Health status and life quality of nurses in Hungary

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Abstract

During our research, we were scrutinizing the health status of full-time healthcare workers. Following self-inventory inquiries, we posited the question that those who consider their health status bad had higher depression scores. In our survey, 66 female nurses and 5 male nurses participated; all hired by the Clinical Centers of Pécs. In this paper, the ‘ SF-36 Quality of Life Questionnaire’ and answers to the ‘Beck Depression Questionnaire’ were analyzed. In the light of the results, it can be stated that the hypothesis has been justified. Healthcare workers are exposed to greater stress during their working life, which of has effects not only on their work, their performance, but also on their health. It can be declared that their health issues considerably effect their vitality. Lower vitality can result in lower productivity, higher absenteeism, and higher fluctuation. The depression scores of those who were in poor health condition were notably higher; consequently, their physical and mental state also had a contributing role in the development of their depression.

Keywords: nurse, healthcare system, human resources, depression, burnout

Introduction

We often say 'Health is the most important.' Until we feel healthy everything is all right, but if anything happens to us we rush to see a doctor or sometimes go straight to the hospital. We expect the healthcare personnel to act immediately, and give something that brings 'immediate recovery.' However, the number of caregivers is decreasing, and nobody is concerned about their health. Those working in auxiliary professions are exponentially prone to harmful physical and mental stress factors. Therefore, their health condition is unfavorable and psychosomatic symptoms are more common among them. (Pikó, 2001; Molnár, 2002; Pikó, 2006). Shift work and duty system are necessities in caregiver jobs since patient care is a 24-hour-activity. Although these may upset the natural biorhythm resulting in sleeping disorders. (Dorrian et al., 2008; Shu-Hui et al., 2012). On top of physical characters of the healthcare job, psychological problems due to emotional stress are quite remarkable (Reknes et al., 2014), namely emotional

support of patients and dealing with death, etc. Research studies with healthcare professionals have shown that daily work comes with several stress factors (overwork, low prestige, non payment and supportive background, and ambiguity of competencies, etc.) (Hegney et al., 2006). Because of all these, burnout may occur early that is consequential exhaustion due to stress load of auxiliary professionals (Gelsema, 2006), in which negative effects of shifts and night shifts on health play a major role. (Müller et al., 2015). Poor somatic and mental conditions of Hungarian healthcare workers are also highlighted in research studies (Hegedüs, Szabó, Szabó, Kopp, 2008).

Several researchers have investigated healthcare staff and stress factors affecting them. According to McManus et al. it can be suggested that emotional exhaustion and stress do interact, that is a high-level of emotional exhaustion leads to stress and high-level of stress results in emotional exhaustion. Impersonal treatment reduces, while a high level of personal effectiveness increases stress (McManus et al., 2002). A higher level of work stress has proven to result in higher level of emotional exhaustion of workers (Happell et al., 2013). Some authors claim that caregivers cannot carry out their job with optimal effectiveness due to stress. The Australian researcher, Pinikahana investigated stress, burnout, and satisfaction at workplace among psychiatric caregivers. 10.4% of the examined showed a high level of burnout. Overload has proven to be the strongest stress factor. Overload showed a strong correlation related to working hours, in other words the more one works, the more one feels overloaded. Consequently, less time remains to give emotional support to a psychiatric patient. (Pinikahana and Happell 2004).

In Hungarian research data, depression syndrome has found to be the most important risk factor from the aspect of deterioration of health condition. Depression syndrome does not mean medical depression, but it refers to a negative emotional status, in which frustration, narrowing of independent decision making, loss of care for others, feeling of hopelessness about the future will occur (Kopp et al., 2002, 2006, 2008). Depression syndrome increases the risk of development of self-destructive behaviors and due to its physiological effects the development of a deteriorated health condition. (Appels, 1983, Perry et al., 2015). Accelerated space of life, altered sociological phenomena (such as the split up of large families, the disappearance of mutual help, a vulnerability in the labor market, crisis, such as financial crisis) and due to environmental changes number of patients with depression has increased.

In caregiver jobs, deterioration of work performance is not allowed even due to stress. Aabsenteeism and burnout are more frequent, as well as the phenomena of leaving the job, which may result in the shortage of nurses (Irinyi and Németh, 2012). Adriaenssens et al. have overviewed research papers of 25 years (1989-2014) written in England on the working conditions of nurses and stress factors related to this. The research results reveal both the individual and organizational causes of burnout on the other hand 17 research papers containing quantitative measurements (involving at least 40 personnel in the target group) were analyzed, and no results were found with a burnout rate lower than 25% (Adriaenssens et

al., 2014). A survey carried out in 2000, in Pécs showed that burnout occurs to the most severe extent among workers of intensive care and chronic departments (Pálfi, 2003).

