

# **Morbidity and stressor predictors among the Hungarian female physicians**

PhD thesis

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## **Introduction**

Physicians get highly distinguished attention from the society. One of its manifestation is the great number of specialised literature written on the profession and the physicians themselves. One outstandingly abundant part of this specialized literature often containing contradictory results deals with the physical and mental health of physicians.

It has been reinforced by many international researches that there is a close correlation between the level of education and the state of health: among people with higher qualifications the rate of mortality and morbidity is generally lower. (Huisman 2005; Knesebeck and et al. 2006) It raises questions whether these conclusions prove right among female physicians as well or not.

The results of several surveys based on objective parameters indicate that physicians are generally not sicker than the rest of the population, moreover the occurrence of some types of illness is more rare among physicians. It was reinforced by more longitudinal surveys (Williams et al. 1971; Carpenter et al. 1997; Juel et al. 1999; Frank et. al 2001; Innos et al. 2002; Firth-Cozens 2007), that the health indicators of physicians and female physicians don't differ significantly from that of the data of the population. At the same time however surveys intended to search the prevalence and seriousness of the different mental problems indicate that physicians can be regarded as an endangered group from the aspect of mental health. While there is a disturbance in mental health in one fourth – one fifth of the population, some kind of disturbance in the mental health occur in one third-one half of physicians themselves. (Clarke and Singh 2004; Tyssen 2007; Firth-Cozens 2007) In 2004 Schernhammer and his colleagues found by the meta-analysis of the results of survey in the specialized literature that the prevalence of suicide is almost one and a half times higher among male physicians than among the average population

while it is more than twice as high among female physicians. (Schernhammer and Colditz 2004)

It has been the result of several surveys conducted in Hungary that the mortality of physicians is higher compared to that of the adequate age-group. (Balog 1978; Molnár and Mezey 1991; Hungarian Scientific Society for Occupational Health and Medicine 2003) Surveys related to morbidity conducted in Hungary comparing the results with the average population and other intellectuals show that in case of the middle-aged physicians the occurrence of chronic diseases is outstandingly high with special significance of the rate of mortality due to heart attack. (Molnár and Mezey 1991) Katalin Hegedűs and her colleagues concluded based on a survey conducted on health workers dealing with patients with serious illness that in point of state of body and mind, the above mentioned health workers had worse markers than the control group. (Hegedűs and Riskó 2006) Rurik and Kalabay conducted a survey among medical students in Budapest graduated in 1979 in the aspect of health indicators and health-related behaviour. They have found that the respondents ranked their state of health higher than their contemporaries although a significant proportion suffered from high blood pressure and it was typical of them to smoke and lacking sports activities.

The mental vulnerability of female physicians has been confirmed by several international surveys while surveys conducted in Hungary indicate somatic and mental sensitivity alike. There are no surveys conducted on Hungarian population that would have focused on the background factors of the female physicians' somatic and mental morbidity. Thus morbidity among female physicians and its risk factors have proven to be especially reasonable.

## **Objectives**

1. To analyse the identities and differences in the health state, physical and mental wellbeing related to female physicians and other professionals having a diploma.
2. To explore the most important factors in the background of the health indicators of female physicians.
3. To analyse the possible correlation between workload, burn-out syndrome, role-conflicts and state of health.

## **Hypothesis**

1. The indicators of female physicians related to somatic and mental health, their risk-related behaviour and reproducing morbidity show more unfavourable results than that of other female professionals.
2. According to the hypothesis in the background of the worse somatic morbidity special stress factors can be found that female physicians face. These stress factors derives from the features of the medical profession (long and incalculable working time, variable working shift, high level emotional load, occurrence of burn-out syndrome) on the one hand, the difficulties of harmonising the job roles and the family ones on the other hand.
3. It is assumed that the greater proportion of female physicians taking part in the survey go through role conflicts while attending their roles in their workplace and the ones in their family. This role conflict has greater extent than that of the professionals not working in the medical field. It is assumed that role conflict is a significant stress source having impact on somatic and mental morbidity. It is assumed that roles related to work have greater

influence on the other roles than the extent to which family role plays in hindering the fulfilment of work roles.

