HEALTH OF THE WORKING-AGE POPULATION

ZDRAVJE DELOVNO AKTIVNE POPULACIJE

Proceedings

Edited by Ana Petelin, Nejc Šarabon
and Boštjan Žvanut

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Zdravje delovno aktivne populacije

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2017

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Psychophysical workload of workers in Slovenia

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Abstract

Introduction: The psychophysical workloads with which an individual has to cope on a basis at their workplace are important for the employee as well as the employer. It is important to be aware of them, draw attention to them and strive to reduce their sources. The setting-up of programmes and procedures is an important factor in reducing negative effects on employees, as well as maintaining and increasing employees' mental and physical health. *Methods:* This article will present a short self-assessment scale of psychophysical health that enables us to evaluate the appearance of five of the most frequent psychosomatic problems experienced by employees (N = 490). *Results:* In the research, we will analyse the presence of exhaustion, social behavioural disorders, physical disorders, depressive reactions, and fear and anxiety in different demographic groups and, at the end, we will connect the symptoms with the field of activity. *Discussion and conclusions:* Research has shown a link between demographic variables and exposure to psychophysical risks. There is a more straightforward connection with education (higher levels of education are connected to lower risk), while the connection with age and gender is not so clear. Psychophysical workloads are more frequent in construction, manufacturing, the information industry and the civil service.
Key words: psychophysical workload, health, workers, Slovenia

Conditions in working environments today are dependent on wider environmental as well as social and economic factors. Working conditions comprise physical (e.g. working hours, work equipment) and social factors (e.g., management style, nature of interpersonal relations). All factors (Hupke, 2013, mentions content of work, workload, level of supervision, working hours, the working environment, work equipment, the worker's role, or-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.9-22

ganisational culture, mutual relations, career development opportunities, and work-life balance) can, to a certain degree, present psychosocial risks to workers. They are among the most important risks related to workplace stress and affect the psychological and physical wellbeing of workers, and have an impact on their behaviour. The consequences present themselves indirectly in the costs of treating sick workers and the phenomena of absenteeism and presenteeism, accompanied, in all such cases, by a reduction in productivity and efficiency (Sparks, Faragher and Cooper, 2001). The results of the fourth European Working Conditions Survey (Brun and Milczarek, 2007) showed that, in 2005, 20% of workers from the EU and 30% of workers from 10 new Member States believed that their health was being put at risk by stress at the workplace. In 2002, the annual economic cost of workplace stress in the EU was estimated at EUR 20 billion.

It is not only the working environment that creates precisely defined conditions for the occurrence of health risks on the part of workers; the nature of an individual's profession is also a factor. We have therefore decided to examine which demographic groups, which areas of activity and which professions are currently subject to the greatest levels of load and exposed to specific psychosocial risks in Slovenia.

Most common health risks experienced by workers

Some 25% of the European population suffers from depression (Albreht and Turk, 2010), which they characterise as feelings of sadness, loss of interest and of the capacity for happiness, feelings of guilt and low self-esteem. The major negative consequences of depression at the workplace are reduced productivity and high incidences of absenteeism and presenteeism (Evans-Lacko et al., 2016).

Anxiety is defined as a state of unpleasant restlessness and a tension arising from a feeling of threat without a clear awareness of the causes. A certain degree of anxiety can have a positive effect on an individual, with impatience, nervousness and alertness improving a worker's efficiency. A Dutch study (Hendriks et al., 2015) has shown that more severe symptoms of anxiety are linked to absenteeism and long periods of absence from work.

Fatigue at the workplace combines a serious lack of energy with a reduced ability to function, resulting in less energy and motivation to respond to or persist in a certain type of activity or conduct. Three sources of energy are associated with fatigue: physical, psychological and emotional (Frone and Tidwell, 2015). The emotional toll exacted by work is not only expressed in emotional fatigue, but also in physical and psychological fatigue. This indicates that emotional burdens operate more widely and in a more harmful way. As society currently requires ever-greater interaction, cooperation and team work from workers, interest in emotional fatigue has grown in recent times, as a result of the phenomenon of emotional exhaustion (Frone and Tidwell, 2015).

Social behavioural disorders at the workplace are most commonly expressed in different forms of violence. Workers may be victims of verbal violence, bullying (mobbing) or even sexual or racial harassment (Fiseković, Trajković, Bjegović-Mikanović and Terzić-Supić, 2015). This is a serious social and health problem and one that affects the psychological and physical health of workers, on their wellbeing, and on their family and working environments.

Measuring psychophysical workload

Psychophysical workload means increased workload placed on an individual. Workload is defined as the physical and mental requirements related to the performance of specific tasks (Gudipati and Pennathur, 2016). The physical volume of work is the measurable part of the physical resources expended in the performance of a specific task. Numerous factors affect this, including the nature of the work, experience, motivation and environmental variables. Tools for assessing physical workload include the use of evaluation techniques, physical diagrams, biomechanical analyses, measurements of energy consumption and analyses of the Pain Assessment Scale (Melzack, 1975 in Gudipati and Pennathur, 2016).

Measuring mental workload is more difficult and is defined as the amount of cognitive work required for a person to complete a specific task within a specific period (Longo, 2016). In practice, psychophysical measurements such as heart rate and brain activity can be employed to measure an individual's mental workload, along with an assessment of task implementation (reaction time, etc.) and self-assessment questionnaires (Gudipati and Pennathur, 2016).

Problem

The purpose of the research was to establish how certain demographic variables affect psychophysical health at work. Borg et al. (2000) found, for example, that women were a higher risk group than men when it came to understanding their own health; they also had fewer opportunities to improve perceptions of their own health. We therefore designed two research questions:

- Which demographic groups in Slovenia are currently most exposed to psychophysical risks?
- Which professions or professional groups report the highest psychophysical risks?

Methods

Participants and procedure

The questionnaire was completed by 490 workers (366 women and 124 men). Twenty per cent of participants belonged to the first age group (18–26). The highest proportion of participants belonged to the second age group (27–35,

44.5%), while the third age group (36–44) accounted for 20% of participants. The fewest number belonged to the 45 and over age group (15.7% of the sample).

University graduates accounted for 35.9% of participants, followed by those who had completed secondary school education (24.1%) and academic technical education (18.4%). Those who had completed primary school, vocational secondary school or college accounted for the fewest number of participants (0.6, 2.2 and 5.7% respectively). A total of 13.1% of participants had completed Master's or doctoral studies.

We classified professions into 21 groups in line with the Standard Classification of Activities from 2008 (SKD, Uradni list RS, 69/07 and 17/08). Twenty-two per cent (the highest single proportion) of participants were engaged in professional, scientific and technical activities. Health and social work professions (15.9%) and education (14.3%) were also well represented. Trade and motor vehicle maintenance and repair accounted for 9% of participants, as did other business activities.

The data was collected with the help of an online questionnaire in which all questions had to be answered. We used social networks and the psihologij-adela.com website to invite participants to take part.

Aids

We used the Psychophysical Health Scale, SPFZ-2; Majstorović, 2011), which allows individuals to assess their own psychophysical health. It comprises 15 assertions within the following five dimensions: physical health complaints (e.g. "Have you suffered from stomach or other digestive complaints in the last four weeks?"), fear and anxiety (e.g. " Have you been fearful for no good reason in the last four weeks?"), depressive reactions (e.g. "Have you had trouble sleeping in the last four weeks?"), fatigue (e.g. "Have you noticed, in the last four weeks, that you are tired for no good reason?") and social behavioural disorders (e.g. "Have you become intolerant of others in the last four weeks?"). With the help of a four-point Likert scale, the individual estimated how many times in the last four weeks they had identified a certain health issue as affecting them (possible answers are "No", "Yes, but not often", "Yes, often" and "Yes, every day"). The reliability of the original scale was 0.85 (Popov et al., 2016) and the reliability of the Slovenian translation was 0.80 (Kuhta, 2016).

At the end, the participants inserted further information in the form of their sex, age, level of education completed, profession and group of activities in which they were employed.

For the basic overview of data we used simple descriptive statistics (*M*, *SD*) and skewness, kurtosis and Kolmogorov-Smirnov test - to test normality of distribution.

Hierarchical regression analysis has been used, where age and education were presented with the aid of »dummy« variables – reference group of education is primary school education and of age is 18-26 age group. The last two

graphs are a simple representation of avarage score on each dimension between different activities (SKD).

Results

Table 1: Self-assessment of five dimensions of psychophysical health of all participants according to the SPFZ-2 scale.

Dimension	*M*	*SD*	*Asymmetry*		*Kurtosis*		*Kolmogorov–Smirnov test*		
			As	*SE*	*Spl*	*SE*	*Statistics*	*df*	*p*
Physical health complaints	5.48	1.74	0.86	0.11	0.68	0.22	0.17	489	0
Fear and anxiety	4.27	1.61	1.41	0.11	1.49	0.22	0.25	489	0
Depressive reactions	4.22	1.28	1.28	0.11	2.70	0.22	0.23	489	0
Fatigue	6.02	2.17	0.59	0.11	-0.40	0.22	0.15	489	0
Social behavioural disorders	6.21	1.50	0.63	0.11	0.16	0.22	0.18	489	0

Table 1 shows the average results for all participants across the five dimensions of the Psychophysical Health Scale. They show that the most pronounced dimensions for the participants are *fatigue* and *social behavioural disorders*. The lowest average values were in the dimensions of *depressive reactions* and *fear and anxiety*.

The results are presented below using hierarchical regression analysis for all dimensions. All tables are included for the dimensions in which the statistical differences are significant. A model was used that included, step by step, education, followed by age and, at the end, sex.

For the dimension of *physical health complaints*, the hierarchical regression analysis showed that demographic variables explained 3% of the differences, but the variance produced was not statistically characteristic regardless of the predictors included in the model.

The demographic variables for the *fear and anxiety* dimension (Table 2) explain 5% of the differences, where the inclusion of education and age in the model increases the percentage of the variance produced or the differences between people in the dimension in a statistically significant way. With the education variable, there is a statistically significant difference between individuals who have completed secondary school, academic technical, university or doctoral studies. In the *fear and anxiety* dimension, these individuals differ from those who have completed primary school in a statistically significant way. If we include the predictor of age in the model, we see that the percentage of the variance produced increases significantly.

For the dimension of *fatigue*, the hierarchical regression analysis also shows that demographic variables explain 3% of the differences, but the vari-

ance produced is not statistically characteristic regardless of the different inclusion of the predictors in the model.

Table 2: Hierarchical regression analysis: prediction of the dimension of fear and anxiety based on education, age and sex.

	Model 1			*Model 2*			*Model 3*		
Predictor	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*
Education									
Vocational	-0.46	1.05	-0.04	-0.41	1.04	-0.04	-0.56	1.04	-0.05
Secondary	-1.81	0.94	-0.48	-1.77	0.93	-0.47	-1.87	0.94	-0.50*
College	-1.46	0.98	-0.21	-1.42	0.97	-0.20	-1.49	0.97	-0.21
Academic technical	-1.81	0.94	-0.43	-1.75	0.94	-0.42	-1.88	0.94	-0.45*
University	-1.74	0.93	-0.52%	-1.76	0.93	-0.52%	-1.86	0.93	-0.55*
Master's	-1.48	0.96	-0.25	-1.54	0.96	-0.26	-1.67	0.96	-0.28
Doctorate	-2.25	0.98	-0.30*	-2.27	0.99	-0.30*	-2.28	0.99	-0.31*
Age									
27–35				-0.52%	0.20	-0.16*	-0.53	0.20	-0.16*
36–44				-0.16*	0.24	-0.04	-0.19	0.24	-0.05
45 and over				-0.42	0.25	-0.10	-0.41	0.25	-0.09
Sex							0.27	0.17	0.07
	0.03			0.05			0.05		-0.05
F	2.18*			2.77*			2.52		

Notes: HLM, education and age are presented with the aid of "dummy" variables, where the reference group for the first is primary school education and the reference group for the second is the 18–26 age group.
** $p < 0.05$, ** $p < 0.01$*

Demographic variables in the *depressive reactions* dimension (Table 3) explain 2% of the differences, but the change is not statistically significant. With the inclusion of the variables of age and sex, there are, within Model 3, statistically significant differences between individuals who have completed vocational, academic technical, university and doctoral studies. Individuals who belong to these groups differ significantly from those who have completed primary school in relation to the *depressive reactions* dimension. Their result for the dimension is 1.74 lower than for those who have completed vocational studies, 1.58 lower than for those who have completed academic technical studies, 1.63 lower than for those who have completed university studies and 1.60 lower than for those who have completed doctoral studies.

Table 3: Hierarchical regression analysis: prediction of the dimension of depressive reactions based on education, age and sex.

	Model 1			*Model 2*			*Model*		
Predictor	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*
Education									
Vocational	-1.67	0.83	-0.19*	-1.69	0.84	-0.20*	-1.74	0.84	-0.20*
Secondary	-1.35	0.75	-0.45	-1.37	0.75	-0.46	-1.40	0.75	-0.47
College	-1.27	0.78	-0.23	-1.3	0.78	-0.24	-1.32	0.78	-0.24
Academic technical	-1.49	0.75	-0.45*	-1.54	0.76	-0.47*	-1.58	0.76	-0.48*
University	-1.55	0.75	-0.58*	-1.59	0.75	-0.60*	-1.63	0.75	-0.61*
Master's	-1.29	0.77	-0.28	-1.34	0.77	-0.29	-1.38	0.77	-0.30
Doctorate	-1.50%	0.78	-0.25	-1.60	0.79	-0.27*	-1.60	0.79	-0.27*
Age									
27–35				-0.01	0.16	0	-0.01	0.16	0
36–44				0.09	0.19	0.03	0.08	0.19	0.02
45 and over				-0.14	0.20	-0.04	-0.14	0.20	-0.04
Sex							0.09	0.14	
	0.02			0.02			0.02		
F	1.03			0.42			0.41		

Notes: HLM, education and age are presented with the aid of "dummy" variables, where the reference group for the first is primary school education and the reference group for the second is the 18–26 age group.

** $p < 0.05$, ** $p < 0.01$*

The demographic variables for the *social behavioural disorders* dimension (Table 4) explain 26% of the differences, where the inclusion of all three variables in the model increases the percentage of the variance produced in a statistically significant way. With the inclusion of age and sex (Model 3), statistically significant differences are produced in all education groups. Individuals with an education level above that of primary school more rarely experience social behavioural disorders. The result for individuals in the 45 and over age group is 0.98 higher than that for individuals in the 18–26 age group, which shows that such behaviour is more common in this age group than it is among younger people. It is shown in this dimension that, with the inclusion of all variables, there are significant differences with regard to sex, with women achieving a 0.64 higher result than men, which indicates that there is a statistically significant higher frequency of social behavioural disorders.

Table 4: Hierarchical regression analysis: prediction of the dimension of social behavioural disorders based on education, age and sex.

	Model 1			*Model 2*			*Model 3*		
Predictor	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*
Education									
Vocational	-16.46	1.55	-0.90**	-16.36	1.54	-0.90**	-16.72	1.54	-0.92**
Secondary	-16.88	1.39	-2.66**	-16.94	1.39	-2.67**	-17.18	1.38	-2.71**
College	-16.43	1.45	-1.41**	-16.53	1.44	-1.42**	-16.68	1.43	-1.43**
Academic technical	-16.93	1.40	-2.43**	-16.88	1.39	-2.42**	-17.19	1.39	-2.46**
University	-16.85	1.39	-2.99**	-16.75	1.38	-2.97**	-16.99	1.38	-3.01**
Master's	-16.43	1.42	-1.66**	-16.40	1.42	-1.66**	-16.71	1.42	-1.69**
Doctorate	-16.58	1.46	-1.33**	-16.68	1.46	-1.33**	-16.71	1.45	-1.33**
Age									
27–35				0.23	0.29	0.04	0.21	0.29	0.04
36–44				0.60	0.35	0.09	0.53	0.35	0.08
45 and over				0.94	0.37	0.13*	0.98	0.37	0.13*
Sex							0.64	0.25	0.10*
	0.24			0.25			0.26		
F	21.59*			2.74*			6.34*		

Notes: HLM, education and age are presented with the aid of "dummy" variables, where the reference group for the first is primary school education and the reference group for the second is the 18–26 age group.
** p < 0.05, **p < 0.01*

The tables below show the frequency of psychophysical loads in relation to the area of work or activity under the SKD (Uradni list RS, 69/07 and 17/08). Abbreviations are used for groups of activities in the tables for the purpose of transparency.

Physical health complaints (Figure 1) are most frequently reported by participants who perform work in construction (M = 6.00), followed by financial and insurance activities (M = 5.79). Participants engaged in electricity, gas and steam supply (M = 4.67) and cultural, entertainment and recreational activities (M = 4.91) report the lowest frequency of symptoms of illness.

The occurrence of symptoms linked to *fear and anxiety* is very low in the sample (M = 4.27). Individuals employed in trade and in motor vehicle maintenance and repair score highest above the average for this dimension (M = 4.80), followed by those engaged in manufacturing activities (M = 4.60). The absence of symptoms of fear and anxiety is described within the activity of electricity, gas and steam supply (M = 3.00).

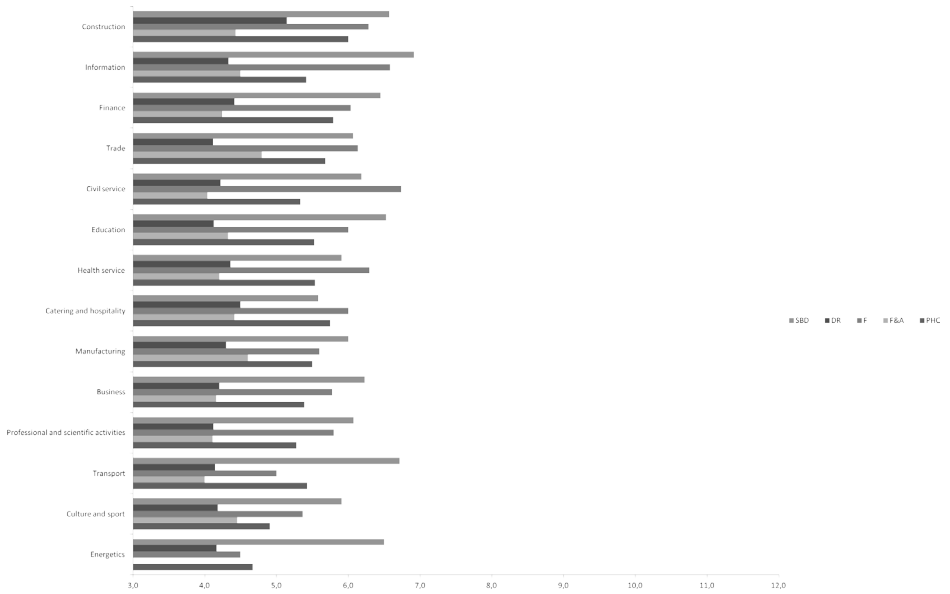

Figure 1: Occurrence of all five psychophysical load dimensions in different activities (SKD).

The dimension of *fatigue* has a high average value in comparison with other dimensions (M = 6.02). Individuals employed in public administration, defence and compulsory social security activities most frequently report symptoms linked to fatigue (M = 6.74), followed by those engaged in information and communications activities (M = 6.58). Symptoms of fatigue are rarely, if ever, reported by workers engaged in electricity, gas and steam supply activities (M = 4.50) and in transport and storage (M = 5.00).

Depressive reactions have the highest average value in comparison with the four other dimensions (M = 4.22). Symptoms are reported most frequently by those employed in construction (M = 5,14) and catering and hospitality (M = 4.50). Never (or rarely) do symptoms occur in trade (M = 4.11) or in professional, scientific and technical activities (M = 4.12).

In our sample, *social behavioural disorders* appear with greatest frequency (M = 6,21). Workers in information and communications activities most frequently report intolerance and avoiding contact with others (M = 6.92), followed by transport (M = 6.71). By contrast, workers in catering and hospitality report positive experiences in relationships with others (M = 5.58).

A joint value on the Psychophysical Health Scale is given to enable a comparison between activities (Figure 2). The overall trend is similar to the trend observed in relation to individual dimensions: issues relating to psychophysical load are most frequently reported by workers in construction (M = 28.43). Information and communications activities (M = 27.75), financial and insurance activities (M = 26.93), trade (M = 26.80), public administration, defence and so-

cial security activities (M = 26.52), education (M = 26.51), healthcare (M = 26.31) and catering and hospitality (M = 26.25) are all above the average for psychophysical health (M = 26.23). Participants employed in electricity, gas and steam supply (M = 22.83) and in cultural, entertainment and recreational activities (M = 24.82) enjoy the lowest levels of psychophysical risk.

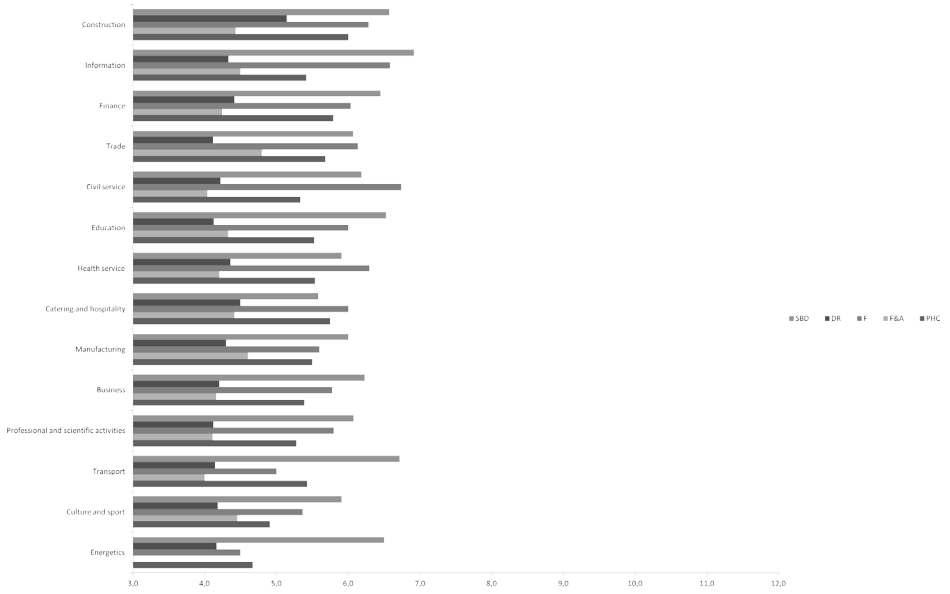

Figure 2: Presence of psychophysical load dimensions in different activities.