Since health care is not a profit-oriented sector, health protection of human resource is not sufficiently emphasized (Csanaky, 1999). Presently, it can be stated that the numbers of nurses, caregivers are decreasing. Many of them are seeking better working conditions abroad in the hope of a higher salary. In 2015, according to the data of the state-issued official certificate for foreign employment there was a slight increase among professionals who are keen to work abroad. Mostly the young age group can be characterized by having the intention of working abroad, though the older the professional is, the less likely to go abroad. Middle-aged professionals (aged 30-40) seem to be the most willing to work outside Hungary, mostly in western EU countries (based on the data of National Healthcare Service Centre). Unfortunately, writers of this article do not have the authority to increase wages, yet in a complex way may point out the imperative importance of health issues of nurses and caregivers serving in healthcare services. Also, authors are positing the premise further how investing in the well-being of healthcare personnel can be regarded as an investment and highlight where the returns can be experienced.

With an ethical license our research would like to provide accurate analysis of both the physical and mental load of healthcare service workers by empiricist research of measuring the depression and stress level of caregivers due to the work schedule and workload as well as examining quantification of their physical functioning.

Methods

Test Sample: The target group of the investigation involves the nurses and caregivers of healthcare services in Hungary. Our current pilot analysis is a pre-staged one of a research planned to be conducted next year, in which we would like to prove the arguments for a demand of necessary changes in order to ensure proper healthcare for the healthcare professionals themselves not only by involving a greater number of cases but also providing physical measurements concerning the physical condition of nurses and caregivers.

For data analysis, SPSS 20 program package was used. The closeness and trend of the connection between variables were examined by Pearson correlation.

In the current stage, 73 nurses/caregivers took part in the research. However, two persons did not fill in the questionnaire completely. Therefore their data are omitted from the investigation. There were 66 (93.96%) women and 5 (7.04%) men among the respondents. Unbalanced distribution of genders could be expected due to the job (gender gap index). They are aged 20 to 61 years old. 29 (40.84%) of them work in 3 shifts (morning, afternoon, night), 13 (18.31%) in two shifts (morning, afternoon), 15 (21.13%) in one shift (only morning, or only afternoon), and 14 (19.72%) 12 hours, or in duty system.

Measuring instruments: The respondents filled in a list of questions anonymously, which composed of five parts. This measure is involved by five questionnaires apart from demographic data:

- International Physical Activity Questionnaire (IPAQ),
- Beck Depression Inventory(BDI),
- Buss-Perry Aggression Questionnaire (BPAQ),
- Perceived Stress Scale (PSS),
- Short Form Health Survey (SF-36).

Our current study would like to present the results obtained from the answers to the SF-36 questionnaire and Beck Depression Inventory and to compare these with socio-demographic issues.

Summary of the questionnaires used in research

SF-36 (36 item Short Form Health Survey) Quality of Life

This questionnaire investigates the opinion of the respondents on his/her health condition. It enables to trace the well-being of the person and his/her capability of performing usual activities. The questionnaire can be applied to the population above the age of 14.

The questionnaire was developed by John Ware in 1993 (Ware, 1993), and the Hungarian version was validated by Czimbalmos et al. in 1999 (Czimbalmos et al., 1999), in their study the Hungarian standard values were determined. Its regularity coefficient (the Cronbach-alfa) was 0.93.

SF-36 (as its name reveals) consists of 36 questions divided into eight scaled scores. These are the followings:

- physical functioning (PF),
- physical role (RP),
- bodily pain (BP),
- general health (GH),
- vitality (VT),
- social functioning (SF),
- emotional role (RE),
- mental health (MH).

Scoring is based on the answers of the questions can result in values from 0-100 in all eight quality of life scales. 0 refers to the worst and 100 to the best quality of life. Thus, the higher the total score is the healthier and the least total score shows how incapacitated the respondent is. From the above list, the first four scaled scores (PF, RP, BP, GH) provide

information on physical health (physical component summary-PCS), whereas the last four (VT, SF, RE, MH) provide information on mental health (mental component summary-MCS).