### **Method**

Cross-sectional quantitative and qualitative sociological survey. The validity of the survey was enhanced by the linking of the quantitative and qualitative types related to data collecting techniques. (Léderer 2002; Bryman 2005)

In the course of the quantitative analysis the female physicians' indicators related to their physical-mental state, working activity, role conflict was compared with a representative control group of population holding a diploma on the one hand (N=818, Hungarostudy 2002), and within female physicians as target group the background factors of physical and mental morbidity was analysed on the other hand.

In the course of the qualitative survey the harmonization of profession and family roles were placed in the focus of the survey with the help of life interviews.

### **Sample**

The surveyed population of the quantitative sample was the one conducted in 2003 and 2004. (N=650) The *systematic sample collection with random starting point* was applied as the method of sample collecting. It was provided by the recordings of the Hungarian Chamber of Physicians. The selected sample 62,7%-a (N=408) gave assessable answers to the anonym, self-filling type of questionnaire sent by land mail. The greater majority of the respondents work in the basic medical provision and in the occupational health service so the sample of 408 persons was accentuated according to the

workplace related dimensions given by the Hungarian Central Statistical Office and the Hungarian Chamber of Physicians. The control group of female physicians was formed by the professional female group of a national survey conducted by Hungarostudy 2002 (N=818). This group of women with diploma was *adjusted* to the female physicians *according to age relation*.

110 female physicians were involved in life interviews in the course of the quantitative survey between 2002 and 2006. The qualitative sample was selected by quota sample collection: age, type of settlement, type of work was the basis for the proportionally formation of the sample to be surveyed.

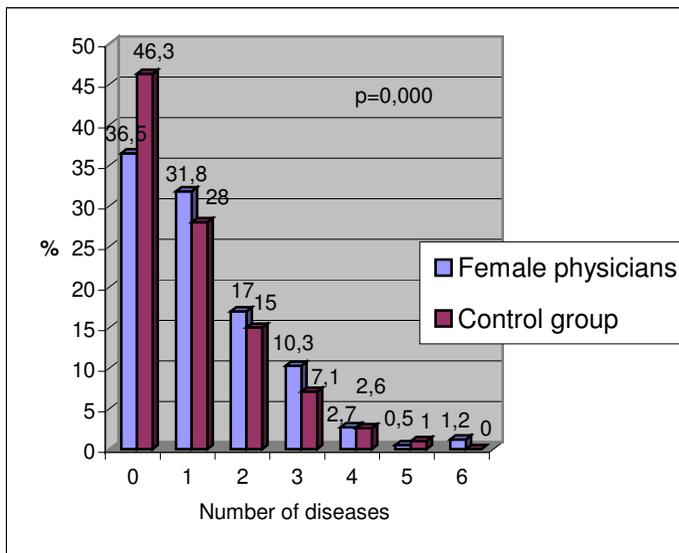
## **Results**

Based on the results of the survey on the state of health the *prevalence* of chronic diseases is *higher* in the respective group of female physicians, and moreover in their case these types of diseases appear earlier and more cumulatedly compared to the control group holding a diploma: tumour-related illnesses, hypertension, cardio-vascular diseases, infectious diseases, asthma bronchiale and other types of respiratory diseases, gastric ulcer, duodenal ulcer, illnesses related to the stomach and bowel system, eye disease and gynecological diseases. There is a strong significant difference in the following areas of diseases: hypertension, gastric ulcer, muscular and skeletal system related diseases furthermore in cases of gynecological diseases. In case of reproducing morbidity medically induced termination, miscarriage and endangered pregnancy indicates significant surplus in the female physicians' group compared with the control group.