Discussion

The results show that the most pronounced dimensions for the actively working population are *fatigue* and *social behavioural disorders*. Participants therefore most frequently report fatigue, a lack of sleep, intolerance and the avoidance of social contact with others. Behaviour linked to the dimensions of *depressive reactions* and *fear and anxiety* is less frequent. Participants rarely mentioned groundless fear, fear of illness, loss of appetite and morbid depressive thoughts.

The purpose of the research was to establish a link between demographic variables and psychophysical health, i.e those demographic groups currently most exposed to psychophysical risks. The results show that we cannot use demographic variables to explain the differences between people in the dimensions of *physical health complaints* and *fatigue*.

With regard to the dimension of *depressive reactions*, and despite the fact that the model does not predict discrepancies in individuals' results in a statistically significant way, we can observe that there are differences in education. Individuals who have completed vocational, academic technical, university or higher studies report depressive symptoms less frequently (difficulties sleep-

ing, reduced appetite and loss of a will to live). We can conclude in this case that education is a safety factor, as individuals with a higher level of education are less frequently exposed to depressive feelings.

The differences between individuals resulting from demographic variables are statistically important in the dimensions of *fear and anxiety* and *social behavioural disorders*. In relation to the dimension of *fear and anxiety*, there is also a trend for individuals with an education level higher than primary school to suffer significantly less fear and anxiety. There are also significant differences when it comes to age group, with individuals in the 27–35 age experiencing fewer feelings of anxiety than their younger counterparts (18–26). Demographic variables have the greatest explanatory power with regard to the dimension of *social behavioural disorders* (they explain 26% of the variance). There are statistically significant differences with all three variables of education, age and sex for this dimension. Higher the education is, less symptoms are presented. This once again confirms the trend indicated: education as protective factor. There are also significant differences in age, as individuals over the age of 45 experience social behavioural disorders more commonly than those in the 18–26 age group. One can conclude, with regard to the age variable, that it is about the specificity of the age group in relation to the dimension and not the trend: individuals aged between 27 and 35 experience less anxiety, while *social behavioural disorders* are more commonly present among the over-45s. The results for the last dimension also show significant differences between the sexes: women report social behavioural disorders more frequently than men, and the difference is statistically significant. This connects with the findings of Borg et al. (2000), who found that women were a higher risk group than men when it came to understanding their own health. Given that this connection was evident in only one of the dimensions, we cannot fully support it.

The second part of our research question addresses the link between professional groups/activities and exposure to psychophysical risks. Participants who perform construction work most frequently experience *physical health complaints*, also employed in finance, insurance and catering and hospitality are more susceptible to feeling unwell. Symptoms linked to *fear and anxiety* are most frequent in trade and in motor vehicle maintenance and repair. Workers in manufacturing and in information and communications activities are also more highly susceptible to anxiety. *Fatigue* is most frequently reported by workers in public administration, defence and social security activities, followed by those working in the field of information and communications. *Depressive reactions* most frequently appear in construction, followed by catering and hospitality, and finance and insurance. Workers in information and communications activities and in transport most frequently report *social behavioural disorders*.

The overall psychophysical health average shows a similar trend, with the highest level of risk appearing in construction, information and communications, and finance and insurance. Those employed in electricity, gas and steam

supply and in cultural, entertainment and recreational activities report the lowest levels of psychophysical risk.

Conclusions

Demographic variables are significantly linked to exposure to psychophysical risks. We can conclude that education acts as a safety factor, as the results indicate that more highly educated individuals less frequently report psychophysical health complaints (feelings of depression, anxiety, social contact issues). Age does not reveal any clear trends in relation to psychophysical health, but there are specificities regarding a specific age group in relation to the dimension. Sex explains the differences between individuals only in one of the dimensions; therefore, we cannot support the assumption that women are a higher-risk group when it comes to an understanding of their own health.

Of the professional groups or activities in which participants are employed, the research shows that workers in construction are most often exposed to psychophysical risks (they most commonly report physical health complaints and depressive reactions). Psychophysical health problems are also noted by workers in manufacturing (most commonly fear and anxiety), public administration, defence and social security (frequently fatigue), and information and communications (frequently social behavioural disorders).

Despite the suitably large sample, there were too few participants from some sectors (mining, agriculture, real estate) to enable a proper analysis. If the research were repeated, one could also ask participants about their status within the organisation (management/non-management staff) and on the number of days of sick leave per year. This information would provide us with an additional insight into the issue at hand.

The research has drawn attention to the large number of risks to which individuals are exposed at work, and could be of value in informing employers of the potential consequences of exposure to various risks among their employees. At the same time, the results could raise the awareness of employers in certain sectors: that the working environment is occasionally too demanding and that solutions and measures should be sought in a systematic, planned way (e.g. by adapting the workplace, providing psychological support, and education and training) to reduce psychophysical risks.

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Retrospective and experiential perception of physical activity during pregnancy on childbirth and postpartum period

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Abstract

Introduction: The purpose of the research was to examine the beliefs and experiences of women in the postpartum period on how the physical activity during pregnancy affects the psychological and physical well-being, the outcome of childbirth and the recovery in postpartum period. *Methods:* The qualitative methodology was used. The purposive sample of 11 women who have given birth in the last year was applied. Their mean age was 27.6 years (s = 4.37); most of them (n = 5) finished upper secondary education; most of them (n = 7) were living in rural areas; more than half of the interviewees were primiparous women (n = 8). Data were collected using a semi-structured interview in January 2017. The data gathered were analyzed with the method of content analysis. *Results:* The analysis yield three themes, namely (1) the factors that affect the implementation, opportunities, motivation and awareness about the importance of physical activity during pregnancy, (2) the characteristics of performing physical activity in the postpartum period, (3) the implementation of pelvic floor muscle exercise during pregnancy and after childbirth. *Discussion and conclusions:* The results indicate that women are very aware about the importance of physical activity during pregnancy and its positive impact on childbirth, postpartum period, and psychological and physical well-being. The interviewees were the opinion that physical activity helped to facilitate childbirth and recovery after childbirth. The time taken by the individuals dedicated to physical activity differed between the interviewees. Most women during pregnancy were engaged in physical activity individually. They usually choose walking and swimming.

Key words: physical exercise, childbirth outcomes, pelvic floor muscle exercises, qualitative methodology

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.23-29

Regular physical activity is one of the most important factors to lead of a healthy way of life. This also the case with the prenatal period, pregnancy time and the postpartum period. Moderate physical exercise is expected to be a part of everyday life of the future mother as long as there are no health or other complications associated with pregnancy. Physically fit and psychologically well prepared women bear their pregnancy better and are better prepared for the birth and also recover after it. A healthy lifestyle for pregnant women – including suitable sport activity as well as a healthy diet – have a positive impact on the growth and development of the fetus, are beneficial to the body and health, and also contribute to an easier childbirth and to get in shape faster after giving birth (Mlakar et al., 2011).

A lot of women want to change their physical activity the moment they find out they are pregnant. That is why it is important they get proper advice about doing physical activity during pregnancy. Some of them, especially in the first and last quarter of pregnancy do not have enough will and real energy for exercise while others are excessively concerned for the well-being and health of the fetus. A number of studies have shown that physical activity has beneficial effect on the mental stability of pregnant women, reduces lower back and other joints' pain, improves sleep, helps to maintain appropriate body weight, increases endurance and strength in labor (Larsson and Lindqvist, 2005), improves the cardio-vascular and respiratory system function, reduces the possibility of developing of pre-eclampsia, gestational diabetes and high blood pressure and it also helps to an easier childbirth and reduces the number of peripartal complications (Wadsworth, 2007; Lučovnik et al., 2013; Cid and Gonzalez, 2016). Pregnant women who are physically active have less pregnancy problems, less frequent pain in the pelvic ring and urinary incontinence (Videmšek et al., 2015).

Methods

We used a qualitative research paradigm. The test sample included eleven women who gave birth in the last year. Their average age was 27.6 years. The youngest was 22 years old and the oldest was 35. Five of the participants had secondary education, two of them higher education, and four had a university degree. Most of them, i.e. seven participants, lived in rural areas, while four lived in the city. For one participant, it was her third childbirth, for two participants it was the second, and for eight it was their first. Regarding the gestational age, ten pregnancies were full-term and one was premature. In the participants who had a vaginal birth, the birth giving lasted 1 to 13 hours. On average, the childbirth lasted 7.3 hours in women giving birth for the first time, 4.5 hours in women giving birth for the second time, and only 1 hour in a woman giving birth for the third time.

The method of data collection was a semi-structured interview. We invited the potential participants to take part in the research in writing, with the explanation of the purposes and objectives of the research as well as its methods.

We used contacts in our own social network, and with the technique of snowball sampling, we reached women who voluntarily accepted the invitation. According to their wishes and availability, we agreed on the date, place and time of the interview. The interviews were held in January and February 2017. We took into account the ethical aspects of the research, so all interviewees had to sign the informed consent form before the start of the interview in case they decided to participate. An introductory inquiry on sociodemographic data was followed by an interview which was sound recorded. The average interview lasted 30 minutes. The data obtained through the interview were analysed by content analysis of the text.

Results

After the initial coding phase of the text in which twenty-two categories were identified, they were combined into three central themes with individual subthemes that define physical activity during pregnancy. The themes were hierarchically distributed (Table 1), which means that the first topic was supported by most statements. And at least the statements of the women participating were the last topic.

Table 1: Themes in qualitative analysis.

Theme	*Subtopics*	*Number of references*
The factors that affect the implementation, opportunities, motivation and awareness about the importance of physical activity during pregnancy	The influence of the course of pregnancy on the physical activity during pregnancy	26
	Types and opportunities for physical activity before and during pregnancy	95
	Accessing information, encouragement and motivation for physical activity during pregnancy	24
	Awareness of the impact of physical activity on psychological and physical well-being	76
The characteristics of performing physical activity in the postpartum period	Physical activity in the postpartum period	35
The implementation of pelvic floor muscle exercise during pregnancy and after childbirth.	The gap between the awareness of the impact of pelvic floor muscle training and its realization	24

Discussion

Results of the study showed that women are well informed about the importance of physical activity during pregnancy and are aware of its positive effects on their well-being, the course of pregnancy, the childbirth and the postpar-

tum period. Through interviews and their answers gained, we found out that the interviewees did swimming, pilates, cycling on an exercise bike, skiing and hiking during pregnancy. Among the participants walking was dominating, because beside the already mentioned other types of physical activity, walking was chosen by all women. Most of them devoted between 30 and 60 minutes, some also more time, to physical activity depending on the day, their well-being and available time. On average, they were physically active five times a week. We believe that this is a good result according to the issued recommendations by American College of Obstetricians and Gynecologists (2002). The same can be confirmed by comparing this qualitative research with a quantitative study carried out by Rijavec (2016).

In the research, we found that all the interviewees were performing physical activity independently. It seems to us from a medical point of view, this information is worrying because we do not know whether the participants were familiar with it. What they need to be careful about doing and when they need to stop their physical activity. In any case, this could be the research question for a new research. Gogala (2013) found, that the majority of respondents, 39 (68.4%), during their pregnancy used non-organized forms of physical activity, with their family and friends or independently. We also received interesting answers on the question where the women got information about the form or type of exercise to perform during the pregnancy. We were surprised by the statements of the participants that they found the information themselves using various easily accessible sources. At least ten participants confirmed that they had access to information via the Internet. We have a question here: »Is the Internet really a right, reliable source of information?« It is often believed that the answer is affirmative, but it is important to know on which website we access the information, otherwise, we could overlook important warnings. At this point, we have identified a gap, so we believe that greater awareness is needed, especially at the primary level of health care. Only three interviewees said in their statements that the information was provided by healthcare professionals. In a survey carried out by Gragelj (2014), 27 (54%) of surveyed pregnant women received the most information about exercise during pregnancy on the Internet and only 6 pregnant women (12%) from health workers at the parent's school..

Due to an important role of the pelvic floor muscles in the life of every woman, in this research, we tried to determine whether the participants were performing pelvic floor muscle training during pregnancy and whether they were aware of the importance of these muscles. The results show that all the women know the reasons for strengthening the pelvic floor muscles and are aware of how it can affect pregnancy, childbirth, and postnatal period. It was very encouraging to find that seven of them were doing pelvic floor muscle exercises already during the pregnancy. Rijavec (2016) reported that in her study, 35 (76,1%) of the 46 women surveyed performed exercises for strengthening the pelvic floor muscles during pregnancy.

The qualitative research confirmed the already known scientific findings: physical activity has beneficial effects on childbirth and postnatal recovery (Blenkuš et al., 2015; Videmšek et al., 2015) – which in this case, was also a subjective opinion of women. Participating women perceived physical activity to be important for an easier birth. Most of the interviewees believed that due to regular physical activity during the pregnancy, they had more power and physical fitness during the birth, which made their birth and the recovery period after that significantly easier and shorter.

The type of physical activity pregnant women can attend is organized exercise intended for them. In the results of the research we were surprised by the fact that only two women attended guided exercise during pregnancy but it was not specifically set for pregnant women.

In a study conducted by Rijavec (2016), only 9 (19.6%) of the 46 respondents decided on organized group exercise during pregnancy. In a study conducted by Husić (2015) this type of activity was attended by 6 (15.8%) of the 40 respondents. According to the results of these studies, we can conclude that in general, women are generally less likely to have guided exercise in pregnancy. The finding that there is not an organized physical exercise for participating pregnant women in their hometown or in their immediate area is a concern. We believe that in the future organized exercise intended for pregnant women should expand and take place in all health centers throughout Slovenia. In Slovenia we have not come across any qualitative research in this field, so we believe that in the future it would be necessary to carry out a similar, more extensive survey that would allow comparison of results and would thus show the difference between the physical activity of the pregnant women that live in rural areas and those who live in the urban environment.

Conclusions

Modern women are very aware of the importance of regular physical activity (especially during pregnancy) and all its positive impacts on psychological and physical well-being, the course of pregnancy, childbirth and postpartum period. They also know that a fit woman will quickly adapt to all the changes that happen in her new period.

Physical activity during pregnancy is definitely one of the most important factors affecting the mental and physical well-being of the mother-to-be, the course of pregnancy, childbirth and postpartum period. All participants showed that with their statements. They were physically active before pregnancy and even more committed to and continued it over their expecting period. A detailed analysis of the results has confirmed the fact that health-care workers have known for a long time – physical activity positively affects the well-being of the pregnant women and their health and the fact that pregnant women who take regular exercise feel better. There has been less tension in them. In this emotionally delicate period they were more relaxed, had more strength

and energy, and were physically better prepared for childbirth. All of this has consequently led to an easier delivery and faster recovery afterwards.

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The mammography efficiency in breast cancer detection in women under 50 years of age

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Abstract

Around the world and in Slovenia female breast cancer is the most common type of cancer. Based on risk factors the number of patients increases. In 2005 in Slovenia, there were 1111 breast cancer cases, in 2016 the number increased up to 1307 (17.6%). In Slovenia and Europe exists a successful screening breast cancer test program, named DORA. All women between 50 and 69 years are invited in the program to perform a mammography. For women less than 50 years of age several foreign studies revealed that mammography is not the most reliable method for early breast cancer detection. The sensitivity is 61% (< 50 years). In relation to mammography exists a possibility for false positive results. It has been proven that 22% of all diagnoses were pre-diagnosed. This means that women have been exposed to invasive diagnostic procedure, but actually they do not need. For younger women exists a 61.3% of risk for false positive result. And for older women the risk represent 49.7%. For women under 50 years the additional diagnostic methods are the ultrasound and magnetic resonance imaging, also. Descriptive method was used to critically assess Slovenian and English scientific literature.
Key words: breast cancer, mammography, screening, DORA

Breast cancer (BRC) is the most common type of cancer in women. Incidence is higher in the developed world and lower in Africa and Asia (Edgar et al., 2013). In 2016, there was 1307 cases of newly discovered BRC in Slovenia, in 2005 the number was 1111. The number of newly discovered diseases had increased for 17,6% (CRRS, 2017).

Risk factors for BRC are: previous BRC or BRC in family, female gender, age, previous benign breast disease, exposure to ionizing radiation, excessive

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.31-38

drinking, smoking and obesity. Big impact on preventing disease have regular physical activity and healthy diet (Primic-Žakelj et al., 2003).

Screening test program is the leading measure for detecting BRC around the world for more than 40 years (Roucco, 2016). In Slovenia, there is a national screening test program for BRC since 2008, called DORA (Kadivec and Krajc, 2013). All women from 50 and 69 years of age are included in the program (Državni presejalni program za raka dojk, n. d.).

Breast tissue consists of two types: glandular tissue (milk lobules and ducts) and fatty tissue. Dense breasts are considered when milk lobules prevails and there is less fatty tissue (Mayo Clinic, 2015). Dense tissue occurs at half of women under 50 years and at one third of women over 50 years. Breast density represents a challenge for radiologists at detecting malignancy, because there is no possibility to differ individual structures or possible disease changes. Breast density is divided into 4 stages: (1) almost entirely fatty tissue, (2) scattered areas of fibroglandular tissue, (3) heterogeneous dense tissue that could cover small masses, (4) very dense tissue – can lower mammography sensitivity (Hooley, 2017). Patients with dense breasts have more biopsies, more false positive results and are frequently exposed to radiation (Roucco, 2016). Dense breast tissue is also a risk factor for BRC (Narula, 2016).

Methods

Descriptive method was used with critical assess of professional and scientific literature in Slovene and English language. Literature was identified by using databases Medline, CINAHL, ScienceDirect and Google Scholar. Bool operators were used. Searching was limited on articles published between 2001 and 2007. Inclusion criteria for literature assess are full articles, articles related to mammography and younger women. Exclusion criteria are studies considering women over 50 years of age. We were searching using key words: breast cancer, mammography, DORA, younger women, screening, overdiagnosis, ultrasound, magnetic resonance. Statistic data was acquired on website of National Cancer Registry RS. Information about screening program DORA on website of National screening program for breast cancer. Data gathering took place from February to May 2017.

Results

Table 1 shows an overview of 11 studies, that were reviewed.

Table 1: Overview of the studies.

Author/year	*Purpose of study*	*Used method*	*Results*
Sentis, 2010	Use of imaging diagnostic methods for BRC in young women.	Literature review	Magnetic resonance imaging (MRI) has high sensitivity, it detects invasive carcinoma and also carcinoma in situ.
Wang et al., 2010	To assess sensitivity and specificity of combination of electrical impedance and ultrasound (US) at BRC detection in younger women to calculate relative risk and find out if there is possible more precise imaging method for early BRC detection in younger women.	Prospective and multicentre clinical study	Combination of electrical impedance and US would be suitable for BRC detection in younger women regarding to sensitivity and specificity.
Massat, 2014	Ways of diagnosing BRC in women with dense breast tissue.	Literature review	The best method in women with dense breast tissue is using MRI.
Ying et al., 2012	To compare mammography and US and their combination at BRC detection.	Control group study	US has bigger sensitivity and diagnostic accuracy than mammography, specificity is similar. Precision of diagnostic US was much better than mammography. Combination of mammography and US increases sensitivity and diagnostic accuracy.
Shao et al., 2013	Comparison of diagnostic efficiency of mammography, US, MRI and combination of those methods at BRC detection.	Prospective study	Combination of two or three methods significantly improves diagnostic sensitivity for BRC.
Kriege et al.2006	To research which factors have impact on sensitivity and false positive results at mammography and MRI in women with family genetic load.	Multicentric study	MRI should have been permanent screening method for BRC in women with mutation of gen BRCA1/2.
Brem, 2012	Ineffectiveness of mammography in women with dense breast tissue.	Literature review	US also detects changes when mammography is negative and is successful at detecting cancer in women with dense breast tissue.

Author/year	*Purpose of study*	*Used method*	*Results*
An et al., 2015	To determine characteristic properties of BRC imaging in very young women (< 30 years), using updated BI-RADS. Further goal is to compare clinical and imaging functions in molecular type tumour in women at that age.	Retrospective study	BRC imaging in very young women shows as irregular mass. Some radiological tests can be used to detect specific types of tumours.
Sardanelli et al., 2011	To compare clinical examination of breasts, mammography, US and MRI at supervising women with high risk factor for hereditary BRC and previous BRC.	Prospective nonrandomized multicenter study	MRI is in most cases better method than mammography, US or combination of both at screening women with high risk factor for BRC.
Chetlen et al., 2015	Comparison of screening, mammography, tomosintesis, US, MRI and molecular imaging of breasts.	Literature review	Common use of tomosintesis and mammography increases specificity and decreases the number of false positive results.
Olsen, 2012	Studying usage of MRI in assessment of palpable breast mass, where mammography and US showed negative results.	Retrospective study	Because of indicated biopsy in women with palpable breast mass is adding MRI just one. more step to cause more stress and financial load to women.

Since no diagnostic method is perfect, there can also be false positive and false negative results in mammography. False positive result negatively impacts on psychological and emotional state and represents one of the stressors which can temporarily lower the quality of life (Hafslund and Nortvedt, 2009). Nelson et al. (2016) have discovered that the most false positive results in younger women (40–49 years) are because of increased breast density and it decreases with age. Normal mammography result is not a guarantee that a woman does not have cancer because some tumours cannot be detected with mammography. False negative result can cause damage because woman is not treated in the right time. Cancer can spread and metastasize to the point when treatment cannot be effective anymore (Nass et al., 2001).

Technologically enhanced methods can detect cancer earlier and where there is none (Nass et al., 2001). It is called prediagnosis, which means that disease is correctly diagnosed but will not cause damage or death to the patient (Glumac, 2012). Prediagnosis is 40–46% more common in women between 40 and 50 years of age. Consequence of prediagnosis is exaggerated intensive treatment (Roucco, 2016).

Discussion

BRC is difficult to diagnose in younger women (Sentis, 2010). Wang et al. (2010) claim that there is no good strategy for early detection of BRC in younger women. Massat (2014) also claims that they misdiagnosed between 40 and 50% of cancer in younger women which had dense breast tissue using mammography. Mammography is especially unreliable in younger women with small breast and dense tissue. The latter also represents bigger risk for false negative results (Ying et al., 2012; Shao et al., 2013; An et al., 2015). Brem (2012) states that one third of cancers are overlooked in women with dense breast tissue. Several other authors (Kriege et al., 2006; Sardanelli et al., 2011; Ying et al., 2012; An et al., 2015) are discussing about sensitivity of mammography in younger women which results in 33–61%.

