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# Health status of nurses and its relationship with well-being and the dimensions of the Demand-Control-Support model

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## ABSTRACT

**Aim** Present study aimed to assess the health status and health behaviour of Hungarian nurses and to investigate the relationship of well-being with the dimensions of Demand-Control-Support (D-C-S) model or rather with the prevalence of chronic illnesses.

**Methods** The cross-sectional study was conducted in six Hungarian hospitals during the period between October and December 2010. The applied questionnaire contained questions regarding health status and health behaviour, furthermore the Well-being Scale, the Job Demand Scale, the Job Control Scale and the Job Social Support Scale. Data of 1048 person were analyzed with SPSS 18.0 statistical programme. Descriptive statistics, factor analysis and Spearman's rank correlation were conducted.

**Results** In this sample of Hungarian nurses the most common diseases were varicose veins, locomotor disorders, allergies, recurrent migraine and cardiovascular disorders. Usually this population did not take any medication for the above mentioned illnesses. One-third of the responders are smokers, two-third drink coffee regularly and 41.6% drink alcohol occasionally. Not even a day of sick-allowance was taken by 79.1% of the responders during the year prior to the study. On average the nurses had taken  $3.25 \pm 12.54$  days for sick-allowance. Worse self-reported health status and more chronic illnesses were correlated with higher work demand ( $p < 0.001$ ) and higher level of negative well-being ( $p < 0.001$ ). While better health status and fewer chronic illnesses were correlated with higher support ( $p < 0.001$ ), control ( $p < 0.001$ ) at workplace and higher levels of positive well-being ( $p < 0.001$ ).

**Conclusion** Among Hungarian nurses the prevalence of chronic illnesses is very high and these are correlated with higher demand at the workplace and negative well-being.

**Keywords:** nurses, health state, chronic illnesses, well-being

## INTRODUCTION

Physical and psychic health of nurses might influence the quality of their work and free time activities, furthermore the satisfaction of patients (Kawano, 2008). The non-supportive environment, the limited promotional opportunities, the three-shift work schedule, the automated and monotonous work processes and the unclear competency boundaries have made the nursing profession full of stress (Hegney et al, 2006). High work stress has a negative effect on nurses' self-assessment of their own health status (Gál-Inges & Németh, 2015).

In Hungary only 9.1% of nurses considered their own health status as excellent and 46.2% as good (Markovic et al, 2006). One-third of nurses never consult a doctor in case of any symptom or illness (Németh & Irinyi, 2009). Most common diseases among nurses are musculoskeletal and gastrointestinal disorders (Sveinsdóttir & Gunnarsdóttir, 2008), furthermore irritable bowel syndrome, arthritis and headaches (Arafa et al, 2003), and cardiovascular symptoms are more common in rotating shifts workers (Ferri et al, 2016). Musculoskeletal disorders are mainly related to standing work, with a high prevalence of back and back-related complaints among nurses and, absenteeism from work due to these complaints (Master et al., 2017). Nurses take more frequently



prescribed medicines compared to the average population, and they have access to drugs even at their workplaces which results in elevated consumption (Storr et al, 2000). Nurses often resort to self-medication, mainly due to lack of time, knowledge of the diagnosis and the mildness of the illness. The main over-the-counter medicines used are painkillers (Babatunde et al., 2016).

Health care providers working with severe patients are more prone to addictions or substance abuse; 37.9% smokes, 28% drinks 3 or more coffees per a day, 20.4% consumes alcohol regularly, 10.6% has already used some kind of illegal drug. In the average health care provider group these rates are the following: 24.7% smokes, 14.7% drinks 3 or more coffees and 1.9% has tried illegal drugs (Hegedűs et al, 2004).