Terminations, miscarriages endangered pregnancies	Sample: female physicians (N=402)	Control group (N=794)	Level of significance
Occurrence of termination	33,8 (134)	25,8 (204)	$\chi^2=48,634$ df=2, <b>p=0,000</b> and Cramer's V=0,209 p=0,000
Miscarriage	23,6 (96)	12,1 (96)	$\chi^2=11,270$ df=1, <b>p=0,001</b> and Cramer's V=0,097 p=0,001
Endangered pregnancy	23,8 (97)	13,2 (104)	$\chi^2=6,333$ df=1, <b>p=0,013</b> and Cramer's V=0,073 p=0,012

According to surveys conducted earlier in Hungary the results of them indicate that in case of male and female physicians chronic diseases appear earlier than age of 40. (Molnár and Mezey 1991) On the basis of their results diabetes, cardio-vascular diseases, gastric ulcer and in cases of female physicians gynecological diseases appeared at an earlier age (between 34 and 43) compared to the control group. There is an especially significant difference between the surveyed and the control group in the appearance of diabetes, gastric ulcer and gynecological diseases between the ages of 34 and 43.

In case of cumulating chronic diseases there is also a significant difference between the two groups: in case of female physicians the cumulation of the chronic diseases proved to be more prevalent.



At the same time despite all of these indicators female physicians consider their health state good or very good in bigger proportion than the members of the control group.

After surveying the somatic health indicators the state of the mental health was reviewed. On the basis of Beck's depression-points in the surveyed female physicians' sample mild and medium depression-points were more frequent compared that of the control group. ( $\chi^2=792,330$ ,  $df=4$   $p=0,000$  és Cramer's  $V=0,264$   $p=0,000$ )

The rate of thoughts related to suicide is in significant correlation with the formation of the depression-points – it indicates an almost duplicated number in the female physicians' group than in the control group. (20,3% vs. 10,8%,  $\chi^2=11,548$ ,  $df=3$ ,  $p=0,009$  and Cramer's  $V=0,205$   $p=0,000$ )

The quantity of sleep and the incidental occurrence of sleeping disorder was surveyed in both samples. In point of the quantity of sleep there has been no significant difference between the two groups. At the same time when analysing sleeping disorders it has been revealed that it was significantly higher in proportion in the group of female physicians. (32,5% vs 18%,  $\chi^2=21,702$  df=1 p=0,000 and Cramer's V=0,422 p=0,000)

In our survey sleeping disorders showed strong significant correlation with chronic diseases. Having been controlled by the traditional risk factors (age, smoking habits, BMI > 25) sleeping disorders proved to be the most important predictors of tumour-related illnesses, hypertension, gastric ulcer and gynecological diseases.

It is all-important to emphasize that in case of examining sleeping disorders and their correlations the tendency of cause-and-effect relation can be revealed extremely hard; It can be assumed that there is a circular cause relationship between sleeping disorders and several physical diseases of great public health problem. Sleeping disorder is the important risk factor of physical symptoms, it affects the course of physical diseases negatively however the occurrence of physical diseases boosts that of the sleeping disorder. (Novák and et al 2006) It is important to say further on that sleeping disorders in themselves can be predictors of different illnesses and since they significantly in relation with several harmful habits for the health (smoking, taking tranquillizers) they exert impact by them as well.

Examining burn-out syndrome constituted an important part of the present survey. The sate of exhaustion was low in the group of female physicians related to the medium level of emotional exhaustion (average value 19,069), depersonalisation (average value: 7,0206) and low personal accomplishment (average value: 28,7261). Analysing burn-out syndrome it can be said that in the female physicians' group straining and tense situations occurred in a significantly greater proportion than in case of the

members of the control group. ( $\chi^2=92,130$ ,  $df=2$ ,  $p=0,000$  and Cramer's  $V=0,362$ ,  $p=0,000$ )

The role of the possible protective and risk factors were examined in the health of state of female physicians. They smoke to a smaller extent than the control group. Though alcohol consumption is similar in both groups but taking tranquillizers and anxiolytikum proved to be significantly higher in case of female physicians. (6,9% vs. 4,2%  $\chi^2=7,125$ ,  $df=1$ ,  $p=0,009$  and Cramer's  $V=0,077$   $p=0,008$ )

There was also a significant difference between the groups related to sports activities and physical activities. The respondents among the female physicians pursued sports in a significantly smaller rate (60% vs. 76%,  $\chi^2=31,730$ ,  $df=1$ ,  $p=0,000$  and Cramer's  $V=0,163$   $p=0,000$ ,  $OR=2,082$   $CI=1,610-2,694$ )

Almost half of the female physicians didn't access health screening tests in the year of the survey. Despite their knowledge on health issues their significant proportion doesn't access the facilities offered by the preventive health screening tests. Instead of taking the specialists' help self-cure and self-medication is extremely well-spread among them: it occurred in some 70 per cent in the year of the survey.