US is desired to use in women with breast tissue density rate 3–4 and where mammography is negative. 0.6% of BRCs are discovered with that method. Next study showed that 0.3% of BRC is detected with US, especially in those with dense breast tissue. They state that US shows especially invasive small size (< 9 mm) tumours (Shao et al., 2013; Massat, 2014; Chetlen et al., 2015).

MRI is the most effective method for detecting BRC in dense breast tissue (Massat, 2014). Study shows that MRI is the best way for detecting BRC in women with BRC in family – heredity (Ying et al., 2012). Advantage of MRI is high sensitivity (80 – 91%) for BRC detection but it is limited with low specificity. It is especially suitable for women with more than 20% of risk for development of BRC (Kriege, 2006; Sardanelli et al., 2011; Shao et al., 2013).

Authors state that it is crucial to use two or three diagnostic methods to achieve good sensitivity. Great reliability can be achieved if we combine mammography and US (Ying et al., 2012; Sardanelli, 2011; Shao et al., 2013). Because of dense parenchyma tissue in younger women, they advise the use of US and MRI. Both methods show excellent sensitivity compared to mammography (An et al., 2015).

Conclusions

BRC is the most common cancer in women. In the past, when BRC awareness was small and there was no screening programs, women had symptoms before the diagnosis. Today we thrive to detect cancer in early phase with screening programs, when there is no symptoms and there is larger possibility for successful treatment. It is mandatory to take precautions to prevent prediagnosis. Younger women have mostly dense breast tissue which interferes with mammogram interpretation which can lead to false positive or false negative results. Possible methods for detecting cancer in younger women are US and MRI with higher sensitivity compared to mammography. Mammography is currently the most used method for BRC detection. Is is important that we are well aware of its limitations.

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Attending nutrition counselling of the working-age subjects

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Abstract

Introduction: Health status and the presence of health problems can be the primary reasons for nutritional-counselling visits. Based on the information that we have gained from the counselling dietitian, from 2009 to 2015, we have analysed the characteristics of subjects who received nutritional counselling. The analysis covered data on health status, anthropometric characteristics, and other physical and psychological problems. *Methods:* We have analysed data on 863 working-age population (198 men and 665 women, of the average age of 42 years), who visited a nutritional dietitian from 2009 to 2015. Measurements of body composition were collected longitudinally, for each person and for each subsequent nutritional counselling separately. *Results:* Most of the participants were healthy, and their average age was 42 years. Only a third of them had a BMI belonging to the group of obesity, and 70% of the participants even stood within normal weight body mass index classifications. Dietary counselling is numerically less attended by men. Women are those who have most visits and are present in several sessions. *Discussion and conclusions:* The initial state of health does not provide information on the nutritional interventions, nor does it forecast the number of consultations. By analysing the data, we have obtained important information on the characteristics of persons attending nutrition counselling, and a better understanding of those factors which could have a major impact on the success or likelihood of a successful outcome of nutritional counselling in the future.
Key words: nutritional counselling, successful outcome, body mass index, age, health

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.39-46

In 2010, overweight and obesity were estimated to cause 3.4 million deaths and 3.9% of year of life lost. Globally, between 1980 and 2013 the proportion of adults with a body mass index (BMI) greater of 25 increased (Ng et al., 2014). Because of its widely known health risks, obesity has become a major global health challenge, and has led to widespread calls for regular monitoring of nutritional support and more effective intervention (Dansinger et al., 2007).

The role of a dietitian is to obtain information from the patient, which will be essential to offer the appropriate nutritional support (National Institute of Health et al., 2000). During the nutritional counselling, it is important to collect anthropometric data, and to identify in a direct or indirect interview the clinical and psychological status of the patient (Gibson, 2005). The skills of dietitians are shown in their capacity of obtaining the required information, but mostly in giving returned information suitable for the patient in the way that nutritional assessment will be even more successful (Lacey and Pritchett, 2003).

The establishment and implementation of a standardised nutrition care process and model were identified as a priority in meeting goals, and in having predictability of nutritional assessment (Lacey and Pritchett, 2003). The average effect of dietary counselling on weight changes in adults over time suggests a change of approximatly 2 BMI units over 12 months (Dansinger et al., 2007), while in combination with physical activity the same results are reached after 6 months (Marion et al., 2007). However, nutritional assessment is not always succesful, and why some people succeed at adopting and sustaining behaviors associated with weight control, while others, undergoing similar treatment, do not, remains unknown. Personal factors probably play a very important role in determing success rate (Teixeira et al., 2004).

In a descriprive analysis researching the weight loss experience in correlation with health, Jeffery et al. (2004) found out how people so often fail in mantaining behaviours associated with weight loss (e.g. health nutrition, regular physical activity), because they do not find them worth trying. Indeed, some researches have not come to the conclusion of a correlation between motivation and succesful weight loss. This is highlighted by the fact that even 60% of people who start nutritional assessment do not even finish the process. This shows how motivation is not the only factor which contributes to cost benefit evalutations with respect to weight loss (Jeffery et al., 2004).

The literature shows many different factors which may have influence on the weight loss process and on the health status of the patient, but it does not define the strength of the influence of every singolar factor. There are different combinations of these factors, and this is the reason why it is not known which one has more relevance on a succesful or unsuccesful outcome of the nutritional assessment.

Methods

The participants were women and men of different ages, who attended nutritional assessment by the nutritional dietitian Lidia Mosca in the period between 2009 and 2015. This nutritional dietitian operates in Italy.

The data, which were collected during nutritional assessments, describe patient information. The whole database contains 951 samples, but we only chose those that meet our limitations for analysis. The chosen parametres were demographic data (gender, age) and physical data (body mass – kg, body height – cm, BMI – kg/m^2, health status). The final database contains information about 863 working-age population (198 men and 665 women), with an average age of 42 years (from 20 to 86 years old; SD = 12.13 years).

Measurements of body composition were collected longitudinally, separately for each person and for each subsequent consultation. The purpose of the analysis was to identify the characteristics of the subjects who attended nutritional counselling depending on their actual attending the counselling, and on their health status, gender, and age.

Results

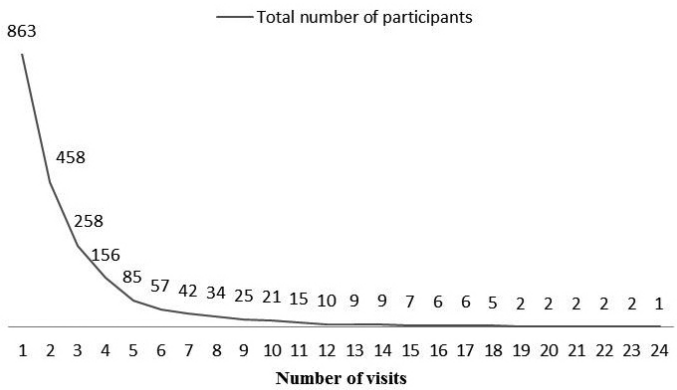

Figure 1: Analysis of the consultations from 2009 to 2015.

Figure 1 shows the results of the analysis of attendance to every consultation from 2009 to 2015. 864 people attended the first consultation, but only 458 participants (53.07 % of the initial number) came to the following consultation. The decline in the percentage of participants who did not return to the next consultation gradually decreased.

Most of the participants who attended nutritional counselling did not declare any health problem. This is shown in table 1, which analyses of the health status of the attendees of every consultation.

Table 1: Physical, psychological, and other health problems of the participants attending consultations from 2009 to 2015.

		Health status										
C[1]	N[2]	Health (%)	Gast.[3] (%)	Endoc.[4] (%)	Blo.[5] (%)	Resp.[6] (%)	Neo.[7] (%)	Neuro., musc., bon.[8] (%)	Derma.[9] (%)	Urinary, repro.[10] (%)	Emot., behav.[11] (%)	Comb.[12] (%)
		%	%	%	%	%	%	%	%	%	%	%
1	n = 863	64.07	12.39	2.31	4.28	0.34	0.92	1.96	0.92	0.81	4.63	7.30
2	n = 458	63.31	15.53	2.83	3.71	0.21	0.87	1.31	1.09	0.87	4.14	7.86
3	n = 258	60.64	12.40	3.10	5.42	0.00	0.38	1.93	1.55	1.16	4.65	8.91
4	n = 156	55.76	15.38	3.20	5.76	0.00	0.64	1.28	2.56	0.64	5.12	9.61
5	n = 85	48.23	16.47	3.52	8.23	0.00	1.17	2.35	1.17	1.17	8.23	9.41
6	n = 57	49.12	14.03	0.00	7.01	0.00	1.75	1.75	1.75	1.75	8.77	14.03
7	n = 42	45.23	14.28	0.00	9.52	0.00	2.38	2.38	2.38	0.00	7.14	16.66
8	n = 34	50.00	14.70	0.00	5.88	0.00	2.94	2.94	2.94	0.00	5.88	14.70
9	n = 25	56.00	12.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	8.00	16.00
10	n = 21	57.14	14.28	0.00	4.76	0.00	0.00	0.00	0.00	0.00	9.52	0.52
11	n = 15	53.33	13.33	0.00	6.66	0.00	0.00	0.00	0.00	0.00	13.33	6.66
12	n = 10	50.00	20.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00
13	n = 9	55.55	11.11	0.00	11.11	0.00	0.00	0.00	0.00	0.00	22.22	0.00
14	n = 9	55.55	11.11	0.00	11.11	0.00	0.00	0.00	0.00	0.00	22.22	0.00
15	n = 7	71.42	0.00	0.00	14.28	0.00	0.00	0.00	0.00	0.00	14.28	0.00
16	n = 6	66.66	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	16.66	0.00
17	n = 6	66.66	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	16.66	0.00
18	n = 5	60.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00
19	n = 2	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
20	n = 2	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
21	n = 2	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
22	n = 2	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
23	n = 2	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
24	n = 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00

Notes: [1]C = consultation; [2]N = number of participants; [3]Gast.= gastrointestinal diseases; [4]Endoc. = endocrine disorders; [5]Blo.= blood disease; [6]Resp. = respiratory disease; [7]Neo. = presence of neoplasm; [8]Neuro., musc., bon. = neurological disorders, muscular disorders, bone disease; [9]Derma. = dermatology disease; [9]Urinary, repro. = urinary disease, reproductive system disease; [11]Emot., behav. = emotional lability, behaviour disorders; [21]Comb. = combination of more disorders/diseases.

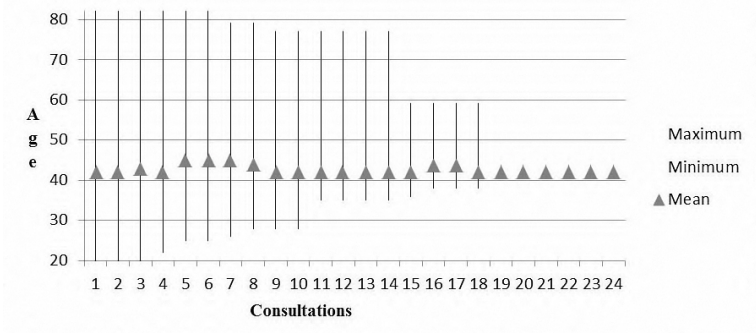

Figure 2: Age of the participants on every consultation from 2009 to 2015.

Picture 2 represents the average age of the participants who attended nutritional counselling in the period between 2009 and 2015. A first consultation was attended by 863 participants, whose average age was 42 years (SD = 12.13 years; the youngest being 20 years old; the oldest, 86 years old).

Our next step was to divide the participants of the first consultation according to their BMI group. The BMI groups are standardised by the World Health Organisation. We calculated the BMI of the participants with anthropometric data using the formula (body mass - in kilograms - divided by the square body weight – in square meters).

2% of the participants scored in the BMI group classification of underweight, 36% were in normal range, 32% pre-obese. Obese participants represented 30% of all (class I 20%, class II 7%, class III 5%).

Table 2: Division of the attendees of the first consultation (N = 863).

BMI (kg/m²)	*Classification*	*N*	*%*
Less than 18.49	Underweight	15	2
18.5–24.9	Normal range	307	36
25.0–29.9	Overweight (pre-obese)	277	32
30.0–34.9	Obese class I	169	20
35.0–39.9	Obese class II	56	7
40.0 or more	Obese class III	39	5
TOT		863	100

Discussion

The results of the analysis of the attendance of every consultation from 2009 to 2015 shows that only half of the participants who attended the first nutritional counselling came to the second consultation. The decline in the percentage of participants who did not return to the following consultation gradually decreased, probably due to the higher motivation of the participants who continued the nutritional assessment. However, in the interpretation of the results we also need to consider that the fee charged for the nutritional counselling prob-

ably had an impact on the choice of the participants. We found it interesting to investigate the motivational factors of those participants who continued the nutritional assessment for a long period.

In the identification of pre-treatment factors related to weight loss in obesity treatment, Elfhag and Rössner (2010) found out what could be the strongest factor for predicting the treatment outcome. Several factors have been associated with weight loss and attrition: contrasting feeling about the nutritional assessment, male gender, younger age, fast or slow weight loss (Elfhag and Rössner, 2010). Most of these aspects are correlated with psychological factors, such as the impact of a lower quality of life, emotional lability, and eating disorders (Elfhag in Rössner, 2010).

Berkatis et al. (2000) investigate gender differences in the utilization of health care services. The study has shown that women had a significantly higher average number of visits in their primary care clinics and diagnostic services than men. Our results also show a higher use of nutritional counselling by women. Knowing that most of the participants did not declare any health problem, we can conclude that probably women care about their future health more than men.

In a cross-sectional study, Turconi et al. (2012) investigated the anthropometric data of the population of northern Italy. Most of the subjects were overweight (average BMI = 28.4 kg/m^2), only 30% of the sample had adequate dietary status. In our analysis of the BMI classification of the participants, we noticed that the participants were not exclusively obese people (BMI > 30), but that 70% of the participants had a BMI lower than 30. Thus, the reasons why a normal-weight person decides to attend nutritional counselling include a current disease (or prevention of health comorbidities), and nutritional assessment for physical activity or for an alternative food regime.

In the analysis of health status of the participants we discovered the presence of a health problem or pathological state. The health status of the participants was collected by direct interview and not all the participants gave us a medical confirmation eventual present disease or health comorbidity. Having many different information about health status, we decided to divide them in different groups: gastrointestinal disease, endocrine disorders, blood disease, respiratory disease, and presence of neoplasm, neurological disorders, muscular disorders, bone disease, dermatology disease, urinary disease and reproductive system disease, emotional lability and behavior disorders, combination of more disorders/diseases.

Most of the participants who attended nutritional counselling did not declare any health problem. The analysis of the health status of the attendees showed us that the health status does not give a prediction of the duration of the nutritional assessment. We find interesting the fact, why is the prevalence of health attendees so high. A similar phenomenon observed Milunpolo et al. (1997) in Finland population, where noticed a high number of physician contacts per year also if the stability of perceived health status was relatively good.

In every nutritional counselling represented health people at least half of all participants. This may confirm us that health people and people, who do not have health problems, care more for their health. In the case, we could confirm our hypothesis and observing the low percentage of participants with health comorbidities, it is clear, that the presence of a health disorder or disease is not a factor that have a big influence on motivation during nutritional assessment.

In the interpretation of our results of participants gender, anthropometric data and health status looking for those factors which may have influence on the weight loss process, we were interested who mostly attended nutritional assessment between young and older people. The results showed us that the participants of the first visit were old from 20 to 86 years. Standard deviation then changed during the next visits and it went nearer to the mean. People, who attended more visits, were older – between 40 and 45 years old.

Conclusions

Based on our results, we can say that nutritional counselling are mostly visited by people who are in average 42 years old, healthy and with BMI in normal range, which means that the participants were not exclusively obese people (BMI > 30), but 70% of the participants had a BMI lower than 30. In every nutritional counselling represented health people at least half of all participants. This may confirm us that health people and people, who do not have health problems, care more for their health. Regarding to our results it is clear, that the presence of a health disorder or disease is not a factor, which have a big influence on motivation during nutritional assessment. Thus, the reasons why a normal-weight and health person decides to attend nutritional counselling include a current disease (or prevention of health comorbidities), and nutritional assessment for physical activity or for an alternative food regime. However, in the interpretation of the results we also need to consider that the fee charged for the nutritional counselling probably had an impact on the choice of the participants.

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The therapeutic approach as an important intervention in the implementation of the program Project learning for young adults (PUM-O)

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Abstract

This article presents the program Project Learning for Young Adults" (PUM-O), the main purpose of which is to develop the potential of vulnerable young adults for successful integration into education, the development of professional identity and successful integration into the labour market and successful social integration. These young adults have different reasons for abandoning education and lack of work experience therefore; they have difficulties to find employment. Due to the impaired mental health of individuals, the program is the only way out of the current plight and the only possibility of re-control of their lives, as well as successful confrontation with various problems. Because the program is not a therapeutic one and the mentors generally are not therapists, it is extremely important that the mentors in the program, unless they are also therapists, include other relational therapists. With the majority of the participants, their relational needs are not satisfied, so this deficit is reflects in loneliness, dissatisfaction, fear, despair, self-injuring, aimless vegetating, violence, depression and various addictions. Many participants from mentors-therapists for the first time experience safe, compassionate and respectful relations, as well as a sense of acceptance and value, which results in a change of symptomatic deep-rooted patterns of interpersonal interaction. Program participants also experienced a therapeutic approach of mentors-therapists as an important intervention for getting new positive experience on which they acquire functional activity and better contact with themselves.
Key words: mental health, young adults, therapeutic approach, intervention, interpersonal relations

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.47-53

A publicly valid program of non-formal adult education program "Project learning for young adults (PUM)" in Slovenia was created in the nineties. The program PUM was one of the first publicly approved educational programs for adults, prepared in accordance with the guidelines of curricular reform of education for adults. The purpose of creating such a program was mainly reducing social exclusion of the most vulnerable groups of young NEETS (youngsters not employed, educated or trained). Since its inception, the program has developed, supplemented and amended. There have been completed also the evaluation studies in 2002 (Istenič Starčič et al., 2002), and 2010 (Možina et al., 2010) which have demonstrated both the quality as well as the shortcomings of the program and the new needs of young people, especially the new opportunities for developing and completing the program.

The purpose and goals of the program PUM-O

Based on the experience of many years of the program PUM and based on the new social circumstances a demand for a new program "Project learning for young adults (PUM-O)" has appeared. It was built at the initiative of the Ministry of Labour, Family, Social Affairs and Equal Opportunities (MDDSZ) and on the basis of the Operational Program for the Implementation of the European Cohesion Policy in the period 2014-2020. The program is aimed at vulnerable groups of young adults from 15 to 26 years who have dropped out of school or have not acquired the proper education that would allow them to get the appropriate employment.

The PUM-O is formed as an upgrade of previously mentioned PUM program, of which it differs considerably. Compared with the PUM program, whose main objective was to enable young people to gain experience and skills to continue successfully their education, the main objective of the new program PUM-O is convergence and entry of participants into the labour market. Extending the target group of the program is also reflected in the fact that the PUM-O compared with PUM also aims at students who are involved in regular education, but threatened by the risk of dropout. Therefore, we can conclude that the substantial modification of the program PUM is integration of participants into the labour market. The program is directed markedly to process and provides in-depth cooperation between different resources, allowing participants to fulfil their personal career plan (Žalec et al., 2015).

As stated by the different authors (Možina et al., 2010), it is a fundamental objective of the program to help young people to gain experience and knowledge that would enable them to be successful in further education or the chosen career path. It is very important for them to obtain functional knowledge that develops general education: wide horizons and flexibility of thinking, getting a positive learning experience, clearly articulated career aspirations and developing skills in critical and problem-oriented thinking. This program encourages young people in three areas of activity, namely the spread of general education, the formation of professional identity and socio-cultural activities.

The importance of the therapeutic approach

It is very important for each participant to identify and define his or her fundamental problems, which may show us unconscious and compulsive intergenerational transmission or intergenerational transmission of behaviour patterns, feelings and beliefs. Intergenerational transmission might thus be defined as instances of social transmission between members of different generations. Martin-Matthews and Kobayashi (2009) state that we can also describe intergenerational transmission as behaviour or tendencies of one generation passing onto the next generation. Intergenerational transmission is one dimension of the larger concept of intergenerational relations. The term intergenerational relation describes a wide range of patterns of interaction among individuals of different generations of the family: for example, among those in older generations, such as parents and grandparents and those in younger generations, such as children and grandchildren. What is transmitted may be intangible and may include beliefs, norms, values, attitudes, and behaviours specific to that family, or may reflect socio-cultural, religious, and ethnically relevant practices and beliefs (Chen and Kaplan, 2001; Capaldi, Pears, Patterson and Owen, 2003; Martin-Matthews and Kobayashi, 2009).

The theory states that parents of one generation have a tendency to repeat the parenting model which their parents applied on them (Serbin and Karp, 2003). Family researchers have also studied the intergenerational transmission of difficult life course transitions like marital dissolution or divorce. Some members of program for example are also young parents and some of them are already divorced. They have similar problems as their parents and grandparents. In particular, studies have found that parental divorce increases the likelihood that adult children will experience separation or divorce (Glenn and Kramer 1987; Keith and Finlay 1988; Amato 1996; Demšar Pečak, 2014).

It is very important that interventions are held in collaboration with various institutions because in that way the assistance is more effective and especially prolonged. For the successful achievements of program mentors need the support of various external institutions and individuals. It is very important that they are all involved in the program as professional team: advisors at the Employment Service, representatives of police, advisers for social work, counsellors in schools and mentors in the workplace, doctors, therapists and others who are closely linked to the individual participants. Thus, the entire team helps participants to the achievement of a career plan. As already mentioned cooperation of the relational therapist is also important for the quality achievement of the individual career goal. The majority of program participants have symptomatic deep-rooted patterns of interpersonal interactions. Therapeutic work with individuals may lead to the gradual change of inappropriate models of interpersonal interactions and thereby the change of the individual's mental structure and regulation of psychobiological conditions (Demšar Pečak and Ovsenik, 2014; Demšar Pečak 2017).

Gostečnik (2010, 2011) states that individual fundamental relations, and related basic affects, such as fear, anger, horror, shame, contempt, disappointment as well as emotional calmness and satisfaction learn in the family. These relations are marked forever, because they are internalized in childhood based on mechanism of projection-introjection identification and consolidated based on compulsive repetition. Even Cvetek (2009) mentions that children get the basic patterns, rules for behaviour, emotions the basics of the language and culture skills of expression and thinking in the family.