The SF-36 questionnaire is widely used both in medical and in physiotherapeutic research methods where alterations in health condition following interventions are supposed to be measured (Ware, 2008; Mawson, 1995). The questionnaire is easily comprehensible, easy to work with, can be used both in healthy and patient populations, and is suitable for making international comparisons. The regularity coefficient of the Hungarian study (the Cronbach-alfa) was 0.93 (Czimbalmos, 1999). The Cronbach-alfa was also determined in our research; its value was 0.89. Hence, it can be stated that SF-36 questionnaire is applicable in this population as well.

Short Form of Beck Depression Inventory

Based on experience Beck Depression Inventory (BDI) is a well appropriate screening test (Ormos, 2006). During the development of the questionnaire characteristic behaviors and symptoms of patients were considered. The original questionnaire composed of 21 items that involve several fields of depressive symptoms, such as emotional, mood-related, cognitive and motivational fields.

The short form of the Beck Depression questionnaire with nine items and the '4 point Likert-scale' investigates symptoms of depression, such as social withdrawal, indecision, sleeping disorder, fatigueness, excessive worrying about physical symptoms, inability to work, pessimism, lack of satisfaction and happiness, and self-accusation (Rózsa et al. 2001).

The Beck Depression Inventory or its short form is one of the most reliable measuring methods for recognizing severe depression syndromes. In agreement with the Van Riezen and Segal handbooks the estimation of the severity of depression by psychiatrists correlates well thus BDI can be applied to estimate severity grades of depression with excellent reliability (Van Riezen and Segal, 1988). The regularity coefficient of BDI is 0.83 (Rózsa et al. 2001).

Results

In our research, we would like to investigate the health condition of healthcare workers and to find out whether those who consider themselves being in a bad health condition have a higher depression score. Correlation of physical condition and depression scores were checked. Ultimately significant difference of SF-36 sub-scales and reference values were checked.

Summing up the SP-36 questionnaire resulted in the following results in the eight categories (Table 1.):

Table1.: Average scores and their standard deviation of SF-36 scales, and the Hungarian standard values and their standard deviations (Czimbalmos, 1999)

categories	average scores of caregivers (n=71)	standard deviation	normal values of healthy persons (n=6963) (Czimbalmos, 1999)	standard deviation
physical functioning (PF)	88.87	13.97	91	25.60
physical role (RP)	79.23	31.61	79	40.83
bodily pain (BP)	68.10	26.06	78	29.44
general health (GH),	65.08	22.25	64	23.80
vitality (VT),	58.17	23.18	70	25.89
social functioning (SF),	75.70	27.21	80	25.01
emotional role (RE)	77.93	35.16	78	39.79
mental health (MH)	69.35	22.61	71	22.88

source: own edition

Comparing the values obtained and the Hungarian standard values of the healthy population analysed, the outcomes reveal that only the results of the physical and emotional roles are similar, but all other values are lower than the normal standard values.

The comparison of data shows that the difference is remarkable in the case of nurses and caregivers regarding bodily pain and vitality!

Although our research involved considerably more women than men, we also examined these data to deduced to genders (Table 2.).

Table 2.: Results and standard deviations deduced to genders:

	PF (sd)	RP (sd)	BP (sd)	GH (sd)	VT (sd)	SF (sd)	RE (sd)	MH (sd)
standard values women (n=2381)	89	76	76	62	67	78	74	69
nurses (n=66) (standard deviation)	88.71 (14.15)	79.54 (14.11)	66.32 (26.01)	64.65 (22.37)	58.64 (23.00)	75.19 (27.69)	77.27 (36.12)	69.88 (22.16)

standard values men (n=1526)	93	83	81	67	75	84	85	76
caregivers (n=5) (standard deviation)	91.00 (12.45)	75.00 (12.44)	91.60 (12.03)	70.80 (22.11)	52.00 (27.52)	82.50 (20.92)	86.67 (18.26)	62.40 (30.01)

source: own edition

The table shows that in the target group as well women have worse values considering bodily pain and vitality than considering physical role values, which is a little higher than average. However, in the case of men real pain values are higher in comparison to the healthy population, whereas physical role, vitality and mental health scores are much lower than average. These results are in line with the results of an investigation in 2015 carried out by Perry et al. in which 382 nurses/caregivers were examined. Results showed that this profession involves remarkable emotional stress while the mental workload is also significant resulting in low vitality (Perry et al., 2015).