The significance of work load was examined in the formation of morbidity. Our surveyed female physicians had several workplaces in a greater proportion. At the same time shiftwork, variable shift schedule is more frequent for female physicians (mainly because of the duties). (45,4% vs. 5,8%,  $\chi^2=217,545$ ,  $df=1$ ,  $p=0,000$  and Cramer's  $V=0,470$   $p=0,000$ ) Contacting substances harmful to health in the course of work proved to be a further significant difference. (53,3% vs. 27%,  $\chi^2=77,365$ ,  $df=1$ ,  $p=0,000$  and Cramer's  $V=0,259$   $p=0,000$ ,  $OR=3,07$   $2,3-3,96$ )

It is important to conclude that contacting substances harmful to health indicated a significant relation with the most important chronic diseases and

this correlation remained significant even when the results were controlled to the traditional risk factors.

In the course of the quantitative survey respondent female physicians reported on role conflicts to a greater extent than the members of the professional control group holding a diploma. (42,8% vs. 27,1%,  $\chi^2=143,630$ ,  $df=3$ ,  $p=0,000$  and Cramer's  $V=0,451$   $p=0,000$ ) The high number of duties, the more than 8 hours long working day, the factor of burn-out and emotional exhaustion or the number of children appeared to be in the background of role conflicts. At the same time our data indicated that – despite the special difficulties of the profession – in the group of female physicians more children are raised. Having been controlled by traditional risk factors role conflicts proved to be the important explanatory factor of gynecological problems and medically induced termination.

In the course of content analysis related to qualitative survey the issue of female physicians' role conflict acquired several aspects. The pronounced presence, direction (family *versus* workplace) and its crucial phase of appearance was outlined from the interviews. On the basis of them we can say that having children meant the turning point of the course of life in several respects: its impact was essential both on the profession and on the family life. Harmonising the commitments related to work and family – contrary to the short maternity leave – proved to be a significant challenge entailing the changing of workplace and/or that of the speciality in many cases. Role conflict was intensified by the same profession of the husband: harmonising the duty/night shifts proved to be a special stress factor. Meeting the requirements in the different roles simultaneously was successful for the ones getting substantial help in the family.

## **Discussion**

It has been shown in the survey the prevalence of some chronic diseases is higher than in the case of others having a profession with a diploma. Furthermore is an important statement that some chronic diseases appear in an earlier age and the cumulation of them is significantly higher in the group of female physicians. In the respective group self-treatment, self-medication and not sufficient access to health screening tests is typical.

It has been concluded that in respect of work load female physicians showed a more unfavourable look. There has been a significant difference in the two groups related to the following items: number of workplaces, varying shift schedule and contacting substances harmful to health. Furthermore the group of female physicians reported on significantly higher proportion of role conflicts. The joint analysis of the qualitative and quantitative survey indicates that the respondent female physicians had night shifts, overwork and additional part-time jobs mainly in the period all-important for having and raising small children (between ages of 24 and 40). It indicates that young age proves to be the most endangered period for the development of role conflict. According to the results certain reproducing problems of the female physicians had obvious relation with the extent of conflict arisen in the field of work and family.

It is important to announce that the most important factors of work load and work related stress (long working hours, several workplaces, respectively the varying shift schedule and the component of burn-out emotional exhaustion) on their own don't show significant relation to the chronic diseases. However the above mentioned elements of work load and work related stress manifested as the background factors of sleeping disorders and role conflicts. It can be assumed that both sleeping disorders

and role conflicts have a key role in the development of prevalence of chronic diseases as transmitters of emotional and physical stress.

In summarizing the results: The mechanism of action of three factors can be observed behind the high morbidity of female physicians. These three factors are as follows: contacting substances harmful to health, existence of sleeping disorders and the problem of role conflicts. Analysing these three factors in a multi-parameter model indicated that their effect beside the traditional risk factors proved to be a further explanatory factor. All these results may provide a starting point for a further thorough exploration of morbidity in case of female physicians.

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