Various authors (Haley, 1987; Minuchin, 1981; Framo, 1992; Boszoromenyi-Nagy, 1986 and Bowen, 1978, in Gostečnik, 2008, 2010, 2011) focused on covert pathological transactions and many times unsolved transfers of painful mental content to a particular individual who has unconsciously adopted this contents. Because of this internalization, he or she becomes identified patient or "scapegoat" of a certain family. The identified patient is therefore an individual who carries and maintains symptomatic patterns of relationships within the family through the mechanism of compulsive repetition that is forced repetition of basic patterns of interpersonal interactions. Framo mentions (i.e.: Gostečnik 2011 p. 180), that certain patterns or family topics skip a whole generation, and then mysteriously settle again in the new generation, who do not even know where these painful contents come from. Framo (i.e.: Gostečnik 2011, p. 180) also states how the past can affect the present and how "family through several generations develops dysfunctional patterns of behaviour, feeling, beliefs and above all interpersonal interactions."

Therapeutic approach is in the program PUM-O is very important, because in most of the participants' families' intergenerational transmission can be found. With the majority of the participants, their relational needs are not satisfied, so this deficit is reflected in loneliness, dissatisfaction, fear, despair, self-injuring, aimless vegetating, violence, depression and various addictions (Žvelc, 2016). The acquired patterns can be changed and improved with the professional therapeutic help. Therefore, the therapist also works with the individuals as well as the entire group. The therapist uses compassionate approach and addresses inadequate forms of participant's behaviour models. When we talk about changing the depth patterns of behaviour, emotions and beliefs we primarily focus on the patterns of the family model from childhood (the relationship mother-child). The further emotional, cognitive and inter-relational experience of thinking and response largely depends on the primary relationship (Gostečnik, 1997, 2007).

With emphatic therapeutic approach and modification of depth patterns of behaviour, emotions and beliefs the participants may respond differently to other co-participants. They also begin to experience and respond differently to the relationships in the home environment. In this way the entire system of interpersonal interaction among participants, as well as the system of interaction between the members of their family can change. The aim of the therapeutic approach is to help the participants find the new functional patterns of behav-

iour, emotions and beliefs. That could solve problems which are a result of relationships that occur and transmit from generation to generation. The most of the participants have often regulated psychobiological condition through non-functional forms of behaviour and emotion (e.g. inappropriate communication, violence, self-injuring, various addictions, obsessive-compulsive disorder, suppression of emotions, depression, disinterest).

In the evaluation (Možina et al., 2010), it was found out that the participants wish to have more common leisure activities (excursions, holidays, field trips, afternoon activities), extension programs in the afternoons and psychotherapeutic help, also to their parents. In the program they have the feeling of security and belonging, but it can also satisfy their relational needs, which until now they have not been able to satisfy.

In achieving career goals of the participants an emphatic therapeutic approach is very important because the individuals must first resolve all symptomatic deep-rooted patterns of interpersonal interaction and thereby strengthen appropriate and functional regulation of painful and destructive affects. Surpassing old rooted patterns means consciously build new relationships that will include all of those needs, desires, and feelings the participants in the domestic environment from significant others were not given because those were not able to or didn`t want to identify them.

On the therapy the participant can exceed the old patterns of behaviour, emotions and beliefs and as mentioned by Gostečnik (2007, p. 280), the therapy is interactive space in which the therapist must play the role of "good enough mother" and establish a "safe space" in which the individual can be able to live again.

Conclusions

Based on new pledged foundations of psychic structure and regulation of inadequate psychobiological condition, the participants can follow their education or employment goals. The old clamps based on the mechanism of projection-introjection identification and consequent compulsive repetition does not force them any longer to a vicious circle of non-functional interpersonal interactions. To achieve its objectives, mentors need support of a variety of professionals. Because the program is not a therapeutic one and the mentors generally are not therapists, it is extremely important that the mentors in the program, unless they are also therapists, include other relational therapists.

For many participants the program is the only way out of the current hardship and the only possibility of reactivation in everyday life. Many participants in the program PUM-O for the first time experience safe, compassionate, predictable and respectful relations. Thus, the participation in the program serves as a safe place, where the participants receive basic security, feeling of understanding, acceptance and value. The participation in program is also a quality platform for further career.

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Critical review of viewership and contents of official healthcare organization websites

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Abstract

Introduction: We all use the World Wide Web to access health-related information regarding disease or healthy behavior. Its wide use and economic efficiency should be considered in preventive healthcare. In this research, we want to determine if the websites of official Slovenian healthcare organizations are suitable for content sharing in health promotion. *Methods:* Using stratified sampling, we gathered estimations of the average number of daily visitors of websites of Slovenian public healthcare organizations and a subselection from the 200 most visited Slovenian websites to identify those most suitable for health-related topics. Any detected health promotion content was noted. Data was collected between 13th and 15th April 2017. *Results:* Estimations of average daily visitors from 46 official healthcare organization websites (M=62.5; IQR=100.0) were compared to 34 suitable websites with high viewership nationally (M=10081.5; IQR=6720.9). Official healthcare organization websites included health promotion content as health-education and event information. *Discussion and conclusions:* As expected, official healthcare organization websites have low viewership nationally and are therefore less suitable for health promotion. Websites owned by pharmacies were visually most sophisticated and included health promotion content most frequently (product marketing). Health promotion should take place on established websites with health-related topics to reach a larger number of people.
Key words: health promotion, preventive care, the World Wide Web

Modern approaches in healthcare transfer certain amounts of responsibility from healthcare professionals to patients themselves, since they are the ones who control the parameters of their disease, avoid harmful behaviours and regularly take prescribed medication in their home

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.55-62

environments (Taylor et al., 2014)others lack research explicitly on self-management and, consequently, some patient groups may be overlooked. AIM To undertake a rapid, systematic overview of the evidence on self-management support for LTCs to inform health-care commissioners and providers about what works, for whom, and in what contexts. METHODS Self-management is \u2018the tasks .\u2009.\u2009. individuals must undertake to live with one or more chronic conditions .\u2009.\u2009.\u2009[including] .\u2009.\u2009.\u2009having the confidence to deal with medical management, role management and emotional management of their conditions\u2019. We convened an expert workshop and identified characteristics of LTCs potentially of relevance to self-management and 14 diverse exemplar LTCs (stroke, asthma, type 2 diabetes mellitus, depression, chronic obstructive pulmonary disease, chronic kidney disease, dementia, epilepsy, hypertension, inflammatory arthropathies, irritable bowel syndrome, low back pain, progressive neurological disorders and type 1 diabetes mellitus. Each day they make choices about treatment and actively participate in the healthcare process and disease management. Not to concentrate only on disease, self-management is defined in a broader sense as knowledge, skills and virtues needed to adequately care for one's health. This includes an active and sustainable management of disease and healthy lifestyle choices. Encouraging self-management is also a foundation for patient-centred and patient-centric approaches in healthcare, assuming that patients have an active role and make their own health-related decisions. Patients are partners in relationship with healthcare professionals in contrast to a hierarchical relationship in more traditional approaches (Flott et al., 2017). To make patients capable and competent of making informed decisions about their health, it is necessary that they are well informed (Hibbard et al., 2017).

Although television, printed media, and the community can all be potential sources of information, this article will focus on the world wide web, on account of its growing popularity and wide usability. It is designed in a way that enables patients to search for desired information at any given time, which makes it useful when looking for information about a specific topic, like a current disease or certain symptoms. Although the World Wide Web is mostly used by younger generations, many elderly patients use it to gather information about their health (Medlock et al., 2015)how trustworthy and reliable they find these resources, and the difficulties they face in obtaining health-related information. A 41-item survey designed to understand the information-seeking characteristics of older adults was developed and distributed to retirement communities. Some items were taken from the Health Information National Trends Survey. Of 1520 surveys, 403 were returned completed (26.6%, and their numbers are expected to grow in the future.

The patient's information seeking behaviour can generally be divided into (1) seeking self-diagnosis information and (2) seeking information about an already diagnosed condition (Gage and Panagakis, 2012). Seeking self-diagnosis information is less desirable, and is very unreliable, since a non-health profes-

sional may have difficulty distinguishing information relevant to their condition. In a study where patients entered their symptoms into the Google search engine, only about 15 % were returned their correct diagnosis as a result (Tang and Ng, 2006). On the other hand, patients with already diagnosed conditions can use search engines to educate themselves about their disease. Many healthcare professionals and organisations publish relevant information online, and since many patients already know their diagnosis, they can easily identify contents relevant to them (Promislow et al., 2010)a comprehensive question list was developed in the three following areas: medical information (seven items.

It is entirely possible for patients to receive false, deceiving or even harmful information online, since massive amounts of information and different sources make it impossible to adequately control their quality (Ellsworth et al., 2016). Patients should therefore always remain in strict co-operation with healthcare professionals before making decisions based on web-gained information. Online sources may have intentions that do not consider an individual's health a priority, but rather publicity or financial gain. According to a United Kingdom based study, public health interests are likely under-represented, since only 6 % of mastectomy related contents online were published by healthcare organisations. The rest was published by private companies or private healthcare providers (Light et al., 2014), thus corporative interests should be considered as a possible threat to quality of information.

Because online information seeking is already present and will most likely hold an even greater importance in the near future, this phenomenon must be considered, not only in direct patient-healthcare professional relationship, but also in planning public health strategies. The world wide web can be used as an economically efficient tool for offering health promotion contents to a vast number of patients and achieve patient empowerment with better health outcomes. The World Wide Web ensures that anyone can publish freely, but in reality few healthcare professionals have the knowledge needed to effectively create online content. That is why an entry point is required – a website or platform that enables an individual to publish content online without any specific knowledge or skills. In this research, we consider the official websites of Slovenian healthcare organisations as possible entry points for health promotion and content sharing.

Methods

A cross-sectional study was conducted in the period between April 13th and 14th 2017. The data acquired is freely available from website traffic estimator services. In this study, alexa.com and hyperstat.com were used to gather data. All public Slovenian healthcare organisations listed by The Health Insurance Institute of Slovenia were included in the population. Stratified sampling using country regions as strata offered 60 potential official websites of healthcare organisations. Each website was visually evaluated during data gathering so that presence of health promotion content could be noted. An estimate of the aver-

age visitor count per day was gathered for every included website and a list of 200 most visited websites in Slovenia was obtained, of which 34 were identified as suitable for health-related topic implementation.

For some of the websites, data was unobtainable due to low visitor counts, which resulted in no data availability in website traffic estimators. Some data was unobtainable due to website design, so an accurate estimate of Slovenian visitors per day could not be obtained for international websites, even if they are frequently accessed from Slovenia.

Results

A comparison of 46 official websites of Slovenian healthcare organisations and 34 highly visited websites in Slovenia suitable for health-related topics was made in the final analysis. Websites occurring more than once during sampling and websites with inaccessible data were not included in the final analysis. During stratified sampling healthcare organisations were divided by region and type of organisation ("Community health centres", "hospitals", "pharmacies", "social institutions", "spas", and "other" (e.g. National Institute for Public Health and National Laboratory of Health, Environment and Food)).

Health promotion content was categorized as either health education or information about preventive events. The number of websites including either type of content is presented in Table 1.

Table 1: Number of included websites featuring health promotion content.

Organisation type	*Health education content*	*Information about preventive events informing*	*Number of included websites*
Community health centre	5	6	10
Hospital	4	4	10
Social institutions	1	2	8
Pharmacies	9	4	9
Spas	0	1	7
Other	1	2	2
Sum	20	19	46

Differences in website design were also detected. Pharmacy owned websites were visually most appealing and sophisticated. They included a lot of health promotion content and even forums, enabling users to post medicine-related questions to pharmacists. It should be noted that marketing interests are clearly present, since most health promotion content features products that can solve the described medical issue. Spa websites are also visually very appealing, but were lacking health promotion content.

Using hyperstat.com, estimates of average unique daily visitors for 46 official websites owned by health organisations were gathered. Data was used as an indicator for the number of people the published health promotion content may reach. Number of visitors varies according to organisation type, with the largest national reach in the categories "other" and "spa". The Medians of estimates of daily number of unique visitors according to different types of organisations are shown in Figure 1. Overall the numbers of daily visitors of official healthcare organisations websites are not inconsiderable (M=62.5; IQR=100.0), but their national ranking is lower. Among them nijz.si (owned by The National Institute for Public Health) ranks the highest, being the 520th most visited in Slovenia. The same data was collected for 34 websites among the 200 most visited in Slovenia (M=10081.5; IQR= 6720.9). Their design enables and often already includes health related topics. The sampled websites are either based in Slovenia or they are international but highly visited in Slovenia. The list included web-based media (24ur.com, rtvslo.si, slovenskenovice.si, etc.), moderated and unmoderated forums (over.net, vizita.si, alter.si, etc.), social networks (facebook.com, twitter.com, linkedin.com, etc.) and platforms for free content sharing (youtube.com, blogspot.si, wordpress.com).

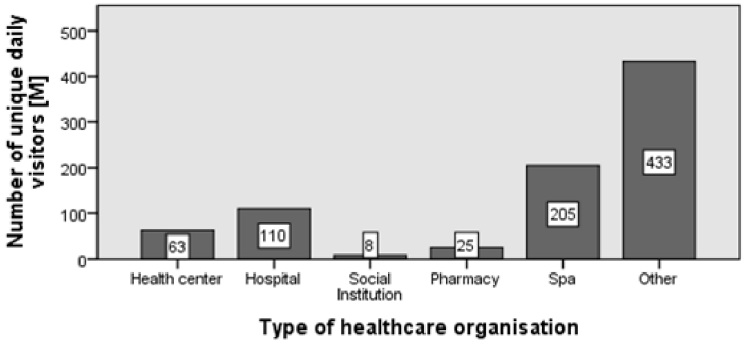

Figure 1: Medians of daily numbers of website visitors per organisation type.

Discussion

Official websites of healthcare organisations are already used to share health promotion content to some extent. Health education content was detected, and information about preventive events such as parenting school, Nordic walking classes, cheaper vaccination offers, etc. The primary goal of these websites is to inform patients about the working hours and the nature of the healthcare process in the particular organisation. They effectively serve their purpose, but in health promotion a larger population reach is needed (Korda and Itani, 2013).

Since many highly-visited websites include health-related topics we can assume there is a general interest in the population for health-related information. Even content sharing websites such as youtube.com include numerous

health-related videos (Chalil Madathilenstein et al., 2015). Online communities emerge as a result of common interests, goals and values, including the area of health and illness (Atanasova and Petrič, 2014). These communities benefit the patient in ways only possible outside a patient-healthcare professionals relationship since they provide empowerment and sense of participation and affiliation within the community (Petrovčič and Petrič, 2014). Sadly, these publications and relationships often lack concrete co-operation with healthcare professionals, which is a result of the poor utilisation of the world wide web in public health strategies. Social networks should also be the focus of healthcare professionals, since those platforms enable engagement and continuous sharing of content among users. Social networks can be used for efficient health promotion with an emphasis on behaviour changes and meaningful engagement in content design (Korda and Itani, 2013; Kite et al.,2016). Efforts to create, review and efficiently share health related content online should be made to harness what new technologies have to offer. Expert knowledge is wasted when content is shared on websites with inadequate viewership or on leaflets lying around waiting rooms waiting to be read.

The World Wide Web also has potential to reach specific population groups. This can be illustrated with pornography addiction, which is becoming prominent in recent years (Beyens et al., 2015). The simplest way of approaching this problem is by strategically placing content online. Since pornography addiction is most common among men, websites like moskisvet.com (website tailored for men's interests) or even adult websites like avanture.net (online dating, an affair-based website) can be used in raising awareness of different forms of risky sexual behaviours. To take that approach further, browsing habits of individuals can be analysed in order to identify and reach individuals at risk of developing pornography addiction (adult websites noted excessively in their browsing history). These strategies are already employed in targeted advertising, where data is used to profile consumers and deliver specially tailored advertisements to an individual. The same strategies can be adopted for reaching patients who can benefit the most from certain health promotion content. We chose pornography addiction as an example after finding that 14 adult content websites were listed among the 200 most visited websites in Slovenia, with bongacams.com ranked 20th and pornhub.com ranked 25th nationally. The same approach can be otherwise used in different areas such as pregnancy healthcare, early maternity healthcare, eating disorders prevention, depression and internet addiction detection, etc.

Health promotion should take place on already established websites in close co-operation with healthcare professionals. A great example of this symbiosis is med.over.net, a website that enables patients to read verified health-related content and connect with healthcare professionals about their own health-related problems. Understanding the world wide web not only as a means of communicating with more patients at the same time, but also as

means of communication with a particular population group enables us to better utilise the accessible technology in modern public health.

Conclusions

This article is based on estimates which can only provide an approximate depiction of true website viewership. Even so, based on the substantial differences found, a conceptual framework can be provided for a more efficient health promotion contents sharing. Keeping this in mind, healthcare professionals should shift their focus to already established websites that already have a larger audience in order to promote health more efficiently and have a larger impact on the health of the population.

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Ketogenic diet and its impact on mental processes of working population

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Abstract

Introduction: Ketogenic diet has been evaluated for wide variety of conditions, although it was initially used for treatment of epilepsy. As alternative dietary pattern it can represent means of better quality of life, improved ability to work and can prevent against cognitive decline, different dementias and more serious forms of neurodegenerative diseases. *Methods:* This is a systematic review of available literature. *Results:* As energy substrates and as signaling agents, ketones are potentially usable in mitochondriopathies that come with aging and neurodegenerative diseases, or are a consequence of stroke, trauma. It has antioxidative, antiinflammatory and antiseizure properties, improves bioenergetics of the brain, neuronal plasticity and has epigenetic function. Discussion: Expansion of current nutritional knowledge might be a paradigmatic shift in understanding what is "healthy diet" in general or in terms of segments of population.
Key words: ketogenic diet, low carbohydrate, cognitive function, neuroprotective effect

Effects of nutrition can most acutely be seen in the working population, as it affects work efficiency and absenteeism; yet the human nutrition, the foundation for chronic noncommunicable diseases and neurodegenerative diseases (ND) as well, should remain an open discussion in general. Chronic noncommunicable diseases: cardiovascular diseases, cancer, diabetes, musculoskeletal diseases, chronic respiratory diseases and some mental disorders, are estimated to represent up to 80 % of deaths worldwide (Nacionalni inštitut za javno zdravje, 2017).

The public health organizations' recommendations of the past 40 years hardly have any positive effects. High availability of hyperpalatable food, stim-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.63-71

ulating the same reward circuits in the brain as drugs do (Volkow et al., 2012) should be counterweighed with a diet, protective of general and neurological health.

Ketogenic diet (KD) has been used with refractory epilepsy in children (Erickson et al., 2017) since 1920's. Most energy in a KD comes from fat with moderate protein intake and minimal carbs intake – one of the strictest ratios being 90 : 2 : 8 (Oliveira et al., 2017). Most common rule implies 20 to 50 grams of carbs daily (Noakes et al., 2017). This induces ketosis: the liver starts producing ketone bodies (KB) as a metabolite of fats, glucose levels settle down and its concentration normalizes; insulin levels decrease, plasma pH decreases slightly as well (Oliveira et al., 2017). KB become the predominant source of energy for central nervous system (Paoli et al., 2014), musculoskeletal system and the heart (Barbanti et al., 2017). KD surpasses the benefits of high carbohydrate diets (Chang et al., 2017), for example in cancer, diabetes, cardiovascular diseases (Bazzano et al., 2015), AD and multiple sclerosis (Erickson et al., 2017). It's efficient for weight loss (Yancy et al., 2010, Bueno et al., 2013), appetite regulation, glycaemic control (Volek et al., 2009), stabilisation of hyperinsulinemia, improving insulin sensitivity and normalizing blood lipid profiles (Chang et al., 2017, Noakes et al., 2017, Oliveira et al., 2017). KD has been studied as adjuvant therapy in brain neoplasms. In animal models, KD prolongs survival by antioxidant properties and by supressing the tumour growth factors genes (Scheck et al., 2012).

Genesis, transport and oxidation of beta hydroxybutyrate (BoHB), one of the most important endogenous KB, are well understood, exact mechanisms however not (Maalouf et al., 2009, McCarty et al., 2015). As direct and indirect histone deacetylase inhibitor, BoHB has epigenetic function (Newman et al., 2014). BoHB also directly inhibits the NLRP3 protein, the main motor of inflammatory response in autoimmune and autoinflammatory diseases, diabetes type 2, AD and atherosclerosis (Youm et al., 2015).

In this paper we focus on KD as a means of protection for the nervous system and its potential within the realm of mental, cognitive and memory processes.

Methods

Primary literature for this narrative attempt at a systematic review search was Medline / Pubmed database. A string of keywords using MESH, [tiab] descriptor and Boole operators AND, OR and NOT with publication date criteria (2007 and on) and human studies were used. The search string: (ketogenic diet[mesh] OR (ketogenic [tiab] AND diet [tiab]) OR diet carbohydrate restricted [mesh] OR (carbohydrate [tiab] AND restricted [tiab]) OR ketone bodies [mesh] OR (ketone [tiab] AND bodies [tiab]) OR 3-hydroxybutyric acid [mesh] OR beta Hydroxybutyrate [tiab]) AND ((neuroprotection [mesh] OR neuroprotection [tiab] OR neuroprotective [tiab]) OR (cognition [mesh] OR cognition [tiab] OR

cognitive function [tiab]) OR (memory [mesh] OR memory [tiab]) OR (memory disorders[mesh] OR (memory [tiab] AND disorders [tiab])) OR (Memory Disorders/diet therapy[Mesh])) NOT epilepsy [mesh]. Google Scholar search results, found by using the string »ketogenic diet, low carbohydrate, cognitive function, memory creation, neuroprotective«, were added to initial Pubmed search. Some results were excluded based on weak connection to the topic.

Results

Neuronal hypometabolism appears to be foundation in pathogenesis of many ND (Castellano et al., 2015): consequences of metabolic disorders set off in the preclinical stages of the disease. This is a common ground for new therapies for ND, especially in those where neuroprotection is the key (Stafstrom et al., 2012). Ketosis could be the opportunity to open paracrine and autocrine signalling mechanisms to influence cometabolism within the nervous system and tumours as a way to achieve therapeutic ends (Puchalska et al., 2017).

