternative analysis methods for the qualitative variables and variance analysis methods for the quantitative variables. Five groups of diseases represent 85 % of the overall morbidity with temporary disability in the two medical centers. Respiratory diseases /53 – 57 %/ are the most common case followed by musculoskeletal, connective tissue and nervous system disorders /17 - 20 %/ We found a high incidence of temporary incapacity for work, lost workday cases and workers with some degree of permanent disability. These results confirm that the healthcare sector is a high-risk sector with reported diseases above average for the country and for the other economic activities. The main approaches to remedy these negative trends are related to occupational medical care and services, such as establishing adequate working and rest periods, safe and healthy conditions at work and promotion of workers' health.

Keywords: period prevalence, health status, musculoskeletal disorders, outpatient medical care, healthcare workers

OBJECTIVE

A retrospective 5-year period study involving analysis and assessment of the health status dynamics of medical and non-medical workers employed at two diagnostic and consulting centers in Varna Municipality.

TASKS

A period prevalence analysis and assessment with a view to the working environment and work process in DCC 1 and DCC 2 – Varna over a five year retrospective period. Comparative analysis to identify the leading nosological groups, workers' critical organs and systems, with personalized medicine approaches.

MATERIALS AND METHODS

We have evaluated the statistical parameters according to the approved methodology described in Regulation 3 on occupational health services [1] We have used a software product specifically designed for an individual and generalized characterization of the negative changes in the health status of all workers in the medical establishments [2, 3, 8]. In the analysis of the results we have used alternative analysis methods for the qualitative variables and variance analysis methods for the quantitative variables. For the purposes of the study, we analysed: temporary and permanent disability, including assessment of work-related health issues in DCC 1 and DCC 2 over a retrospective 5-year period from 2013 to 2018. The subject of the study is a total of 249 workers from two medical establishments for specialized outpatient care in Varna. All medical and non-medical workers have many years of experience and additional qualifications in various speciality fields. DCC 1 has 126 workers serving approximately 50 000 people–14% or one-seventh of the population of Varna. DCC 2 has 123 workers and is located in an area with an approximate population of 100 000 people (Table 1).

Table 1. Distribution of the study subject according to gender and age groups during the period between 2013 and 2018

Average number of staff during the period from 2013 to 2018, according to gender and age	Gender	DCC 1	DCC 2
Total number of men	Men	32	22
Total number of women	Women	94	101
Total		126	123
Number of employees in the age group of 25 years	Men	1	0
	Women	1	3
Number of employees in the age group from 26 to 35 years	Men	5	1
	Women	8	3
Number of employees in the age group from 36 to 45 years	Men	6	3
	Women	13	10
Number of employees in the age group above 45 years	Men	20	18
	Women	72	85

Non-medical workers are 12 % of the total staff of the two medical establishments, occupying 10 different positions. Of these, 21 are women /68%/ and 10 are men /32 %/. Most of them are informants /receptionists/ - 45 %, followed by the accounting department. Medical workers are 88 % of the total number of workers in or from DCC 1 and DCC 2. Of these, the physicians are 44 % /49 at DCC 1, and 48 at DCC 2/, followed by nurses with 21 % /21 at DCC 1 and 26 at DCC 2/ and 15 % are health care assistants.

RESULTS

A five-year retrospective period analysis and assessment of period prevalence with a view to the working environment and work process in DCC 1 and DCC 2 - Varna. We used mean indicators of morbidity with a temporary disability with a reliable confidence interval for the five year period. The high level of temporary work incapacity

among medical workers has been the subject of many years of research. It is usually associated with age, feminization, specific working conditions and the organization of work. This study focuses on the working environment and the work process according to the risk assessment. Most workplaces have several priority risk factors, of which biological agents, manual work with weights, work with hazardous chemicals are more significant for DCC 1, and the ergonomic factors, biological agents, psychosocial risk factors /stress, burnout/ are more significant for DCC 2 [9, 10, 11, 12, 13, 14]. The information was derived from the sick notes issued during the period. The actual morbidity with a temporary disability was analyzed. Social morbidity with a temporary disability was excluded from the analysis, i.e. all absences from work due to normal pregnancy, maternity, examination and caring for a sick member of the family, etc. (Table 2)

Table 2. Indicators of morbidity with a temporary disability (MTD) for DCC1 and DCC 2 during the period between 2013 and 2018.