By examining the differences between genders with nonparametric methods (Mann-Whitney test) it can be confirmed that only bodily pain showed a significant ($p<0,05$) difference, while significant ($p<0,05$) difference in physical functioning, physical role, general health, vitality, social functioning, emotional role and mental health subscales could not be detected (Table 3.)

Table 3.: Results of non-parametric examinations related to the differences between genders

SF-36 subscales	Mann-Whitney U test	Z-value	P-value
physical functioning	144	-0.49	0.63
physical role limitation	117.5	-1.22	0.22
bodily pain	67.5	-2.22	**0.03**
general health	140.5	-0.55	0.58
vitality	156	-0.20	0.84
social functioning	148.5	-0.38	0.70
emotional role limitation	161	-0.11	0.92
mental health	148	-0.38	0.70

source: own edition

Apart from this significant difference between the subscales the reference values of SF-36 were also examined (Table 4.). The standard values of women (based on Czimbalmos's results) and nurses showed provable differences considering bodily pain and vitality. Regarding vitality this could be expected, just like the research of Perry brought similar results (Perry et al., 2015).

According to the research analysis related to of female healthcare workers', the actual or putative unsatisfying health condition plays significant role in the development of low tolerance towards bodily pain and low pain threshold. An accurate clinical picture though could not be set in the case of everybody, thus it can be stated that obesity, symptoms of depression, malaise are obvious signs presuming a worse-than-average health condition. At the same time deteriorating self-assessment and the filling of self-image with negative contents will mentally enhance the deterioration of personal health resulting in bodily pain and insufficient vitality. The most assured sign of this is when somebody complains of having 'no strength' to do anything, yet is aware of the task to be conducted and also knows what he/she would have to do but is drawn aback by the personal bodily sensation and mental condition. This situation may trigger a negative spiral in many cases, a feeling of incapability to meet the requirements or goals both resulting in a continuous source of anxiety effecting one's everyday life. It is extremely dangerous when this feeling is accompanied with the fear of losing one's job because in this case the basic sense of security declines, which distresses the function of the whole personality.

Table 4.: Significant difference values between the Hungarian standard values and research values among women

SF-36 subscales	Standard values of women (Czimbalmos, 1999)	Standard values of nurses	p-value
physical functioning	89	88.71	0.87
physical role limitation	76	79.54	0.38
bodily pain	76	66.32	**0.00**
general health	62	64.65	0.34
Vitality	67	58.64	**0.00**
social functioning	78	75.19	0.41
emotional role limitation	74	77.27	0.46
mental health	69	69.88	0.75

source: own edition

Responses of the Beck Depression Inventory have revealed that 42.23% of healthcare workers complain about depression symptoms (30 professionals), whereas 5.63% (4 professionals) among these suffer from moderate, another 1.4% (1 person) from severe depression. The

average BDI score was 8.45 (standard deviation: 6.49), which is slightly poorer than the value published by Kopp for the County of Baranya. BDI scores in general increase with age (Kopp et al., 1996), a premise which was proven in our study, too. In our research the scores are as follows (Table 5.):

Table 5.: Depression scores by age

Age	BDI average (standard deviation)
20-29 (n=15)	7.2 (6.27)
30-39 (n=14)	8.42 (5.66)
40-49 (n=29)	9.03 (7.0)
50-59 (n=13)	9.33 (5.84)

Source: own edition

Our research also demonstrated a sharp increase in the depression score correlating to age. In comparison to the Hungarian average, it can be stated that in the age group below 50 the scores are higher in all cases. Consequently, the depression level of healthcare workers will be also higher. In the ages above fifty, the scores were almost equal in all cases (9.33 and 9.42). It is interesting to note that in the cases of the 5 men (all 20 to 29 years old) the BDI score was higher (7.6), than in women of the same age (7.0), although depression, in general, is more common phenomena among women than among men (Purvanova and Muros, 2010).

The measured value is probably related to the nature of the job (lower wage level and social respect than the national average), and to the more inclusive attitude of women towards mental workload accompanying patient care. Women regard encountering other's problems as a part of their job and also try to help due to their high empathetic skills. In social and healthcare jobs there is an enhanced risk that the worker identifies himself/herself too much with the suffering, pain, life history of the patient and these negative phenomena will affect his/her own life therefore depression increases via the process of burnout.

Correlation between the SF-36 results and the Short Form Beck Depression Inventory scores was examined. Based on the Pearson correlation coefficient it can be stated that the results of the two questionnaires correlate (Table 6.).