Mitochondria do not only supply cells with energy; they control the apoptosis, calcium levels and production and elimination of reactive oxygen species (ROS) (Milder et al., 2012). Nutrition based therapies are not only an option for rare mitochondriopathies but also for a spectrum of ND associated with aging (Procaccio et al., 2014). Mitochondrial dysfunction and the consequential hypometabolism of the nervous system that is a part of aging can be a source and a consequence of inflammatory processes (Currais, 2015).

KD is efficient with ameliorating symptoms of AD, Parkinson's disease and other ND (Hartman, 2012, Liśkiewicz et al., 2012, Mandla et al., 2013). KD can have a profound effect on neuronal plasticity, reduces inflammation, and improves bioenergetics in the brain … (Procaccio et al., 2014). Mitochondrial function is impaired in ND – both systemically as well as in the brain (Wilkins et al., 2017). Nervous system's glucose dependency poses a risk to cognitive health (Farias et al., 2014). Neurons are adapted to using many different substrates for energy: glutamine, glutamate, lactate, pyruvate, KB. This is especially useful for people with regular hypoglycaemic episodes (Amaral, 2013), causing cognitive dysfunction, sensory disturbances and memory defects (Costantini et al., 2008), verbal memory, digit symbol coding, digit span backwards, and map searching (Page et al., 2009).

Lack of energy due to hypometabolism and mitochondriopathies can be replaced by KB (Currais, 2015). Nutritional ketosis provides replenishment of the TCA cycle, restoration of neurotransmitter and ion channel function, and enhanced mitochondrial respiration. It helps cellular homeostasis by enabling signal pathways, developed as sensors of the energy state of the cell (Gano et al., 2014). These antiseizure, neuroprotective and antitumor properties of KD are not yet well understood (Maalouf et al., 2009, Thio, 2012).

Use of ketosis looks promising most prominently in AD (Grom, 2016). Decrease in glucose utilization has a very early onset with AD – much earli-

er before pathologies and symptoms appear – and is much greater than in normal aging (Costantini et al., 2008). The changed metabolic environment reinforces the disease progression. Normalization of bioenergetics can be efficient in treatment neurological diseases (Masino et al., 2008, Zilberter et al., 2017).

AD is the most common type of dementia; it features accumulation of amyloid plaques and hyperphosphorylation of tau protein resulting in inflammatory response and oxidative stress. The mechanism is not well understood, but it seems that type 2 diabetes (T2D) accelerates these processes. Cerebral atrophy, hypometabolism of glucose and insulin resistance are featured in both diseases (Verdile et al., 2015). Cognitive decline is directly correlated to the level of glucose hypometabolism (de Leon et al., 1983). Some authors claim that AD is a type 3 diabetes (de la Monte et al., 2008).

In animal models of AD, nutritional ketosis can ameliorate the extent of beta amyloid plaque accumulation (Krikorian et al., 2012). However, with patients without ApoE4 allele one of the nutritional options to improve mild cognitive impairments is adding medium chain triglycerides to the diet (Page et al., 2009, Farias et al., 2014, Sharma et al., 2014, Fernando et al., 2015, Hertz et al., 2015, Ohnuma et al., 2016).

Even in the excessive ROS model of AD, the KD is still useful as an antioxidative therapy. There is mixed evidence about the oxidative stress as the ground for AD in clinical trials, but it is possible that the antioxidant therapies did not succeed to deliver the antioxidants where they should be delivered (Rosini et al., 2014). KD might have been more successful.

KB help decrease the oxidative stress, while also being a substrate for energy. Both roles make KB highly neuroprotective agents (Cahill, 2006). KB mediate their antioxidative properties by activation of protective transcription factors (like Nrf2) that increase the production of antioxidants like glutathione and other enzymes (Milder et al., 2012).

In KD, the metabolism of astrocytes producing purines (ATP and adenosine) is increased (Masino et al., 2008, Boison, 2013). In animal models there is increased autophagy of neurons in ketotic environment (McCarty et al., 2015).

Balancing excitotoxicity and cell death as a consequence can have a beneficial effect with patients who survived ischemic stroke and death of mitochondria that takes place sometime later after the event. In animal models these devastation to mitochondria can be alleviated by KB (Baxter et al., 2014). Postoperatively, KD could also be used with adult patients who suffered head trauma (Prins et al., 2014).

Discussion

Effects of KD are profound, but also complex. Yet applying any therapeutic means to affect the nervous system is rarely straightforward and simple to observe.

Researching the neuroprotective properties of nutrition is by nature reductionist, regardless of the mechanism (epigenetic, direct or indirect modulation of individual physiological substances). Research is also mostly directed at improving known pathologies. To understand potential preventive effects some backwards deduction should be made.

Conclusion

Our insight into KD is barely scratching the surface. A lot of research both in humans and in animal models looks promising as expansion of our current nutritional knowledge and potentially as a paradigmatic shift in understanding what is "healthy diet" in general.

When the nervous system is in question, KD appears to have more efficient bioenergetics. We presented the research that deals with pathologies where the underlying hypometabolism is potentially the key to understand AD, Parkinson's disease, head trauma etc. Ketosis seems to be especially beneficial for mitochondria dysfunction. KB reduce the damaging effect of ROS, help body's own antioxidant capacity, while the ketone metabolism itself poses decreased oxidative stress to the tissues.

Neuroprotective effect of KD for now seems irrefutable, despite the lack of thorough understanding of the underlying mechanisms. Further research, especially in the form of clinical trials, is needed.

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Absenteeism due to mental problems among employees in nursing

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Abstract

Introduction: Absenteeism is a phenomenon that describes absence at work and is measured as a frequency of missing days at work. It is directly related to consequences such as nursing staff shortage, low employees morale and disruptions in continuity of patient care. Causes of absenteeism are often attributed to mental disorders. In nursing manifestations of mental problems are often caused by the nature of work and working conditions. *Methods:* In this paper, a descriptive methodology with literature review in Slovenian and English language has been used. Union bibliographic database COBBISS and CINAHL, Medline (PubMed), Cochrane and Springerlink databases have been searched. *Results:* Many researchers have been studying risk factors which cause and/or influence the absenteeism in nursing. The causes for absenteeism are expected to be overload of work, excessive work demands and job dissatisfaction. Also, depression, anxiety and stress are expected to be recognized as the most frequent mental problems. Discussion: Based on previous findings guidelines for further research on mental health among nurses in Slovenia will be presented.
Key words: nurse, absence from work, mental health, job dissatisfaction

Absenteesim is a concept by which we define an absence of an employee from the workplace and is measured with the frequency of missing working days. Experts estimate that the rate of absenteeism among health professionals is higher than in other professions. Therefore, identifying and understanding the factors contributing to absenteeism is a particularly challenging for society (Waage and Bjorvatn, 2016). In addition to other factors, the causes of absenteeism are often attributed to mental disorders (Lamont et al., 2016; Perry et al., 2015). When absenteeism arises from mental health problems, employees are usually absent for a longer period of time, and consequently this

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.73-81

can lead to permanent incapacity for work (Anema et al., 2006). The very emergence of mental problems in nurses is in many cases the result of the nature of work and working conditions in health care (Mealer et al., 2007). The purpose of the paper is to present the specificity of absentism related to mental health in the field of nursing. The aim of the paper is to answer the following research questions: Is the level of absenteeism in the nursing profession higher compared to other professions? Which factors related to working place influence the frequency of absenteeism in nursing care? What is the impact of mental health on absenteeism in the nursing profession? What impact or consequences have mental health problems on the individual's ability to work in nursing profession?

Methods

The article used a descriptive method of work with a critical overview of Slovene and English professional and scientific literature. The literature search period took place from March to May 2017. The literature search was carried out using the Slovenian bibliographic-catalog database COBIB.SI and foreign CINAHL and Medline databases (PubMed). The search criteria used the language criterion, but we limited ourselves to articles published in both Slovenian and English. The applied keywords associated with the Boolean operator AND in English were: absenteeism AND mental disorders AND nursing, absenteeism AND health care, absenteeism AND nursing home, sickness absence AND health care, sickness absence AND mental health AND health care, mental health AND stress AND nursing. Slovene literature was searched with the following keywords: absentizem IN zdravstvena nega IN duševne motnje, absentizem IN depresija, bolniška odsotnost IN duševno zdravje IN zdravstvena nega. The result of keyword combinations is a different number of findings. The selected ones were about the risk factors that lead to absenteeism, the causes of mental health problems among health professionals and measures to improve mental health. The exclusion criteria were articles adressing the nursing students.

Table 1: English keyword combinations and number of findings.

Key words (English)	*absenteeism AND mental disorders AND nursing*	*absenteeism AND mental disorders AND nursing*	*absenteeism AND nursing home*	*sickness absence AND health care*	*sickness absence AND mental health AND health care*	*mental health AND stress AND nursing*
Search results	15	49	64	104	13	112
Used articles	5	2	0	1	4	2

Table 2: Slovene keyword combinations and number of findings.

Key words (Slovene)	*absentizem IN zdravstvena nega IN duševne motnje*	*absentizem IN depresija*	*bolniška odsotnost IN duševno zdravje IN zdravstvena nega*
Search results	6	2	2
Used articles	0	1	0

Results

Health absenteeism is a serious social problem with many causes and consequences. The consequences of absenteeism are present in the case of employees (lower income, lower prospects, job dissatisfaction, loss of working habits), employers (costs for compensation, costs for substitute workers, lower productivity) and at the level of the national economy as a whole (lower gross domestic product) (Vučković, 2010). On the basis of national data from Canada, it is estimated that, on average, there are up to 1.5 times more probability for absenteeism among health professionals than for other professions (Lamont et al., 2016).

Perry and colleagues (2015) studied the mental health of nurses through a cross-sectional study. From the 382 employees, almost 14 % excluded that they have already been diagnosed with mental disorders such as anxiety and depression in the past. 6 % of nurses state that they are currently using psychoactive drugs. The researchers also found the presence of other symptoms that are potentially related to mental health, such as: headache, fatigue, dyspepsia, night sweating, sleeping problems and palpitations.

The impact of mental health on health and productivity of the working population has been underestimated for a long time. The United Kindom Department of Health estimates that 15-30 % of people will have mental health problems during their working lives, which are one of the leading causes of morbidity. Mental problems among employees do not only have consequences for the individual, but also affect the productivity of the company, as they lead to work failure, workplace accidents, absenteeism and employee fluctuation (Harnois and Gabriel, 2000).

The nursing profession is an emotionally and physically demanding occupation and research suggests that working as a nurse means a high risk of experiencing stress, anxiety, and depression. Authors often report the presence of mental illness, drug abuse, workplace aggression, stress and burnout in nursing care. Mental disorders and burnout are often the result of working, organizational and personal factors (Perry et al., 2015).

Researchers from Australia have studied the link between mental health, workplace characteristics and absence from work among nurses and midwives through a cross-sectional study. The survey included 5041 people. They found that the factors related to mental health that contributed to absenteeism among nurses and midwives are: starting a career, multiple work, demanding work, abuse at work, smoking, symptoms of mental disorders, desire for cancellation,

use of psychotropic medicines and insomnia. The authors state that on the basis of findings on the connection of mental health with absenteeism in health care system, the specific characteristics of employees could be used as indicators for the early identification of individuals who are at risk of absenteeism (Lamont et al., 2016).

There is consensus among experts on the correlation of unfavorable working conditions with the morbidity of the working population. In nursing practice, such unfavorable working conditions include: an intensive working pace, a shortage of human resources and materials, pressure from superiors, low income, a two- or three-shift work system, exhaustion as a result of multishifts work and frequent interactions with severe, usually terminal patients (Santana et al., 2016). The nurses' mental health is particularly affected by work environments where employees lack work autonomy, where they experience low levels of support and few opportunities to acquire new knowledge, where a high degree of emotional exhaustion and the occurrence of physical burnout prevail, and where employees have poor sleep habits due to multishift work. Mental health consequences are seen in nurses who are under the influence of high expectations and are in conflict working relationships and work in an environment where there is a high mortality rate of patients and a high possibility of traumatic events. All these factors have a major negative impact on productivity, absenteeism and presentism, work performance, patient care and patient satisfaction (Perry et al., 2015).

The authors found out that high work demands are associated with emotional exhaustion, anxiety, depression, and dissatisfaction with work. The ability to control the working environment and social support positively influence the well-being and work satisfaction of nurses and decrease the symptoms of psychological distress and emotional exhaustion. High work demands, through the impact on the employees' health increase level of absenteeism (Roelen et al., 2012).

Clausen and colleagues (2011), through longitudinal research, found out that high working demands are strongly linked to absenteeism in the case of elderly health care providers. On the other hand, positive sources in the workplace, such as the possibility of influencing on work, higher quality of management and a positive team climate protect individuals from morbidity and consequently reduce the amount of absenteeism. Roelen and colleagues (2012) add that in addition to all other factors, also the way in which employees are faced with the disease, affects sick leave. It is therefore a phenomenon that arises as a result of the interaction between the personality characteristics, working conditions and the socio-cultural environment.

The concern for the health of nurses, the identification of risk factors and mental illnesses is not only important for ensuring the quality of life of nurses in general, but also for maintaining competence that leads to quality treatment for patients. Suzuki and colleagues (2005) showed the impact of accidents at work (eg. needle injury) on the development of mental disorders and

sleep disorders. Xiong and colleagues (2017) investigated whether the injection needle injury affected the development of a mental disorder. There were 302 nurses involved, 162 of them had already had needle injury before. The development of mental illness was almost twice as likely for nurses exposed to work with blood as in those who were not exposed to work with blood. Also physical symptoms and symptoms of social dysfunction, anxiety and depression were more frequently expressed among nurses exposed to work with blood. It is necessary to provide appropriate psychological support for the stress relief at the workplace.

Absenteesim in nursing represents a major economic problem both for the organization and for a personal problem for the individual. Long-term absence can cause many negative consequences, such as exclusion from the workplace and, consequently, social isolation in poverty, therefore recognizing the risk factors for predicting absence from work is very important (Roelen et al., 2015; Roelen et al., 2013).

Discussion

The average sick leave for a healthcare professional ranges from 12 to 15 days per year per person (Lamont et al., 2016). Waage in Bjorvatna (2016) also points out that absenteeism is more frequent among healthcare workers as a result of illness compared to workers in other sectors. Many authors (Mao et al, 2016; Gaudine et al., 2011) note that the rate of absence from all professions is the highest in the field of nursing care.

Lack of employee support, working influences, organizational climate and the ambiguity of the role are associated with the emergence of psychological problems in nurses. The most common source of poor mental health is workload pressure (Petterson et al., 1995). The hardship caused by the small role in decision-making, low social support at the workplace, and pressures by leaders are linked both to anxiety and to depression (Quine, 1999).

To protect and maintain the mental health of nurses and to ensure safe, effective and quality patient care, targeted stress relief measures are required (Caufigld et al, 2004). Many authors work on the development of strategies for reducing stress among nurses. Some approaches address the problem at the level of the individual, others at the level of the organization, and the authors also discuss the combination of both. Mc Vicar (2003) points out that effective approaches ensure better safety and health outcomes of healthcare professionals, leading to safe, efficient and quality patient care, and ultimately reducing the economic effects of stress in hospitals, industry and the economy. Deckro and colleagues (2002) represent a program that focuses on an individual in a way to improve the individual‘s ability to successfully meet challenging situations at work by educating about the source of stress and the impact on health, and also acquiring skills and abilities to reduce stress (eg adequate time allocation, relaxation methods). The effects of the program have been shown to redu-

ce the symptoms of stress, anxiety and sleep disorders, and positive physical, mental and emotional changes. Implementation of this type of program is not demanding and does not require a financial contribution.

On the contrary to programs operating on an individual level, interventions at the organization level are focused on reducing stressful working conditions. Examples of such interventions include the transformation of jobs, clear definition of job descriptions, the formation of joint staff committees, and the leadership, which increases the involvement of workers and gives them the opportunity to participate in decision-making (Murphy, 1999). As well as programs on an individual level, it is also necessary to adjust organizational adjustments according to a particular job position. The manager can, in cooperation with an expert, diagnose the situation at the level of work units and organization. On the basis of the state of the situation, approaches to prevent or eliminate harmful conditions begin to develop. Such measures include changes in employment according to staff needs, adjustment of working time or shifts, inclusion of breaks for rest and ensuring an optimal balance of workloads (Roberts et al., 2013).

Conclusion

Despite numerous studies and analyzes of the phenomenon of absenteeism, there are still insufficient studies of its direct association with mental illnesses in the nursing profession. It is difficult to define causal and consequential connections between mental disorders and absentism. Even long-term unplanned absenteeism due to serious illness can affect the mental health of a nurse, since longer absenteeism means lower incomes and reduced competence at work. According to the findings of many researchers, absenteeism among nurses is influenced by many different factors, usually a combination of the characteristics of the working environment and personality traits of an individual. It would be sensible to study and analyze the causes of absenteeism in nurses in Slovenia and to compare the results between hospitals and other health institutions of different provincial regions.

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Quality of life of nurses

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Abstract

Introduction: In modern medical practice, the concept of quality of life has recently gained a great significance and important role in problem analysis in a variety of clinical situations. The aim of this study has been to assess the level of perceived quality of life of nurses. Methodology: The study was designed as a cross-sectional study. The sample of the study consisted of nurses in primary and secondary health care. A sociodemographic questionnaire and questionnaire of health assessment (SF-36) were used for assessment of quality of life. Statistical analysis was done using the SPSSver. 20.0. *Results:* The highest percentage of respondents (67%) belong to the category of excellent physical functioning. Thirty percent belong to the group that has good physical functioning, whereas only 3% of the subjects have poor physical performance. Fifty-two percent of respondents have excellent social functioning, 47% have a good level of performance, while only two patients have a poor level of social functioning. Thirty percent of respondents have significant limitations due to emotional problems. Disscusion and conclusion: Sociodemographic characteristics significantly affect the quality of life of nurses
Key words: quality of life, health, nurses

In recent years there has been a great interest in exploring the psychosocial aspects of the work environment of health workers. The reasons for this are the poor financial status, insufficient physical security, working in night shifts, as well as poor working conditions with great physical and mental load (Assalavi et al., 2010; Milošević et al., 2011).Working in nursing job it constantly involves dealing with human needs, problems and suffering, constant interaction with co-workers, clients and their families, as well as different organizational burden (Golubić and Mustajbegović, 2011).

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.83-91

Numerous studies conducted in different countries of the world have shown that the prevalence of work-related stress among nurses is high (Chapman et al., 2010; Iliopoulou and While, 2010; Habazin, 2013). Out of the above mentioned pathological conditions most often singled out are emotional exhaustion, chronic fatigue, cardiovascular diseases, tumors, and pain in the lower part of the spine (Golubić and Mustajbegović, 2011; Milošević et al., 2011). The workplace and the type of work they do is also an important factor that affects the quality of life and job satisfaction of nurses. A prerequisite for security and satisfaction of a nurse in the workplace is certainly working environment which meets the expected safety standards, ensures the prevention of injuries and diseases that can occur during the working process, and therefore ensures the presence of healthy nurses, unencumbered by working conditions (Spurgeon, et al., 1997; Jezuit, 2003). Nursing profession because of the patient care that takes place continuously for 24 hours, including work in rotating night shifts, has a significant impact on various aspects of their lives. The system of rotating night shifts is often associated with sleep disorders that can damage their physical health by increasing the rate of cardiovascular, gastrointestinal and cancer. Also, working rotating night shifts can negatively affect the mental functioning and reduce the concentration which increases the risk of errors in work (Cimete et al., 2003; Lie et al., 2006; Shao, et al., 2010). Great emotional and physical efforts and insufficient rewards are topics that are high at the priority list of the nursing profession (Golubić and Mustajbegović, 2011). Therefore, we can say that the quality of life of nurses is a complex entity being under the influence of and interacting with many aspects of their work environment and personal lives outside of them. The aim of this study was to assess the level of perceived quality of life of nurses, as well as to estimate the differences in the quality of life of nurses depending on their the place of work (Assalavi et al., 2010; Golubić and Mustajbegović, 2011).

Methods

The study was designed as a cross-sectional study. The study involved 200 nurses working in primary and secondary health care. Criteria for inclusion in the study were: respondents who work at least one year and are directly involved in the care and treatment of patients. Criteria for exclusion from the study were: respondents who work less than one year, nursing who are not involved in the care and treatment of patients and subjects who did not respond to five or more questions or have circled the same answers to all the questions. The research was conducted at the University Hospital Foca, Health CenterZvornik and Health Center of East Sarajevo. The survey used: a sociodemographic questionnaire, and a questionnaire to assess the health status (Short Form-36 Health Survey SF-36) (Ware et al., 1993; 2000). The socio-demographic questionnaire designed for this study and contains 14 questions relating to the characteristics of the respondents (gender, age, marital status, place of residence, family income, education level of respondents).

SF-36 Health Survey is the most commonly used general questionnaire to assess quality of life of patients. The questionnaire is designed for self-assessment of mental and physical health, and social functioning. There are 36 questions, of which 35 questions grouped into eight areas:

1. PF-physical functioning – 10 items,
2. RP - role limitation due to emotional problems – 4items,
3. RE- rolls limitation due to emotional problems – 3 items,
4. SF- social functioning) – 2 items,
5. MH mental health – 5 items ,
6. The vitality and energy – 4 items,
7. BP bodily pain – 2 items,
8. GH general health perception – 5 items.

One question related to the change of health status in relation to the year preceding the survey, ie. whether the current health is better, the same or worse. For each of the eight domains of the total score ranges from 0 to 100 points (percent), wherein 0 is a very low quality of life associated with that domain 100, and is a very positive response and a high level of quality of life. In our study we used linguistic versions of validated questionnaires, translated into Serbian. Statistical analysis was performed using SPSS ver. 20.0. The chuare test was applied. As the level of statistical significance of differences, $p < 0.05$, werw calculed by using the arithmetic mean and standard deviation.

Results

The following tables (Table 1–4) are presenting the results of the research.

Table 1: Distribution of respondents according to gender and age.

Gender of respondents	*Age of respondents n (%)*		*Total n (%)*	*χ2*	*p*
	20–39 years	*40–60 years*			
Men	26 (13)	11 (5.5)	37 (18.5)		
Women	53 (26.5)	110 (55)	67 (67)	17,987	0,001
Total n (%)	79 (39.5)	121 (60.5)	100 (100)		

Table 2: Distribution of respondents according to socio-demographic characteristics.