Indicators of MTD	DCC 1	DCC 2
Frequency of sickness absence with temporary work incapacity during the year	47.11	55.32
Relative share of frequent and long-term sickness	22.22	18.72
Incidence of temporary work incapacity during the year	132.44	147.23
Frequency of lost work day cases due to temporary work incapacity	1576	1440
Average duration of a case	11.9	9.78

The indicators of MTD are compared with the existing Batkis-Lekarev classification. There are markedly higher indicators of MTD for the workers aged over 45 in both medical establishments under review, compared to all other age groups, which is most probably due to the increase of the length of service and age. The total number of workers with sick notes is 42% and 53%, respectively, for DCC 1 and DCC 2. Women have been sick more often, 87 % of the

overall morbidity for DCC 1 and 86 % for DCC 2. The number of workers and the number of issued sick notes for DCC 2 is higher than DCC 1, which is probably due to the higher number of the population served. During the period under review, no sick notes were issued to workers under the age of 25 in both medical establishments. As the age increases, the number of sick notes increases, and in the 36 – 45 age group it is 14% for DCC 1 and 0.04 % for DCC 2. As ex-

pected, most sick notes were issued to workers in the age group above 45. The most likely cause is not only age and length of service but also the long-term impact on the workers of the specific factors of the working environment and the work process, as well as the organization of the work in the medical establishments. The distribution of the period prevalence according to the positions of the workers is as follows: in DCC 2 the physicians ranked first with 55 %, followed by nurses with 20 % and health care assistants with 9 %. The period prevalence in DCC 1 is similar- physicians occupy the first place with 47 %, followed by nurses and health care assistants with 11 % and 10 %.

Table 3. Number of cases according to the nosological structure under ICD-10, for DCC 1 and DCC 2

Occupational group/Sick notes	DCC 1	Women	Men	DCC 2	Women	Men
Diseases of the respiratory system and infections	67	61	6	87	82	5
Diseases of the nervous and musculoskeletal system	26	23	3	25	21	4
Diseases of the digestive system	10	9	1	20	19	1
Diseases of the genitourinary system	11	11	0	14	13	1
Diseases of the blood circulation organs	13	9	4	6	3	3

Five groups of diseases represent (85-87%) of the total incidence of temporary disability for both medical establishments. Respiratory diseases are most prevalent for the whole period, with a proportion of 53 % for DCC 1 and 57 % for DCC 2 followed by diseases of the musculoskeletal, connective tissue and nervous system 17 % for DCC 2 and 20 % in DCC 1. Third place in the pattern of morbidity with temporary disability in DCC 1 is occupied by diseases of the circulatory organs, with the most common diagnoses: hypertensive heart disease, other cerebrovascular diseases, hypertensive heart without (congestive) heart failure. In DCC 2, the third place in the structure of morbidity is occupied by diseases of the digestive system with the following diagnoses: gastroesophageal reflux, gastroduodenitis, non-infectious gastroenteritis and colitis, unspecified. Fourth place in both hospitals is occupied with diseases of the genitourinary system. There were no significant differences in the results of the two diagnostic establishments.

CONCLUSIONS

1. The personal integral analysis of morbidity with a temporary disability allows the use of a longer period to establish the actual levels, structure, dynamics with tendencies and characteristics of the negative changes in the health status of healthcare workers, as follows:

1.1. The frequency of the cases with temporary incapacity is very high 147.32 for DCC 1 and 132.44 for DCC 2 per 100 workers / Batkis-Lekarev/.

1.2. The frequency of lost workday cases is very high; 1773 and 1692, respectively, for DCC 1 and DCC 2. The benefits payable under this incapacity expertise are high for workers with a length of service of 10 -15 years which are the largest share of the studied workers. The structure of lost workday cases as an indicator with great health and

DISCUSSION

In the interpretation of the results for the absolute number of issued and booked sick notes /with a relatively small variation in the number of workers/ classified according to nosological units and classes under the International Classification of Diseases (ICD-10) we can focus on seeking a causal relationship between the existence of specific risk factors and negative changes in the health status of the workers in the medical establishments under review (Table 3).

economic significance is determined by diseases of the respiratory system - 383 in DCC 1. The second place in the same medical establishment is occupied by neoplasms with 287 lost workdays, followed by diseases of the musculoskeletal system and connective tissue, and diseases of the nervous system with a total number of lost workdays - 208. In DCC 2 the results are: the diseases of the digestive system prevail in a number of lost workdays– 364, and the second and third place are occupied respectively by: diseases of the respiratory system and of the musculoskeletal system and connective tissue with 328 and 259 lost workdays.

1.3. Average duration of a case with temporary incapacity – 11.9 for DCC 1 above the average provisional normative groups for DCC 2 is within the average levels.

2. The integral personal approach applied in the study has the advantage to accurately determine the relative share of frequent and long-term sickness of workers who, as carriers of chronic and socially significant diseases, are to a large extent related or potentiated by the specific working conditions, especially by occupational stress and psychophysiological risk factors. For DCC 1 it is 24.89 %, and for DCC 2 it is 19.57%, which are very high levels accounting for a significant part of the overall temporary incapacity for work.

3. The frequency of workers with permanent disability diseases is 11.56% for DCC 1 and 11.06% for DCC 2. These are extremely high levels that need to be personally examined due to the significance of the indicated and contraindicated, respectively, working conditions.

4. We established a high frequency of temporary incapacity cases, lost workday cases and workers with permanent disability diseases in the healthcare sector. Therefore, the sector is considered as a high-risk sector requiring continuous health monitoring, active prevention of detected diseases and health promotion.

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