Table 6.: SF-36 and BDI correlation results

categories	BDI correlation closeness index (R)	BDI P-value
SF36 physical functioning	-0.30	<0.05
SF36 Physical role limitation	-0.38	<0.05
SF36 bodily pain	-0.34	<0.05
SF36 general health	-0.51	<0.05
SF36 vitality	-0.63	<0.05
SF36 social functioning	-0.60	<0.05
SF36 emotional role limitation	-0.61	<0.05
SF36 mental health	-0.71	<0.05

Source: own edition

The above table shows that with the improvement of health condition the depression scores are decreasing.

It is apparent that physical functioning shows a weak correlation to depression scores, however, in the case of other subscales a moderate correlation can be detected (Ács, 2015). The strongest correlation, as it was expected, is observed with mental health scores. This result supports those literature statements which link the worsening of the health condition to depression syndrome (Perry et al., 2015).

The average score of physical health (PCS) is 301.28 (sd=74.48) out of the 400 maximum, whereas the average score of mental health (MCS) is 281.16 (sd= 94.78). In both cases, 400 was the maximum score. However, mental scores of healthcare workers are considerably lower than their physical health scores. Comparing these data with Pearson correlation analysis validated that both physical and psychological data correlate with the data of the other questionnaire. In the case of physical health, the correlation coefficient value with the BDI results was R=-0.49, whereas in the case of mental health scores it was R=-0.72. This result shows the fact that in the development of depression disposition to pessimism is a determining factor. With constantly too high expectations that cannot be met the personal status will be evaluated negatively, which may result in frustration leading straight to depression without a proper life situation handling attitude (Almássy, Baksa, Papp and Szemán-Nagy, 2014).

It is a disappointing fact that one-quarter (25.35%) of the caregivers who took part in the research are in poor health condition according to their own self-inventory judgment. Here we would like to note that 45% (32 persons) of the respondents are obese, 16.90 % (12 persons) among these have a higher body mass index than 35. However, based on the cross-table

analysis it can be stated that BMI categories and depression categories do not correlate (khi^2=6.04; p=0.74).

We examined whether there is a significant difference between the categories of shifts (one shift, two shifts, three shifts, duty) regarding depression scores. Based on the Kolmogorov-Smirnov test the depression index follows a normal distribution (p>0.05). Thus we used a one-way analysis of variance. Based on the result of the test there was a significant difference of the shifts regarding depression scores (F= 3.91; p=0.01). Following that, with Scheffe and Bonferroni post hoc tests it was confirmed that there is a significant difference between one shift and three shifts regarding depression (p=0.01) (Diagram 1.). Nem ezt az eredményt vártuk, hiszen több vizsgálat is tudományos tényként állapította meg, hogy a 3 műszakban dolgozók jobban ki vannak téve a depressziónak This result was not expected as various other researches had already demonstrated that those working in three shifts are more prone to depression (Ofori-Attah and Németh, 2015). At the same time in our study it is not clarified whether 'one shift' refers to a day shift or to a night shift, in their cases thus higher results can be caused by night shifts.