Socio-demographic characteristics	*Possible answers*	*Respondents place of work n (%)*		*Total n (%)*	*χ2*	*p*
		Primary care	*Secondary care*			
Marriage	Married	61 (30.5)	66 (33)	127 (63,5)	1.737	0.629
	Not married	17 (8.5)	19 (9,5)	36 (18)		
	Divorced	12 (6)	9 (4.5)	21 (10.5)		
	Widow/Widower	10 (5)	6 (3)	16 (8)		
Place of living	Urban	32 (16)	12 (6)	44 (22)	11.65	0.001
	Rural	68 (34)	88 (44)	156 (78)		
Educational background	Secondary school	83 (41.5)	87 (43.5)	170 (85)	5.022	0.081
	College	17 (8.5)	13 (6.5)	30 (15)		
Work experience	1–10 years	30 (15)	37 (18.5)	67 (33.5)	11.678	0.432
	11–25 years	17 (8.5)	19 (9.5)	36 (18)		
	26–40 years	53 (26.5)	44 (22)	97 (48,5)		
Working in shifts	Yes	51 (25.5)	77 (38.5)	128 (64)	14.670	0.023
	No	49 (24.5)	23 (11.5)	72 (36)		
Educative lectures	Yes	70 (35)	80 (40)	150 (75)	2.667	0.102
	No	30 (15)	20 (10)	50 (25)		

Table 3: The level of quality of life in the three subscales of the SF-36: physical functioning, the existence of bodily pain and vitality in nurses and technicians who work in primary and secondary health care.

Domains of the SF-36 questionnaire	*The level of quality of life*	*Respondents place of work*		*Total n (%)*	*χ2*	*p*
		Primary care, n (%)	*Secondary care, n (%)*			
Physical functioning	Bad (0–33%)	2 (1)	4 (2)	6 (3)	9.751	0.008
	Good (33–66%)	40 (20)	20 (10)	60 (30)		
	Excellent (66–100%)	58 (29)	76 (38)	134 (67)		
The existence of physical pain	Intense (0–33%)	8 (4)	4 (2)	12(6)	3.567	0.168
	Moderate (33–66%)	32 (16)	24 (12)	56 (28)		
	Does not exist (66–100%)	60 (30)	72 (36)	132 (66)		
Vitality	Bad (0–33%)	2 (1)	8 (4)	10 (5)	3.834	0.147
	Good (33–66%)	80 (40)	74 (37)	154 (77)		
	Excellent (66–100%)	18 (9)	18 (9)	36 (18)		

Table 4: The level of quality of life in the three subscales of the SF-36: social functioning, the existence of limitations due to emotional problems and mental health among nurses and technicians working in primary and secondary health care

Domains of the SF-36 questionnaire	*The level of quality of life*	*Respondents place of work*		*Total n (%)*	*χ2*	*p*
		Primary care, n (%)	*Secondary care, n (%)*			
Social functioning	Bad (0–33%)	/	2 (1)	2 (1)	4.448	0.108
	Good (33–66%)	42 (21)	52 (26)	94 (47)		
	Excellent (66–100%)	58 (29)	46 (23)	104 (52)		
The limitation due to emotional problems	Intense (0–33%)	38 (19)	22 (11)	60 (30)	11.590	0.003
	Moderate (33–66%)	8 (4)	2 (1)	10 (5)		
	Does not exist (66–100%)	54 (27)	76 (38)	130 (65)		

Domains of the SF-36 questionnaire	The level of quality of life	Respondents place of work		Total n (%)	χ2	p
		Primary care, n (%)	Secondary care, n (%)			
Mental health	Bad (0–33%)	/	4 (2)	4 (2)	8.138	0.017
	Good (33–66%)	98 (49)	88 (44)	186 (93)		
	Excellent (66–100%)	2 (1)	8 (4)	10 (5)		

Discussion

In our research, out of nurses of both levels of health care, the best quality of health had the following domains: physical functioning, absence of bodily pain, social functioning, limitations due to physical health problems and limitations due to emotional problems. The lower level of quality of the health of our patients is seen in median values of public health, mental health and vitality.

The largest percentage of our respondents, 67% belong to the category of excellent physical functioning, 30% have a good physical functioning, while only 3% of respondents have a poor physical functioning. Among the respondents in relation to the place of work was observed statistically significant differences in terms of physical functioning, with respondents who work in secondary care showed better physical functioning. In contrast to our research, in a study conducted in Taiwan on a sample of 1534 nurses, the results showed that nurses who work in outpatient clinics have better physical functioning compared to nurses working in hospital wards and intensive care units (Shao et al, 2010). Similar results were obtained in studies in Turkey, where the nurses who worked in an outpatient clinics have a better quality of life in relation to nursing working in a surgical departments and operating rooms (Cimete et al, 2003). The limitations due to emotional problems are present in 30% of our respondents, moderate limitations has 5% of respondents, while in slightly more than half of the respondents limitations due to emotional problems do not exist. In relation to the place of work statistically significant difference was observed, with limitations due to emotional problems more common among respondents who work in primary health care. Experiencing positive emotions at work is considered an important part of nursing professional life, and has a significant impact on patient safety, quality of services renered, commitment, retention and fluctuation. Many studies alsoconfirmed this fact and point out that experiencing positive emotions at work linked with better health, a higher degree of job satisfaction, responsible behavior at work, higher work performance and quality of work, greater resistance to stress and burnout, rarely change jobs, better relations with other persons, the preferred behavior and thinking, and lower incidence of divorce (Chapman et al., 2010; Golubić and Mustajbegović, 2011; Habazin, 2013).

High proportion of respondents assessed their mental health as good:Excellent mental health has 4% of secondary and 1% of primary health care, and poor mental health has 2% of the respondents belonging to secondary health care, while in the primary with poor mental health was not. Next results longitudinal study of 11 countries showed that in all countries there is a significant degree of psychological exhaustion of nursing personnel, in particular in Poland, Slovakia and Germany where they registered the highest scores adverse effects (Cowin, 2002). As regards the existence of pain and vitality of our respondents, it was found that almost two-thirds of our respondents, there is no pain in everyday life, in 28% of the pain there and he is moderate, and 6% of the pain is very strong. Our subjects have the highest percentage of vitality, 18% of the subjects is excellent vitality when in the smallest percentage of the sample is poor viability, wherein between the two groups of subjects in relation to the place of work, no significant difference in terms of the existence of pain, and in terms of vitality. Similar results were obtained in a study conducted by Hasselhorm et al.(2005) with the nurses in Germany. The disease is undoubtedly one of the external factors that negatively affect the quality of life of the individual. It can be said that the impact of disease on quality of life is multidimensional. The disease not only in terms of affecting the physical symptoms, and thus hinders the functioning, but there are present and indirect effects such as a change in working ability, the decline in the quality of medical care, the potential isolation, the increase depending on the other, bad habits,etc. (Knežević et al., 2009; Buljbašić, 2011). Respondents on both levels of health care have the highest percentage of good and excellent social functioning, while only two patients from secondary care have poor levels of social functioning. Studies dealing with the study of the quality of life highlight the importance of social contacts, and there is a large drop in the quality of life in patients where there is social isolation. Certain contribution to the clarification of the impact of social interaction on the quality of life given by Israeli researchers, who have studied only that component of health and its impact on quality of life (William et al., 1996).

Conclusions

Respondents expressed the best quality of health in physical functioning, absence of bodily pain and social functioning. The lower level of quality of health of our respondents was noticed in the fields of public health, mental health and vitality. Nurses from primary health care, when compared with their colleagues from secondary care, assessed their mental health better. On the other hand, nurses from secondary health care expressed better quality of health in physical functioning and limitations due to emotional problems.

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Experience of sexual intercourse in the first year after childbirth: women's views and attitudes

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Abstract

Introduction: Sexuality after childbirth depends on several factors that may affect a woman at the same time. The aim of the study was to research Slovenian women's experience of sexual intercourse in the first year after childbirth. *Methods:* A descriptive and causal – nonexperimental method of empirical research has been used with a scientific literature review. A convenience sample of 3106 women was used and the data was gathered through an online questionnaire tool. The results were analysed with the use of SPSS ver. 20.0 statistical program. *Results:* Sixty-two percent of couples started with their sexual intercourse 6 to 8 weeks after childbirth. Sixty-two percent of participants reported their satisfaction with sexual intercourse was the same as in the period before childbirth. Thirty-six percent of women reported lower satisfaction with the sexual intercourse after birth. More than half of the women (57 %) had sexual intercourse less frequently after birth. Thirty-five percent of women reported they would like to have sexual intercourse more frequently. The most commonly reported problem after birth was dyspareunia. *Discussion and conclusions:* The results of the survey suggest some clear recommendations in terms of optimising the couples' sex life in the period after childbirth and in the first year of the child's life. Health care professionals have to be knowledgeable to share professional advice in the period after childbirth.
Key words: pregnancy, sexuality, sexual intercourse, changes, partnership

Sexuality after childbirth depends on several factors that may affect a woman at the same time. In addition to the state of her reproductive organs and stimulation of her genitalia, it involves her desire and motivation for sexual intercourse, her general health and quality of life, the relationship with her partner, and emotional readiness to regain sexual intimacy with her partner.

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.93-101

It also depends on successful attainment of the maternal role, on the ability to balance the maternal identity with the sexual identity and on the socio-cultural background, sexual habits of the couple before pregnancy and their emotional state (Barrett et al., 2000; Rezaee and Kinsberg, 2012; Trutnovsky, 2006)

Safe and satisfactory sex life is a basic human right (WHO, 2005). The childbearing period is a very vulnerable time in the sex life of a woman or a couple. Generally, sexual activity and intimacy significantly decrease during pregnancy, which can last up to several months after childbirth (Lee and Yen, 2007; Rezaee and Kinsberg, 2012; Boyd et al., 2013). Sexuality after childbirth includes much more than just a physical act of stimulating the genitalia. Hormonal changes during pregnancy affect the physical wellbeing and the mood of a pregnant woman and therefore the sex life of a couple (Trutnovsky et al., 2006). Avery et al. (2000) concluded that the desire for sexual intercourse between partners decreases after childbirth. Many couples begin with sexual intercourse in the first three weeks after childbirth, mostly on the male initiative, although doctors recommend sexual intercourse as late as after 6 weeks postpartum. Hormones related to breastfeeding may cause greater dryness of the vagina and consequently lower libido (Barrett et al., 2000). Dyspareunia and perineal pain account for common sensations accompanying women after childbirth and generally reduce the frequency of sexual intercourse between partners. Previous studies (Pacey, 2004; Barrett et al., 2000) write about a decrease in sexual activity during pregnancy; it being almost non-existent in the immediate postpartum period and then steadily increasing throughout the first year after childbirth when its frequency is approximately the same as in the time before pregnancy. In many respects, sexual function changes the most after childbirth (Pacey, 2004). Trutnovsky et al. (2006) in their research noted down the following factors that contribute to low sexual activity: sleep deprivation, stress, exhaustion, overload with the newborn care, dyspareunia and breastfeeding. During the postpartum period, sexual health problems in women are common. Many experience lower libido and decreased vaginal lubrication and frequently have shorter and weaker orgasms. Rathfisch et al. (2010) conducted a study that included healthy pregnant women with low level of risk that expected to have a vaginal delivery after 38 weeks gestation. Out of 165 women invited to a postnatal check-up 3 months after childbirth, 55 attended. There was a careful gynaecological examination and examination of the perineum, performed always by the same gynaecologist, followed by a 20-minute interview with each woman individually. The aim of the researchers was to compare sex lives of those women before and after childbirth. The findings revealed that women who experienced any perineal trauma, namely episiotomy or rupture, had lower libido, orgasm and sexual satisfaction and experienced more pain during sexual intercourse. Presence of at least one sexual problem (lower libido, decreased sexual arousal, decreased vaginal lubrication, reduced frequency of orgasm, dissatisfaction with sex life and dyspareunia) was statistically significantly more common after childbirth (Rathfisch et al., 2010).

The aim and objective of the conducted research was to study Slovenian women's experience of sexual intercourse in the first year after childbirth. We posed 4 research questions, namely: (1) When did women initiate sexual intercourse after childbirth?, (2) are women equally satisfied with sexual intercourse before and after childbirth?, (3) how often do women have sexual intercourse after childbirth?, (4) do they and if they do, which problems do women most frequently encounter during sexual intercourse after childbirth?.

Methods

The research was based on the quantitative research paradigm, within which a descriptive and causal – nonexperimental method of empirical research was used. It was designed as an online questionnaire tool. Data was gathered through a questionnaire preliminarily tested on a pilot sample of ten respondents in order to verify comprehensibility of the questions asked. The survey was conducted from January 2013 to September 2015. Apart from demographical data, the questionnaire included basic questions in order to study Slovenian women's experience of sexual intercourse in the first year after childbirth.

To determine validity (% of variance explained by the first factor) and reliability (% of variance explained by common factors) of the measurement instrument, we used the results of factor analysis which showed that our research instrument is within acceptable limits of validity (first factor explained 23.2% variance) and reliability (results of factor analysis revealed 3 factors that explain 60.9% variance).

A convenience sample of 3126 women who regionally cover all parts of Slovenia was used. Altogether, 3106 valid questionnaires were returned, which represents a responsiveness rate of 99.4%. The largest group of women (68%) was between 25 to 35 years old. The majority of women in the sample (58%) achieved a university degree of education. The majority of women gave birth vaginally, namely 82%, the remaining 18% delivered by a caesarean section.

The ethical aspects of the implementation of the research were provided based on *A statement of voluntary participation and protection of personal data*. Participation in the survey was voluntary and anonymous. The survey execution was approved by The Department of Midwifery, Faculty of Health Sciences in Ljubljana. Data processing was carried out at the level of descriptive statistics with calculations of frequencies, percentages and arithmetic mean. The data were processed using the statistical program SPSS 20.0. In order to determine statistically significant differences, we used Chi-square (χ^2) test. Where the conditions for χ^{2-} test were not fulfilled, Kullback test was implemented. The differences were confirmed as statistically significant at a value of $p = 0.05$.

Results

In continuation, the results of the survey are presented in the same order as the preliminary research questions. With the first research question, we wanted to find out when the women started having sexual intercourse for the first time after childbirth (Table 1). We learnt that the majority of the women, 62.9%, started having sexual intercourse 6 weeks to 2 months after the child was born. The mode of delivery (vaginal delivery, caesarean section) did not reveal any statistically significant differences ($\chi^2 = 21.028$; g = 1; p = 0.577)

Table 1: Initiation of sexual intercourse for women after childbirth.

When did you initiate sexual intercourse after childbirth?	*f, f (%)*
1 to 3 weeks after childbirth	3 (0.1)
3 to 6 weeks after childbirth	313 (10)
6 weeks to 2 months after childbirth	1966 (62.9)
2 to 6 months after childbirth	656 (21)
6 months to 1 year after childbirth	188 (6)
after 1 year after childbirth or later	/
Total	3126 (100)

Note: f: frequency; f (%): percentage

With the second research question, we wished to learn if women are equally satisfied with sexual intercourse before and after childbirth (Table 2). 62% participants reported their satisfaction with sexual intercourse was the same as in the period before childbirth. There were 36% of the women who reported lower satisfaction and 2% of the participants who could not assess. None of the participants declared to be more satisfied with sexual intercourse after childbirth compared with sexual intercourse before childbirth. Also for this research question, the mode of delivery did not reveal statistically significant differences ($\chi^2 = 20.927$; g = 1; p = 0.713).

Table 2: Satisfaction of women with sexual intercourse after childbirth

How satisfied are you with sexual intercourse after childbirth?	*f, f (%)*
I am more satisfied with sexual intercourse after childbirth than I was before childbirth	/
I am equally satisfied with sexual intercourse after and before childbirth	1938 (62)
I am less satisfied with sexual intercourse after childbirth than I was before childbirth	1125 (36)
I cannot assess	63 (2)
Total	3126 (100)

Note: f: frequency; f (%): percentage

In addition, we inquired about the frequency of sexual intercourse after childbirth (Table 3). More than a half of the women (57%) have sexual intercourse less frequently after birth. Sexual intercourse is more frequent in 8% of the women. A great percentage of the women (35%) could not give their assessment but would like to have sexual intercourse more frequently. The mode of delivery (vaginal delivery, caesarean section) did not reveal any statistically significant differences ($\chi^2 = 21.966$; g = 1; p = 0.875).

Table 3: Frequency of sexual intercourse after childbirth

How often do you have sexual intercourse after childbirth?	*f, f (%)*
After birth, I have more frequent sexual intercourse than before childbirth	250 (8)
After birth, I have less frequent sexual intercourse than before childbirth	1782 (57)
I cannot assess but I would like to have more frequent sexual intercourse	1094 (35)
I cannot assess but I would like to have less frequent sexual intercourse	/
Total	3126 (100 %)

Note: f: frequency; f (%): percentage

As part of the last research question, we were interested whether women encounter any problems during sexual intercourse after childbirth; and if they do, which are the most frequent problems. Women report that the most common problem accompanying sexual intercourse after birth is dyspareunia (Table 4). It represents 32.2% of all answers. The mode of delivery did not reveal statistically significant differences ($\chi^2 = 21.103$; g = 1; p = 0.943).

Table 4: Problems women frequently encounter during sexual intercourse after childbirth

Which of the problems/obstacles did you encounter most frequently during sexual intercourse after childbirth?	*f, f (%)*
I perceived changes in my vagina (strange bodily sensations, changed lubrication, etc.)	156 (5)
Dyspareunia (I feel pain during sexual intercourse)	1007 (32.2)
Since childbirth, I have been constantly thinking of our baby even during sexual intercourse	534 (17.1)
Shortage of time	616 (19.7)
I had difficulties accepting my changed body after childbirth	438 (14)
Our relationship with my partner changed so much after childbirth that it influenced our sexual activity	94 (3)
I did not have any problems/obstacles	281 (9)
Other	/
Total	3126 (100)

Note: f: frequency; f (%): percentage

Discussion

Changes in the period after childbirth can significantly affect the relationship between partners because sexuality plays an important role in their shared life. A childbirth may thoroughly change communication and sex life of a couple and therefore it is very important how partners accept their parent roles and at the same time remain sexual partners to each other. Based on the literature review and our survey we realised that about a third of the women (32.2%) suffer from dyspareunia after childbirth, and the risk is even higher in the presence of former dyspareunia and labour interventions (Buhling et al., 2006; Klein et al., 2009). Woolhouse et al. (2014) discovered that psychological factors also influence the frequency of sexual intercourse and women's satisfaction with it. Caring for a child can cause stress to a woman. Like others, our research similarly confirmed that poor self-image of women after birth can cause lower libido. Namely, quite a percentage of the women (14%) who answered our questionnaire had difficulties accepting their changed body after childbirth and some could not stop thinking of their baby during sexual intercourse (17%).

A common challenge that couples face in the postpartum period is a lack of open discussion about sex between partners and a shortage of information available from health care professionals about the spectrum of factors that may influence couple's sexual function immediately or soon after childbirth. In our research, as much as 35% of the women want to experience sexual intercourse more often; nevertheless, it is encouraging that as much as 57% are satisfied with the frequency of sexual intercourse. Taking into consideration that as much as 36% of the women report being less satisfied with sex after childbirth, we can assume that the background reasons could be insufficient taking of sexual history and discomfort of women or couples to openly discuss sexuality and the troubles they encounter. Slovenian women rarely attend sex therapy due to the consequences of childbirth on their sex life (Škodič Zakšek, 2015). Moreover, sexologists are almost non-existent in Slovenia. If we assume this to be a standard part of midwifery treatment, midwives need additional knowledge and skills. Only in the past few years, the existing midwifery educational system has included emphasis on education about discussion and treatment of sexuality (Mivšek, 2015). Already during pregnancy women and their partners experience sexuality in different ways which may in turn affect the first sexual intercourse after childbirth and sex after childbirth in general (Makara-Studzińska et al, 2015). The latter can also affect the child and his or her sexual development (Jug Došler, 2015). In addition, Lee and Yen (2007) call attention to the fact that health care professionals should play a more active role and more openly discuss sexual activity and (lack of) sexual pleasure with both partners during the first postpartum check-up with the gynaecologist. They came to the conclusion that individualised approach is the most appropriate form of sex education in the postpartum period. We would like to point out that in Slovenia there is no adequate program for the screening of sex-related problems that could improve the sex life of couples during very vulner-

able periods such as pregnancy and postpartum. Gynaecological clinics present a great potential for the introduction of new changes but due to overload of work they often cannot offer sufficient psychosocial help, information and advice to couples about their sex life.

Based on the literature review and the survey results, we can summarize that the obtained findings bear great importance and that future research on the subject matter is vital because Slovenia lacks empirical research in this field. Research of sexuality opens a new window into the structure, functioning and relationship between partners after childbirth. Therefore, understanding of this process is crucial for tackling various problems or for an honest conversation between the couple and health care professionals.

Conclusions

The survey results represent a starting point for finding solutions in the field of improvement and satisfaction with sex life after childbirth, also in terms of receiving appropriate professional advice, information and assistance from health care professionals. Optimal sexual health is comprised of various physical and psychological factors and calls for an open dialogue that encourages women to discuss such sensitive issues openly. Female sexual dysfunction may be triggered by numerous factors of the endocrine system as well as many psychosomatic factors accompanied by anatomic changes during pregnancy and after childbirth, which in turn may also be influenced by mode of delivery. Almost 25% of the women after childbirth report experiencing sexual dysfunctions such as low libido, dyspareunia, anorgasmia and difficulty with lubrication. Most of them are related to lactation and/or are side effects of postpartum depression treatments. They also depend on the amount of rest and the amount of time and space for intimacy.

As appears evident from the survey, childbirth and challenges of the postpartum period influence the sex life of couples. In the postpartum period, women should receive enough information from health care professionals to live through it more easily. It is a responsibility of health care professionals to discuss it with women. Despite an abundance of literature on sexuality, it is limited to longitudinal methodological approaches and validation of standardized tools for situation assessments. Alongside, it would be essential to establish quality normative data on female and male sexual function in the postpartum period. We also need more research that would assess male sexual function and the role of the partner after childbirth.