Hungarian nurses usually do not take sick leaves. An earlier study reported that 71.5% of the nurses has not been on sick leave during the previous year and only 5.5% of the responders has taken more than two weeks of sick leave (Németh & Irinyi, 2009a). While in Canada nurses spent 14.5 days on average with sick-leave and 14% of them was absent from work because of sickness for more than 20 days per a year (A Summary of Highlights, 2005). In the UK nurses take an average of 12 days off as sick-leave (Thomsen et al, 1999). Studies have shown that the frequency of psychic problems decreases job satisfaction, self-reported health status and increases the occurrence of psychosomatic symptoms (Le Blanc et al, 2001; Pikó & Piczil, 2007).

Present study aimed to assess the health status of Hungarian nurses and health behaviour. Further goal was to investigate the correlations of well-being and Demand-Control-Support (D-C-S)

model with the self-reported health status and the prevalence of chronic illnesses.

## EXAMINEES AND METHODS

The presented cross-sectional study was conducted during October-December 2010 in six Hungarian hospitals using a self-developed questionnaire which consisted of 77 questions. The questions concerned socio-demographic data, health status and health behaviour, furthermore the Well-being Scale (Badburn, 1969), the Job Demand Scale, the Job Control Scale and the Job Social Support Scale (Karasek, 1979; Johnson, 1991) were included.

Initially 1587 questionnaires were sent out to the involved hospitals. Inclusion criteria were the following: at least one year of employment at present workplace, female sex, involvement in patient care and no leading position.

Data analysis was conducted with SPSS 18.0, descriptive statistics, factor analysis and Spearman's rank correlation were applied.

In the final analysis 1048 questionnaires were included (response rate = 66.03%). The average age of the responders was 38.47 years. They had been working in health care for an average of 17.4 years and for 14.8 years in the same hospital. From the sample 5,2% worked at an intensive care unit, 32,7% at an internal medicine unit, 24% at a surgical ward, 15,6% at a child care unit, 7,8% at a psychiatry ward and 14,8% at a chronic ward.

## RESULTS

Work related stress experienced during the previous months was assessed through a three-question scale ("How many times were you exhaust-



ed?"; "How many times were you overstressed, overdriven?"; "How often were you angry, nervous?") with a four-point Likert scale where 1 meant "not at all", 2 "a little bit", 3 "pretty much" and 4 equalled "very much". Regarding exhaustion 56.2% of the responders marked "pretty much", 22% indicated "a little bit" and 19.3% reported to be "very much" tired (average score=2.9). The average score on the question concerning overburden was 2.7 and the most frequent answer was "pretty much" (52.4%), 28.8% marked "a little bit". Anger was scored with 2.5 on average, as 41.1% of the responders answered with "pretty much" or had nervous problems during the previous months and 33.6% indicated "a little bit" of anger.

Only 18.1% of the responders did not report any chronic illness, while 21.7% had chronic illness affecting one organ system, 22.5% had disorders of two organ systems, 15.3% suffered from the illness of three and the remaining responders indicated even more chronic illnesses. The most common chronic illness were varicose veins (N=442), locomotor disorders (arthritis, rheumatism; N=355), allergies (N=328), recurrent migraine (N=270) and cardiovascular disorders (high blood pressure; N=220). Gastrointestinal disorders occurred also frequently (gastric or duodenal ulcer, enteritis; N=160) along with gynaecological (N=142), respiratory (chronic bronchitis; asthma; N=113) and endocrinological (N=102) disorders. Dermatological illnesses occurred by 95 people and psychological disorders were reported by 40 nurses.

For the self-reported assessment of health status a four-point Likert scale was applied, where 1 equalled "excellent", 2="good", 3="agreeable" and 4="bad". Excellent health status was reported by

7.3% of the responders, 43.9% indicated good, 46.3% agreeable and 26% bad.

Regarding medicine intake 64.5% reported no regular medicine consumption, 16.4% took one kind of medicine, 9.8% two and 5.2% 3 different medicines. The remaining part of the nurses took four or more kinds of medicines; one person even took ten different types of medicines regularly. Tranquilizers were among the regular medicines of 1.3% of the responders, but 13.5% of the sample took them occasionally, while sleeping pills were taken on a regular basis by 0.5% of the nurses and 2.3% took it occasionally. Antidepressants were regularly taken by 1.3% of the responders and 2.3% took them occasionally.