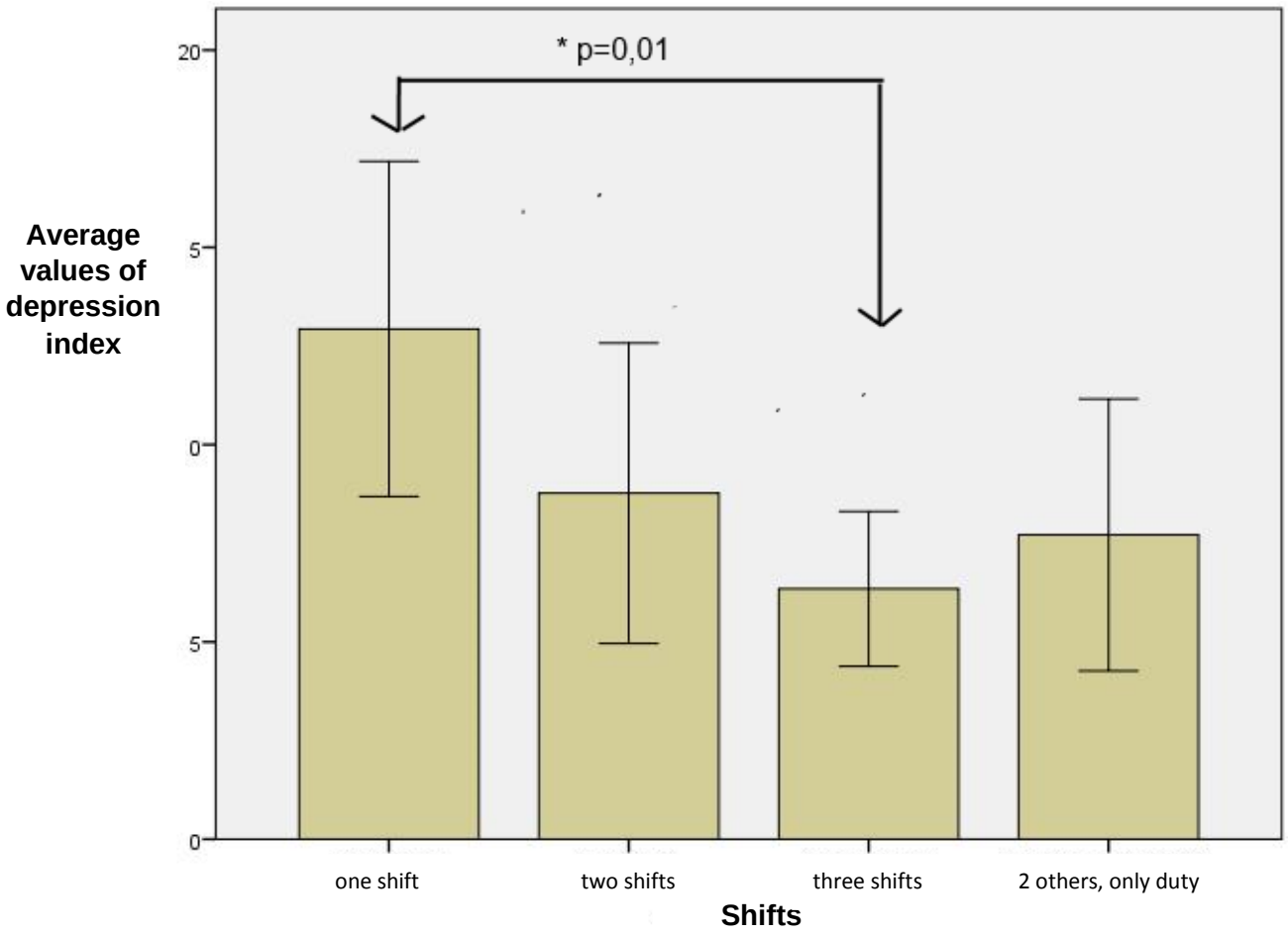

Diagram 1.: differences of shifts and depression source: own edition

More than half of the respondents (53.52%) feels to be impeded by their poor health condition when strenuous physical activities are needed to be carried out, 15.49% feels impeded even during moderately strenuous physical activities. This data is of particular importance given the fact that strenuous physical work is part of the caregivers' daily job (such as moving patients etc.,).

Summary

Our survey attempted to monitor the physical condition of nurses and caregivers of the clinic of Pécs. This research was performed by self-reporting questionnaires. Given the results our research question that healthcare workers are prone to greater stress due to their job was confirmed. This above premise does not only determinate their work and performance but also their overall health condition. It can be stated that health status influences their vitality. The

lower the vitality is and the lower the productivity is, the higher the absenteeism rates and fluctuation rates are. Depression scores were higher in those cases which – following a self-evaluation – considered their health condition poor. Consequently, the role of the health status in the development of depression has been confirmed. Hence, the field of health improvement at the workplace, which handles negative phenomena due to the job in a complex way and may help to overcome job-related stress, should have utmost importance.

Currently, the healthcare sector is facing severe problems. Thus an increased awareness is needed while taking an effort of seriously considering the physical and mental well-being of their human resource. A positive outcome should not be expected only from the anticipated effects of wage improvement. Socioeconomic processes predict the growth of workload of the healthcare sector (due to the factors of aging population, increase in life expectancy at birth, the process of impoverishment that excludes one-third – one-quarter of the society from purchasing healthcare services in the market sector). The phenomenon of depression can be handled in various ways, it should be taken as an imperative. This research aimed to draw attention to the fact that depression an acute symptom experienced in the health sector.

Based on the above outcomes we would like to initiate a new research project related to a larger number of cases with the method of result-based self-reporting questionnaires investigating the physical state of health care workers.

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