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Prevalence of silent myocardial ischemia in working-age patients with type 2 diabetes mellitus

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Abstract

Introduction: Data confirm a relatively high prevalence of silent myocardial ischemia (SMI) in elderly patients with type 2 diabetes mellitus (T2DM), while no data are available regarding working-age subjects (≤60 years). *Methods:* Medical records of 192 patients with T2DM aged ≤60 years (110 male patients; 57.3%), who had undergone myocardial perfusion imaging (MPI) between 2010 and 2014 followed by coronary angiography in case of abnormal result, were retrospectively analysed. *Results:* MPI was positive in 35 patients (18.2%); of those 31 (88.6%) had angiographically confirmed coronary stenosis. The positive predictive value of the MPI for predicting angiographic coronary stenosis in this age subgroup was 88.9%. Univariate analysis revealed post-stress LVEF drop ≥5% ($p<0.03$) and NT-proBNP levels detected in stress ($p<0.05$) to be associated with greater risk of ischemia in working-age T2DM patients. In multivariate analysis, LVEF drop ≥5% ($p< 0.03$) remained an independent predictor of SMI.
Conclusion: Prevalence of SMI in diabetic working-age patients was similar to that observed in studies of subjects over 65 years-old. Post-stress LVEF drop ≥5% and NT-proBNP levels can contribute to more precise identification of SMI. Our data suggest that "aggressive" management strategy should be implemented to reduce the risk of cardiac events in T2DM patients of working-age.
Keywords: scintigraphy, silent myocardial ischemia, diabetes mellitus

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.103-111

Myocardial ischemia is often asymptomatic in patients with type 2 diabetes mellitus (T2DM) and coronary artery disease (CAD) is frequently in an advanced stage when it becomes clinically manifested. Silent myocardial ischemia (SMI) is defined as objective evidence of myocardial ischemia in the absence of typical chest discomfort or other anginal equivalents. It is a common, under-recognized marker of a significant underlying CAD associated with future cardiovascular events and poor prognosis. SMI is an important public health issue, and its early detection may prevent many episodes of sudden cardiac death annually (Cosson et al., 2005; Le Feuvre et al., 2011; Vasiliadis et al., 2014). Diabetic patients have a higher prevalence of SMI and recognised myocardial infarction than patients without diabetes (MacDonald et al., 2014). There are some data about the prevalence of SMI in T2DM patients in elderly at high risk for cardiovascular disease (Inoguchi et al., 2000; Faglia et al., 2002; Lima et al., 2004; Mohagheghie et al., 2011; Rawshani et al., 2017). However, data about the prevalence of SMI in working-age subgroup of the diabetic population remain limited.

Stress single-photon emission computed tomography (SPECT) is a validated imaging tool providing information on the physiological significance of flow-limitation and is also a cost-effective for risk assessment of the major adverse cardiac events in the general and diabetic populations. SPECT could accurately assess both myocardial perfusion and ventricular function in diabetic patients, providing important information for their management and is helpful in these situations (De Keyzer et al., 2011). Moreover, left ventricular (LV) function analysis in SPECT can enhances its prognostic and diagnostic ability, particularly in the prediction of SMI (Sharir et al., 1999). We sought to evaluate the prevalence of SMI detected by SPECT myocardial perfusion imaging (MPI) in association with some less recognised diagnostic predictors of it in T2DM asymptomatic patients of working-age.

Methods

We retrospectively analysed medical records of 192 (110 male pts; 57.3%) chronologically consecutive asymptomatic working-age (≤60 years) patients with T2DM, who had undergone MPI subsequently followed by coronary angiography in case perfusion abnormalities were found. MPI was performed from 2010 to 2014 at a single outpatient care centre with nuclear medicine unit, according to the EANM procedural guidelines for stress-rest ECG gated SPECT one-day protocol using 99mTc-tetrofosmin (Verberne et al., 2015). Perfusion images were judged blindly by two specialists independently using the 17-segment ASNC model, and SMI was diagnosed consensually as myocardial perfusion abnormalities without associated symptoms. Stress (cycle ergometry) and rest myocardial perfusion abnormalities were described as reversible (ischemia), fixed (scar), or mixed (scar and ischemia). The summed stress score (SSS) and summed rest score (SRS) were obtained, with the summed difference score (SDS) being the difference between the two. A mild ischemic defect was

defined as showing the presence of a SDS ≥ 2. A moderate perfusion defect was defined as a SDS ≥ 2 in > 1 segment, and severe perfusion defect was defined as a SDS ≥ 3 in > 1 segment in stress images. Calculation of left ventricular ejection fraction (LVEF) and ventricular volumes was performed by using quantitative software for endocardial and epicardial boundaries automatically tracing. Patients with abnormal MPI were referred for coronary angiography. Angiographic images were assessed blindly to the MPI data and significant stenosis was defined as ≥50% for LAD, and ≥75% for other coronary arteries.

LV dysfunction was defined as post-stress LVEF drop ≥5% and/or transient ischemic dilatation of LV in stress against rest. The levels of NT-proBNP were measured at rest and within 3 minutes in the early recovery stage of exercise testing.

All participants gave written informed consent before enrolment in the study, which was conducted in accord with the principles of the Declaration of Helsinki. All patients were carefully assessed for classic coronary risk factors: age, sex, obesity, smoking, essential hypertension, dyslipidaemia, a family history of CAD, duration of diabetes, diabetic complications (Table 1).

Table 1: Clinical and laboratory characteristics of the subjects included in the study.

Clinical and laboratory characteristics	*Diabetic patients (n=192)*
Age (years)	52.3 ± 6.7
Male (n/%)	110/57.3
Obesity (n/%)	151/78.6
Smoking (n/%)	3/1.56
Hypertension (n/%)	107/55.7
Dyslipidaemia (n/%)	140/72.9
Family history of CAD (n/%)	28/14.6
Duration of diabetes (years)	5.0 ± 3.2
Retinopathy (n/%)	20/10.4
Nephropathy (n/%)	13/6.8
Neuropathy (n/%)	7/3.6
Glucose (mmol/l)	7.8 ± 2.6
HbA1c (%)	7.2 ±1.3
High-sensitivity CRP (mg/l)	2.2 ±2.3
Total-C (mmol/l)	6.2 ± 3.5
HDL-C (mmol/l)	0.96 ± 0.4
LDL-C (mmol/l)	4.2 ± 1.8
Triglycerides (mmol/l)	3.9 ± 2.4

Note: Data are expressed as the mean ± SD, number and percentage.

Continuous variables were expressed as mean values ± standard deviation, and frequencies as the number and percentage of patients. Between-group comparisons were made by means of non-parametric Mann–Whitney *U* test.

Bivariate associations were tested using t test and Fisher's exact test. To identify the factors independently related with SMI univariate and multivariate analysis was performed. *P* values of <0.05 were considered statistically significant. Statistical analyses were carried out using IBM SPSS Statistics V.19 software.

Results

MPI results showed that 157 (81,8%) patients had normal myocardial perfusion, while 35 (18.2%) patients showed perfusion defects on MPI (Table 2). In 33(17.2%) cases it was defined as reversible and in 2(1.0%) as mixed.

Table 2: MPI results.

Result	*MPI (n=192)*
Negative (n/%)	157/81.8
Positive (n/%)	35/18.2

Note: Data are expressed as number and percentage.

12 (33.4%) out of the 33 reversible perfusion defects were described as mild, 14 (42.4%) – moderate, and 7 (22.2%) – severe.

31 (88.6%) patients out of the 35 with abnormal MPI findings represented an abnormal coronary angiography. In 15(48.4%) out of the 31 patients it was defined as 1 vessel disease, in 10 (32.3%) – 2 vessels disease and in 6 (19.3%) – 3 vessels disease. 9 (29.0%) patients with positive angiographic results represented diffuse disease and vessel occlusion was detected in 2 (6.5%). Coronary anatomy did not allow any revascularisation procedure in 13 (41.9%) of the patients with abnormal coronary angiography.

These results emphasize the incremental diagnostic value of MPI for evaluation of SMI in this specific subgroup of the diabetic population. MPI have showed a very good degree of specificity of the test (97.6%) with a positive predictive value of 88.9% for predicting angiographic coronary stenosis (Table3).

Table 3: Evaluation of MPI in predicting angiographic coronary stenosis.

Statistic	*Value*	*95% CI*
Sensitivity (%)	69.5	61.5–82.6
Specificity (%)	97.6	79.9–99.3
PPV (%)	88.9	73.6–95.6
NPV (%)	50.6	48.9–52.3

Note: PPV: positive predictive value; NPV: negative predictive value; CI: confidence intervals

We observed that retinopathy (OR 2.32; 95%-CI: 1.05–5.13; p>0.05), nephropathy (OR 2.12; 95%-CI: 1.0–6.13; p>0.5), and neuropathy (OR 1.70; 95%-CI, 1.07–2.71; p>0.05) were not associated with abnormal MPI.

Post-stress LVEF drop ≥5% was observed in 32 (91.4%) patients out of the 35 with abnormal MPI findings. In 29(82.9%) cases it was associated with post-stress transient ischemic dilatation of LV. Patients with LVEF drop ≥5% had higher SDS (p<0.01), but no significant difference in rest LV values (p >0.05) compared to patients without perfusion defects.

There was no significant difference between mean rest NT-proBNP level in MPI-negative against MPI-positive subgroups (182±80ng/l vs. 198±60ng/l, p>0.5), but patients with SMI had a significantly higher mean post-stress NT-proBNP level (889±92ng/l vs. 226±80ng/l; p<0.05).

Univariate analysis revealed post-stress LVEF drop ≥5% (p<0.03) and NT-proBNP level detected in early recovery stage of stress testing (p<0.05) to be associated with greater risk of ischemia in working-age T2DM pts. In multivariate analysis, LVEF drop ≥5% (p<0.03) remained to be an independent predictor of SMI.

Discussion

T2DM is a chronic metabolic disease, which results not only in significant direct medical costs but also in indirect productivity losses due to disability and early mortality in working age population. Almost 75% of diabetic decedents without clinical CAD have high-grade coronary atherosclerosis. Autopsy studies have identified a high prevalence of coronary atherosclerosis in patients with diabetes, even among those without clinical CAD (Goraya et al., 2002). The prevalence of SMI in the diabetic population is very variable in the different studies, ranging from 12% to almost 57%, and it is 3 to 6 fold higher than in asymptomatic non-diabetic population (Inoguchi et al., 2000; Wackers et al., 2004; Freeman, 2006; Le Feuvre et al., 2011). Several mechanisms are integrated in the SMI genesis. Endothelial dysfunction secondary to T2DM may play a role, leading to an inappropriate coronary flow response to increasing myocardial metabolic needs (coronary vascular tone abnormality). It is also due to an increased pain feeling threshold in diabetic patients, probably secondary to an elevated beta-endorphins rate. These two abnormalities are associated with an impaired autonomic nervous system.

The patients enrolled in the study were truly asymptomatic, working-age subjects with T2DM, free from known CAD. There were not typical clinical signs of angina at the time of referring patients for MPI. The patients were referred mostly from the clinics for diabetes and metabolic disorders or internal diseases. They were on contemporary medical treatment and were under reasonable metabolic control. Yet, 35 patients (18.2%) had evidence of SMI, including 21 with moderate-to-severe reversible perfusion abnormalities and 30 with stress-induced ST-segment changes. The prevalence of perfusion abnormalities

in our study was somewhat lower than the 22% observed in the DIAD study (Wackers et al., 2004) but a bit greater than 15,7% obtained in an earlier study from France (Janand-Delenne et al., 1999). However, the lower prevalence reported in this earlier study likely reflects differences in patients selection. Subjects were of younger age, with T1DM and T2DM and perfusion abnormalities were assessed visually with somewhat less sensitive technique. Moreover, imagings were performed only if the initial exercise ECG stress test was abnormal or equivocal. Thus, patients who would have had perfusion abnormalities were likely missed. On the other hand, it should be noted that the prevalence of perfusion abnormalities in DIAD study is considerably higher than that reported in our study, reflecting the results of adenosine perfusion imaging in a slightly older sample of patients (50-75years).

In a recent study of silent CAD detection in a cohort of 102 asymptomatic T2DM subjects (57±7years), attending 5 Italian outpatient clinics, a significant higher prevalence of silent CAD was observed in subjects with abnormal vs. normal ECG (23 vs. 4%; P=0.004), but not in subjects with high vs. low pretest silent CAD risk (14 vs. 9%; p=0.472). An abnormal ECG was defined to be a strong, independent predictor of silent CAD (OR 8.9; CI 1.27-62.5; p=0.028) in T2DM (Vigili de Kreutzenberg et al., 2017).

Our second goal was to identify predictors of MPI abnormalities. Demographics, traditional cardiac risk factors, diabetes complications, and biomarkers were analysed. Overall predictors of SMI in working-age cohort of T2DM patients were post-stress LVEF drop ≥5% and NT-proBNP levels detected in stress. In univariate analysis, only post-stress LVEF drop ≥5% was the factor associated with moderate-to-large perfusion defects abnormalities that raise substantial clinical concern. In working-age patients with diabetes, post-stress LVEF drop showed to be an independent predictor of stress-induced ischemia and increases the risk of subsequent cardiac events in T2DM patients. However, a fall in LVEF is detectable also in patients with normal myocardial perfusion. These findings suggest that a post-stress LVEF drop may be related to a specific diabetic cardiomyopathy in the absence of myocardial perfusion abnormalities. Diabetic complications such as retinopathy, nephropathy and neuropathy showed not to be significantly associated with either test abnormality or marked perfusion defects. In addition, traditional cardiac risk factors (male gender, hypertension, smoking and family history, or dyslipidaemia), previously reported as risk factors for CAD and poor outcome (De Keyzer et al., 2011) were not associated with SMI in working-age T2DM patients.

Conclusions

Prevalence of T2DM in working-age population is high and still rising in Europe. Both diabetes and pre-diabetic states are risk factors for CAD. Their emergence starts many years before clinical events appear, developing silently, in parallel with the progression from pre-diabetic status to T2DM (Alegria-Barrero, 2014). Our study suggests that 18.2% of asymptomatic working-age pa-

tients with T2DM have SMI. More importantly, 13.7% of them have markedly abnormal (moderate-to-severe) myocardial perfusion abnormalities. This justifies screening for SMI by non-invasive and cost-effective technique such as SPECT MPI in subpopulation of T2DM patients of the working-age. LV function testing may have an important role in the SMI risk assessment because of the association shown in the present study between LVEF drop ≥5%, NT-proBNP levels detected in stress and perfusion defects occurring. The presented data address only the prevalence, severity, and possible predictors of SMI at the time of enrolment into the study and suggest that advanced intervention procedures including "aggressive" drug management should be implemented to reduce the risk of cardiac events in forthcoming future. Follow-up evaluation should allow to define the relationship between abnormal perfusion imaging and the prevalence of cardiac events in asymptomatic T2DM patients of working-age and to evaluate the effectiveness of "aggressive" preventive strategies.

Acknowledgment

This study was supported in part by a grant from KEGA (Cultural and Educational Granting Agency) 066PU-4/2016, Ministry of Education, Science, Research and Sports of the SR. The research was designed, conducted, analysed, and interpreted by the authors entirely independently of the funding source.

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Ensuring equality through the acquisition of cultural competencies in nursing education: A systematic literature review

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Abstract

Introduction: The number of migrants continues to increase. Appropriate education methods towards the acquisition of cultural competencies of nurses are one of the ways of promoting ethical efficient healthcare systems and services. The research is based on a purposeful literature review where through the discourse of interculturalism available evidence, describing the teaching/learning strategies regarding cross-cultural care and the acquisition of cultural competencies among nursing students, is evaluated. *Methods:* A systematic literature review following PRISMA guidelines. *Results:* Four studies that met the criteria has been found which explains the teaching/learning strategies for acquisition of cultural competencies through four different models: Papadopoulos, Tilki and Taylor model for developing cultural competence, Campinha-Bacote's model, Leininger's Sunrise Model, and 3-dimensional puzzle model of culturally congruent care. Discussion: Although cultural competencies in nursing have long been recognized as essential part of clinical practice, future research should explore additional teaching/learning methods and incorporate evidence based practice and problem-based learning strategies into nursing curriculums to develop cultural competence in nursing.
Key words: cross-cultural competencies, transcultural nursing, women's health, education

In 2014, it was estimated that in the European Union immigrated approximately 1.9 million people from non-member countries (Statistics Explained, 2017). However, it is noticeable that over time researchers from nursing and healthcare devoted their attention mainly to the male migrants. Nowadays more attention and research interest is focused on female migrants; although, most of the research highlights the migration process as gender oriented pro-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.113-121

cess and not as much from the nursing or healthcare oriented perspective (Rosulnik, 2015). Other research findings suggest that women from culturally diverse background are faced with poor health outcomes, mainly due to inaccessible health services, language and cultural barriers, and finally, institutional racism, which is often the result of ignorance of healthcare professionals (Szczepura, 2005).

The statistics data is clear that migrant population in the European Union is increasing, which suggests that education in transcultural nursing to allow nurses to provide culturally competent care, is needed. Due to fast-changing multicultural society culturally appropriate nursing will soon be, if it is not already, increasingly important to Slovene nurses too. To prepare nursing students to be effective practitioners in this multicultural society, nursing educators must design cross-cultural curricula by introducing the transcultural nursing curricula in women's health. One of main goals of such education is to gain cultural competences. The latter is defined as a set of skills that allows individuals to increase their understanding of cultural differences and similarities within, among, and between cultural groups (Mareno and Hart, 2014; Núñez, 2000). Nursing education programmes should provide a foundation of such knowledge and prepare graduates to meet the demands of this changing multicultural society (Gebru et al., 2008).

However, to define cultural competence, we must first define culture. Culture can be defined as the learned and shared knowledge and symbols that specific groups use to interpret their experience of reality and to guide their thinking and behaviour (Prosen, 2015). The major focus of transcultural nursing is to focus on the humanistic and scientific study of individuals from different cultures with consideration to ways in which nurses can assist those individuals meet their health and living needs (Reyes et al., 2013). Thus, cultural competence can be defined as continual process of striving to become increasingly self-aware, to value diversity, and to become knowledgeable about cultural strengths (Bonecutter and Gleeson, 1997).

Considering the changing demographics in European Union at this period it is imperative that nurses appreciate the impact of culture on health. For that reason, the research is based on a purposeful literature review where through the discourse of interculturalism available evidence, describing the teaching/learning strategies regarding cross-cultural care and the acquisition of cultural competencies among nursing students, is evaluated. In accordance with the aims and objectives of the research, the following research question was set: What models can we use, from an international perspective, for teaching/learning cultural competence related to women's health?

Methods

Search strategy

A review of the literature was conducted in April 2017 to identify available evidence, describing the teaching/learning strategies in nursing education in order to obtain cultural competencies among nursing students. The search was conducted by using online bibliographic databases such are PubMed, Cinahl, and ScienceDirect. For search terms a combination of Medical Subject Headings (MeSH): '*transcultural nursing*', '*culturally competent care*', '*cultural competency*', '*cultural diversity*', and '*education, nursing*'; phrases: *Transcultural nursing*, *Cultural Care*, *Cultural Competence*, *Cultural Diversity*, *Nursing Education*; and free text or keywords: *Nursing*, *Transcultural*, *Culturally Competent*, *Cultural Care*, *Culturally Congruent*, *Cross-Cultural Care*, *Culturally Competent Health Care*, *Competency*, *Cultura*l, *Cultural Competencies*, *Cultural Competence*, *Competence*, *Cultural Diversities*, *Multiculturalism**, *Cultural Pluralism*, *Nursing Education*, *Educations*, *Nursing*, *Nursing Educations* were identified.

Study selection

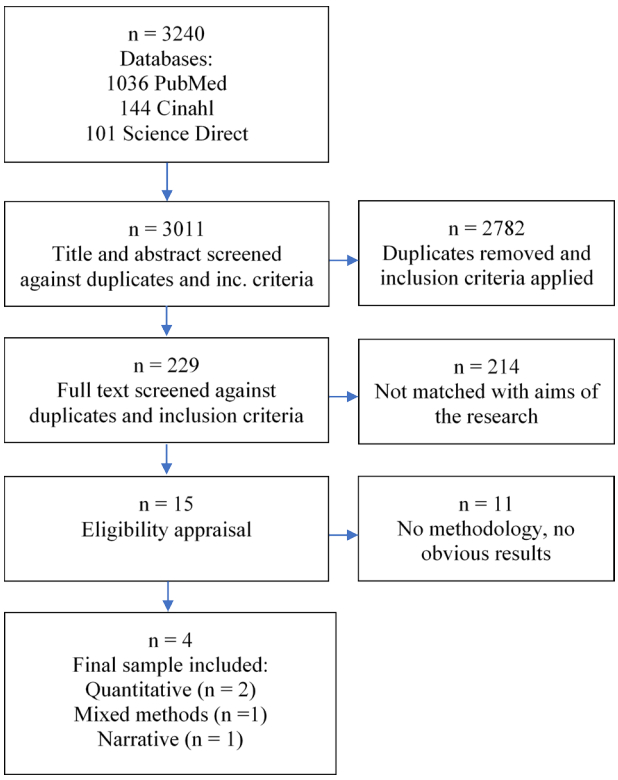

Figure 1: PRISMA search process (Moher et al., 2009)

A search was undertaken in each database and to support the relevance to the research purposes, literature published between 2006 and 2017 was extracted. A sample of 3240 papers was obtained. The titles and abstracts were screened by three authors, duplicates were removed and the inclusion criteria (English language, full text availability, and primary study in peer-reviewed journal) were applied. After removal of duplicates, 299 articles were left, of which another 224 were subsequently excluded because of inadequacy in terms of the inclusion criteria based on the purposes of this research. Four studies that met the criteria were finally included in the qualitative analysis.

The search process, which used the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) (Moher et al., 2009), is outlined in Figure 1.

Data extraction

Data extraction included author, year, country where the research was conducted, study aim, study design, and study conclusion (Table 1).

Results

The final analysis (Table 1) included 4 studies; one mixed methods two quantitative and one narrative article (Figure 1).

Table 1: Study characteristics of included studies.