Regular smokers constituted 32.5% of the sample and 9.5% smoked cigarettes occasionally. Regular coffee consumption was reported by 65.7% of the nurses and irregular by 20.1%. Two people (0.2%) drank alcohol regularly, but 41.6% did it occasionally.

During the year prior to the study 79.1% of the responders had not spent any time on sick leave, on average 3.25 days were taken off because of sickness. Fourteen or less days were taken off by 15.3% of the nurses, 15 or more by 5.6% and four responders reported to had been on sick leave for more than 100 days in that period.

As the last step of data analysis the connections between health status and well-being and the dimensions of the D-C-S model were examined. Self-reported health status and number of reported illnesses correlated significantly with the three dimensions of the D-C-S model ( $p=0.000-0.005$ ). Worse health status was correlated with higher levels of strain at work ( $p<0.001$ ), negative well-being ( $p<0.001$ ) and higher number



of illnesses ( $p < 0.001$ ), while better health status and lower number of illnesses were correlated with higher levels of support ( $p < 0.001$ ), control at work ( $p = 0.001$ ) and positive well-being ( $p < 0.001$ ). (see Table 1.)

## DISCUSSION

According to the results of the presented study the majority of the responder nurses experiences anxiety, anger, overburden during their work and they are often exhausted. This is particularly dangerous because of the links between workplace stress and/or strain and cardiovascular and/or locomotor disorders (Karasek & Theorell, 1990; Schnall & Landsbergis, 1994). Chronic illnesses were reported by 89.1% of the involved nurses which often affected more organ systems. The most common diseases were varicose veins, locomotor disorders, allergies, recurrent migraine and cardiovascular disorders. These results correspond with many international surveys, as they also reported the above mentioned disorders to be the most common (Sveinsdóttir & Gunnarsdóttir, 2008; Németh & Irinyi, 2009b; Feith et al, 2008). Despite of the great number of chronic illnesses most nurses do not take appropriate medication regularly. Usually they do not take sleeping pills, tranquilizers and antidepressants regularly which also fit the results of an earlier study (Németh & Irinyi, 2009a).

One-third of the nurses proved to be regular smokers, two-third drinks coffee regularly and 41.6% drinks alcohol occasionally. These results are also similar to earlier Hungarian data (Németh & Irinyi, 2009a).

The majority of the responders did not take any sick leave during the year prior to the study and the average of days spent on sick-leave was 3.25.

More Hungarian surveys reported similar results (Németh & Irinyi, 2009a; Pásztor, 2006), while English nurses take on average 12 days off because of sickness (Thomsen et al, 1999) and in Canada this number is on average 14.5 (A Summary of Highlights, 2005).

It can be stated that higher levels of work strain and negative well-being correlates with worse self-reported health status and more illnesses compared to the effects of higher levels of support and control. This corresponds with the results reported by Niedhammer (Niedhammer & Chea, 2003) and Laschinger (Laschinger et al, 2004).

The results described above shed light on the necessity of improving the health behaviour among nurses through interventions aimed at addictions and substance abuse. To prevent the negative effects of work-related stress coping techniques might be thought to nurses. Work strain reduction and increased support and control might enhance the quality of self reported health status. Through the implementation of the described methods chronic illnesses might be prevented among nurses and maybe nurses would appreciate their own health more.

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Table 1. Correlations of well-being and the dimensions of the D-C-S model with self reported health status and the number of chronic illnesses

Dimension		Self-reported health status	Number of chronic illnesses
Demand	Correlation	,167	,196
	Significance	,000	,000
Support	Correlation	-,133	-,090
	Significance	,000	,004
Control	Correlation	-,101	-,091
	Significance	,001	,003
Positive well-being	Correlation	-,243	-,181
	Significance	,000	,000
Negative well-being	Correlation	,243	,133
	Significance	,000	,000





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