Author, year, country	*Aims*	*Design*	*Findings*
(Kouta et al., 2016) Cyprus	To present the cultural competence level of community nurses before and after a cultural competence workshop as an intervention.	Quantitative: pre- and post-test (n = 92 community nurses)	The findings indicated that this training intervention seemed to be effective as it increased nurses' cultural competence levels.
(Bauer and Bai, 2015) United States of America	To determine the effects of the course on the five constructs of the Campinha-Bacote Model as well as perceived cultural competence.	Mixed methods: Evaluation forms – (n = 34 nursing students) (The Campinha-Bacote Model).	The evaluation indicated that learning modules focusing on experiential learning activities to address constructs of the Campinha-Bacote Model can help develop levels of cultural competence.
(Lenny and Peng, 2014) China	To assessed the effectiveness of three teaching methods for developing cultural competency based upon Leininger's theoretical framework.	Quantitative: pre- and post-test (n = 305 nursing students) comparisons of all participants in four areas of cultural knowledge (Evaluation of Transcultural Nursing Competency - ETNC)	The results of this research indicated that case study, traditional didactic teaching and self-directed learning all significantly improved the students' knowledge of transcultural nursing.

Author, year, country	*Aims*	*Design*	*Findings*
(Schim and Doorenbos, 2010) United States of America	To describe an emerging model of culturally-congruent care and discuss ways in which it can guide intervention for nurses, and other health care workers.	Narrative article with a description of a Three-dimensional Model of Cultural Congruence	The model describes cultural diversity, cultural awareness, cultural sensitivity, and cultural competence variables for providers and several central domains of cultural similarity and difference at the client level.

In line with the inclusion criteria for this study, all papers examined one or more of the following: Evidence of Culture and Cultural Competencies (Knowledge, Abilities, Sensitivity and Keenness to do it correctly; Becoming aware and conscious), Evaluation of the transcultural nursing competency (Cultural awareness, Compassion, Cultural skills, Cultural competence in practice), and teaching/learning strategies. A broad range of research approaches were used including: (i) quantitative: descriptive evaluation, pre-post survey, longitudinal design, (ii) mixed methods, and (iii) narrative research design.

Regarding the aims of the research, the following teaching/learning strategies used in selected literature are:

- Papadopoulos, Tilki and Taylor model for developing cultural competence (PTT model): The model refers to the nurse's student capacity to provide effective health care that takes into consideration the patient's cultural beliefs, behaviours and needs in the nursing process. The model includes four components of cultural competence: 1) cultural awareness, 2) cultural knowledge, 3) cultural sensitivity and 4) cultural practice. Further, the PTT model emphasized the need for nurses to have both culture specific and culture-generic competence (Kouta et al., 2016).
- The process of cultural competence in the delivery of healthcare services (Campinha-Bacote's Model): Campinha-Bacote's model, the process of cultural competence in the delivery of healthcare services, includes five constructs: cultural awareness, knowledge, skill, encounters, and desire. Campinha-Bacote defined cultural awareness as an intentional cognitive process in which providers appreciate and gain sensitivity to the values, beliefs, and practices of diverse cultures; cultural knowledge as an educational foundation of various world views which includes biocultural ecology and ethnic pharmacology; cultural skill as the ability to collect cultural information regarding health and performing a culturally specific physical assessment; cultural encounters as the way in which healthcare providers directly engage in cross-cultural encounters; and finally, cultural desire as the motivation to want to engage in the process of cultural competence (Bauer and Bai, 2015).

- The theory of care diversity and universality (Leininger's Sunrise Model): The sunrise model, which depicts the theory of cultural care diversity and universality, illustrates the concepts, showing culturally congruent care, cultural care maintenance, nursing actions, folk systems, professional healthcare systems, clients, holistic well-being, and numerous cultural factors are all interconnected. In short, nurses who value and practice culturally congruent care can effect positive healthcare changes for clients of various cultures (Lenny and Peng, 2014).
- 3-dimensional puzzle model of culturally congruent care: The model is currently described as a 3-dimensional model in which culturally congruent care is the result of nurses and clients working together with cultural respect and humility. This current 3-D model includes two levels: a provider level in which the cultural competencies a provider must have to participate in culturally congruent care continue to be represented by the puzzle model developed in 2004, and a client level. The provider level of the puzzle has 4 components: (i) cultural diversity, (ii) cultural awareness, (iii) cultural sensitivity, and (iv) cultural competence behaviours. This level of the model has been more fully articulated elsewhere and has been used as the basis for a Cultural Competence Assessment tool for use with diverse healthcare providers and professional students (Schim and Doorenbos, 2010).

Discussion

The studies included in this review focused on teaching/learning strategies regarding cross-cultural care and the acquisition of cultural competencies among nursing students as well as on the outcomes of improvement of students' knowledge of transcultural nursing. After intervention 25 % of community nurses who participated in the workshop improved their cultural competence level based on the Culturally Competent Tool of the PTT Model (Kouta et al., 2016). While the study did not use qualitative data as a measure of effectiveness, such data, especially regarding nurses' evaluation of the program and the course work, can further enhance and improve a program and should be considered (Kouta et al., 2016). Students in the next study (Bauer and Bai, 2015) significantly improved ($p < 0.001$) each aspect of the cultural competency model after completion of the course. The total competence score improved from 'culturally aware' (score of 68.7 at pre-) to 'culturally competent' (score of 78.7 at post-) (The total scale ranges from 25 to 100. A score of 25 to 50 indicates cultural incompetence, a score of 51 to 74 reflects cultural awareness, and a score of 75 to 90 specifies cultural competence, and a score of 91 to 100 designates cultural proficiency). The findings of this study indicated that learning modules focusing on experiential learning activities and designed to address constructs of the Campinha-Bacote Model can help develop levels of cultural competence

(Bauer and Bai, 2015). The results of the third study (Lenny and Peng, 2014) revealed that the differences between the pre- and post-test scores were significant for each of the three teaching methods ($p < 0.001$). The case study method elicited the highest post- test total scores followed by traditional didactic teaching and self-directed learning. Additionally, the case study method resulted in the greatest improvement between the pre- and post-test scores among the three methods, which suggests that the case study method was the most effective instructional approach (Lenny and Peng, 2014). Last study involved in this research (Schim and Doorenbos, 2010) describes cultural diversity, cultural awareness, cultural sensitivity, and cultural competence variables for providers and several central domains of cultural similarity and difference at the client level. The model addresses the presence and influence of systemic and organizational elements that create barriers to culturally-congruent care. Derived from this model, a systematic way to consider interventions is suggested.

Overall, the results are consistent with other literature, which commonly reports high levels of transcultural competences acquisition with the use of similar education approaches (Gallagher and Polanin, 2015; Gebru and Willman, 2003; Loftin et al., 2013; Papadopoulos et al., 2016; Shattell et al., 2013). In this regard, a variety of models describing cultural competence's multiple dimensions it has become a focus of attention over the past several decades (Loftin et al., 2013). Teaching and learning strategies about culturally competent practice in nursing educations are essential to ensure a culturally competent health care workforce (Shattell et al., 2013). In studies of cultural competence education in nursing, findings support that the addition of culturally competent content increases on culturally competence measures, as students gain experience during their education (Allen, 2010; Lampley et al., 2008; Majumdar et al., 2004). After the identification of necessary awareness issues, knowledge, and skills, obtained cultural competences among nursing students should be assessed thus, the appropriate instruments to measure the obtained competences are required (Ličen and Plazar, 2015).

Conclusions

Cultural diversity is an issue that faces all healthcare workers today. Globalization requires that nursing education focuses on culturally competent care. Nurses should be informed about the diverse needs of different patients in order to understand and contribute to their satisfaction. Future research should explore additional teaching/learning methods and incorporate evidence based practice and problem-based learning strategies into nursing curriculums to develop cultural competence in nursing.

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Physical activity, physical fitness and prevention: Role for the working population

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Abstract

Introduction: Physical inactivity and increasing daily screen time is an emerging health problem within the working population as well in the general population worldwide. This is called the exercise deficiency syndrom (EDS).On the other hand a large number of single studies as well of meta-analysis strongly support the positive health effects of regular physical activity. Discussion: Regular physical activity (PA) is now widely accepted as one of the most important factors to maintain or improve health and to prevent numerous non-communicable diseases. PA reduces risks of all-cause- and cardiovascular morbidity, mortality. Therefore, PA is a cornerstone in prevention and therapy of many diseases thus improving quality of life and longevity. PA also counteracts the effects of sitting time and sedentary lifestyle (EDS). PA acts like a drug: there are many indications, a non-linear dose-response curve, many somatic and psychosomatic effects, few side effects and contraindications. Similar results can be observed for physical fitness assessed by maximal watt or Vo2 max in exercise testing. PA therefore is the real polypill for prevention and therapy of many diseases. Conclusion: There is now a general agreement and convincing evidence that regular PA including daily life activities are essentials for maintaining health in the working age population. For staying health and preserving health, everybody should reduce or avoid the four main risk factors: no smoking, regular PA, healthy diet and normal body weight.
Key words: Physical activity; exercise deficiency syndrom; fitness; exercise prescription; training

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.123-134

Regular physical activity and aerobic exercise training are related to a reduced risk of fatal and non-fatal coronary events in healthy individuals, subjects with coronary risk factors, and cardiac patients over a wide age range. A sedentary lifestyle is one of the major risk factors for CVD (Karmali et al., 2013). Physical activity and aerobic exercise training are therefore suggested by guidelines as a very important non-pharmacological tool for primary and secondary cardiovascular prevention (Piepoli et al., 2016, Löllgen et al., 2009). In the EU, 50 % of the citizens are involved in regular aerobic leisure-time, and/or occupational physical activity and the observed increasing prevalence of obesity is associated with a sedentary lifestyle; moreover, probably less than one-third of patients eligible for cardiac rehabilitation are offered this service.

Biological rationale

Regular aerobic physical activity results in improved exercise performance, which depends on an increased ability to use oxygen to derive energy for work. Primary adaptations occur in the working muscles with increase of mitochondria and improved biochemical substances and enzymes thus improving local muscle endurance properties with increased oxygen extraction in the working muscle. This will be the basis for regular physical activity.

Moreover, myocardial perfusion can be improved by aerobic exercise, with an increase in the interior diameter of major coronary arteries, an augmentation of microcirculation, and an improvement of endothelial function. Additional reported effects of aerobic exercise are antithrombotic effects that can reduce the risk of coronary occlusion after disruption of a vulnerable plaque, such as increased plasma volume, reduced blood viscosity, decreased platelet aggregation, and enhanced thrombolytic ability and a reduction of arrhythmic risk by a favourable modulation of autonomic balance (Pescatello 2014, Piepoli et al., 2016, Rowe et al., 2014).

The preventive effects of regular activity also take place in older adults in a similar way as described above with a dependency on activity amount and intensity (Löllgen et al., 2009). Physical activity has positive effects on many of the established risk factors for CVD therefore reflecting a pleiotropic effect. Physical activity prevents or delayes the development of hypertension in normotensive subjects and reduces blood pressure in hypertensive patients (James et al., 2014). HDL cholesterol levels are increased, control of body weight is improved, and the risk of developing non-insulin-dependent diabetes mellitus is lowered by activity.

Healthy subjects

In healthy subjects, growing levels of both physical activity and cardiorespiratory fitness are associated with a significant reduction (20 - 30 %) in risk of all-cause and cardiovascular mortality, in anon-linear dose–response fashion (Löllgen et al., 2009, Shiroma et al., 2014) The evidence suggests that risk of dy-

ing during a given period continues to decline with increasing levels of physical activity and cardiorespiratory fitness. This is true for both men and women and across a broad range of ages from childhood to the very elderly. These findings are derived from prospective non randomised cohort studies with predefined study groups, with physically active and a control group, a current standard in epidemiological research. Further evidence on the benefit of physical activity are derived from four large meta-analyses (Class I, Evidence A, Grade strong) (Löllgen, 2013, Löllgen et al., 2009) (Figure 1). These meta-analyses have been adjusted for confounding risk factors (i.e. smoking, diet etc.).

Sedentary lifestyle

In the last years, there is growing evidence that negative effects of sedentary lifestyle is significantly enhanced by sitting time per day, especially the so-called „screen-time", that is watching TV, PC-work, PC games and surfing the internet. A recent meta-analysis confirmed this to be a significant cofactor for cardiovascular risks (Class I, Level A, Grade strong). Most of the mortality-reduction effect seems to rely on a decrease in cardiovascular and CHD mortality. The level of decreased coronary risk attributable to regular physical activity is similar to that of other lifestyle factors such as avoiding cigarette smoking or Mediterranean diet. The risk of CVD (including CHD and stroke) or CHD alone is significantly reduced in more physically active or fitter persons, with a relative risk reduction nearly twice as great for cardiorespiratory fitness (CFR) than for physical activity increase at all percentiles (Kokkinos et al., 2006, Kokkinos et al., 2016). A possible explanation for the stronger dose–response gradient for fitness than for physical activity is that fitness is measured objectively, whereas physical activity is assessed by self-reports and questionnaires that may lead to misclassification and bias towards finding weaker physical activity or health benefit associations (Moore et al., 2012). Altogether, sedentary life style, too much sitting and screen time over hours can be summarized as **E**xercise **D**eficiency **S**yndrom (EDS) as an important risk factor for many diseases in the working population.

Physical activity intensity (Dose – response relationship)

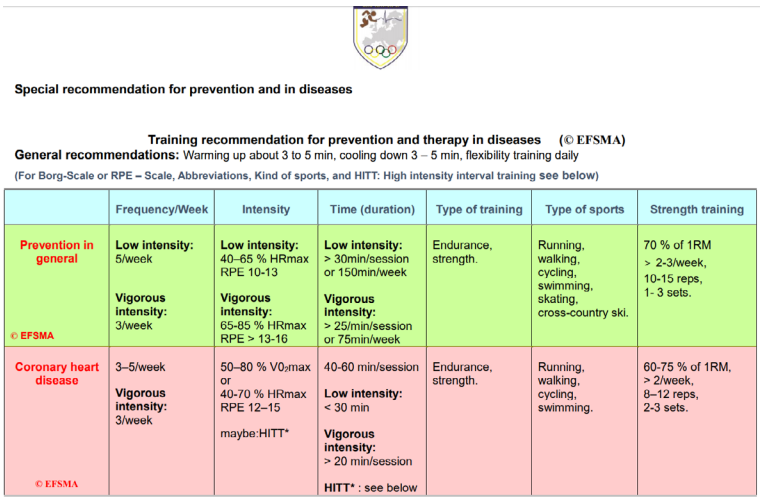
Some meta-analyses also present data on dose-response relationship for physical activity vs risk reduction. The results of all studies confirm a non-linear relationship (Shiroma et al., 2014). The most significant relative decrease of mortality occurs from sedentary lifestyle or inactive phase to low or moderate intensity of physical activity. This then means that little activity is better than nothing.

Change from moderate to vigorous activity increases training response and additionally reduces the relative risk for mortality, but to a lesser degree (percentage) than the first (moderate) intensity category. This is emphasized by the flattening of the dose response curve with very vigorous activity. Two re-

cent single centred prospective cohort studies confirmed these results showing significant increased longevity in the physically active group by about 4 to 7 years. This can be converted to the reciprocal value indicating a mortality reduction with increased amount of activity of about 22 to 40 % (Moore et al., 2012). These studies also underscore the non-linear relationship of mortality reduction with amount of physical activity (Class I, Level A, Grade strong).

Training recommendation (FITT): Frequency, intensity, time, and type

All health related medical and non-medical societies involved in healthy life style recommend regular physical activity for at least 150 min of moderate intensity on 3 – 5 days a week or at least 75 min /week for vigorous intensity for e.g. 3 days a week for healthy individuals (Class I, level A) (Figure 1). Longer duration and intensity of activities may further increase the health benefits with a lower extent only. Combination of both training modalities are possible. In general, intensity of exercise is superior to duration of exercise to improve physical capacity (Table 1). Volume in this context is frequency times duration and intensity. Available evidence suggests that the total weekly volume of physical activity/aerobic exercise training can be obtained by summing multiple daily bouts of exercise, each lasting ≥10 min. Physical activity/aerobic exercise training should be distributed over most days of the week.



Special recommendation for prevention and in diseases

Training recommendation for prevention and therapy in diseases (© EFSMA)

General recommendations: Warming up about 3 to 5 min, cooling down 3 – 5 min, flexibility training daily

(For Borg-Scale or RPE – Scale, Abbreviations, Kind of sports, and HITT: High intensity interval training see below)

	Frequency/Week	Intensity	Time (duration)	Type of training	Type of sports	Strength training
Prevention in general © EFSMA	**Low intensity:** 5/week **Vigorous intensity:** 3/week	**Low intensity:** 40–65 % HRmax RPE 10-13 **Vigorous intensity:** 65-85 % HRmax RPE > 13-16	**Low intensity:** > 30min/session or 150min/week **Vigorous intensity:** > 25/min/session or 75min/week	Endurance, strength.	Running, walking, cycling, swimming, skating, cross-country ski.	70 % of 1RM > 2-3/week, 10-15 reps, 1- 3 sets.
Coronary heart disease © EFSMA	3–5/week **Vigorous intensity:** 3/week	50–80 % VO_2max or 40-70 % HRmax RPE 12–15 maybe:HITT*	40-60 min/session **Low intensity:** < 30 min **Vigorous intensity:** > 20 min/session **HITT*** : see below	Endurance, strength.	Running, walking, cycling, swimming.	60-75 % of 1RM, > 2/week, 8–12 reps, 2-3 sets.

Figure 1: Examples for recommendations for physical activity prescription: Primary prevention and coronary heart disease (Zupet et al., 2015).

Types of activity

Examples of physical activity/aerobic exercise training involve not only sport-related activities such as hiking, running or jogging, skating, cycling, rowing, swimming, cross-country skiing, and performing aerobic classes, but also lifestyle-common activities such as walking briskly, climbing stairs, and gardening work. In addition, engaging in active recreational pursuits contributes to health effects. Housework no longer has training effects due to the automatic machines used. In the elderly, walking and nordic walking is effective in promoting fitness.

Prescription of exercise and physical activity: Frequency, intensity, time and type (FITT)

In general, regular physical activity is prescribed like a drug (see below) by frequency, intensity, duration and type of activity (FITT). In addition, progression, and total amount are in use. Examples and criteria for exercise intensity are given in Table 1. For additional extensive fitness, adults may increase their aerobic activity up to 300 minutes a week of moderate- intensity, or 150 minutes a week of vigorous- intensity aerobic physical activity, thus increasing cardiopulmonary capacity. For long-term development and conservation of health related fitness and risk reduction, moderate intensity recommendations are first line and most important approach (150 m /week of moderate and 75 min / week of vigorous exercise). Ratings of perceived exertion related to exercise intensity with Borg scale are given in Table 1. It can be easily used by healthy and ill subjects. The *rate of progression* within an exercise program depends on the individual's health and fitness status. To get started, the advice is *start low and go slow*. Details and comprehensive informations are given in the ACSM Guidelines (Pescatello et al., 2014) and Swedish recommendations (Swedish Nat. Inst. Public health, 2010). Strength training exercises are recommended to perform twice a week (Pescatello et al., 2014). A single exercise session includes warming-up, cooling down and flexibility exercises as part of preventive and rehabilitation program. For older adult at risk of falls, repeated exercises should be performed to maintain or improve balance and flexibility.

Risk assessment

To avoid complications and cardiac events during exercise, healthy subjects should be evaluated prior to engaging in regular physical activity/aerobic exercise training. The exercise-related risk of major cardiovascular events in ostensibly healthy people is exceedingly low, ranging from 1 in 500 000 to 1 in 2 600 000 patient-hours of exercise.

As recently proposed for leisure-time sport activities in middle-aged/senior subjects, the risk assessment accuracy should be tailored to the individual's cardiac risk profile, the current level of habitual physical activity, and the intended level of physical activity/aerobic exercise training, with a more aggres-

sive screening (i.e. exercise testing) for people who are sedentary, who are older (> 35ys), who start again with physical activity after long duration of inactivity and/or with cardiovascular risk factors.

Significant signs of latent diseases are dyspnoea, chest pain, palpitations, dizziness or even syncope. The current controversy on whether you can do too much of a good thing (i.e. exercise) should be kept in mind, but recent findings and many studies clearly show that the adverse effect of regular physical activity must be rejected due to many bias in the proposed studies (Sanchis-Gomar 2016). For the moment, there is a clear opinion that positive effects of regular exercise clearly outweigh the small risk, if any, in healthy subjects. Starting slow and go slow is the best advice to avoid a risk, especially in those subjects, which are adults or older adults and start again with exercise training. If maximal stress test is not feasible, a submaximal test such as 6-minutes walking test may be considered, although the correlation between VO_2 peak and distance walked are moderate (Pescatello et al., 2014, Liu et al., 2014). Spiro-Ergometry, if available, is nowadays not only helpful but the gold standard for diagnosis of cardiorespiratory fitness and training counsellation.

Exercise as a polypill

Table 1: Evidence based indications for prescribing regular physical activity (Löllgen et al., 2013).

Diseases	*Level of Evidence*
Coronary artery disease	IA
Artery Hypertension (4-8 mmHg)	IA
Chronic obstructive lung disease	IA
Heart failure	IA
Cancer (colon, breast, lung)	IA
Osteoporosis	IA
Metabolic syndrome and Diabetes Mellitus	IA
Chronic kidney disease	IA
Peripheral arterial disease	IA
Cognitive mental disorder	
Dementia	IB
M. Alzheimer	IB
Depression	IB
Stroke	IA
Fibromyalgie	IA
Parkinson's disease	IB
Chronic bowel disease	IA
Bipolar disease	IIB

Exercise prescription for health concept is similar to prescription of medication during drug therapy. It should also be applied for patients. Exercise as a drug depends on indications, dosage can be choosen individually, there is a (non-linear) dose-response relationship, regular exercise has somatic and psy-

chosomatic effects, side effects are possible but rare, and contraindications are all acute diseases (Vina et al., 2012). Consequently, exercise prescription for health has now being introduced in many countries in Europe, North America and Australia /New Zealand. (Zupet et al., 2015; Vina et al., 2012; Löllgen et al., 2015; www.efsma.eu). It is unanimously recommended that regular aerobic exercise is encouraged in patients with heart failure and cardiovascular disease, esp. CAD, to improve functional capacity and symptoms (Class I, Level A, Grade: Strong).

Preparticipation examination

In patients, generally *pre-participation examination* is necessary, including stress testing and echocardiography if indicated. Spiroergometry as the golden standard improves informations on physical fitness. In patients with CVD, available data now allow definition of anaerobic exercise training weekly volume (frequency, intensity, time) similar to that indicated for healthy subjects (Table 3). This chapter and the following demonstrate the excellent positive effects of physical activities acting like a drug. Physical activity during rehabilitation after acute myocardial infarction reduces risk for death significantly by about 20 to 30 %. Risk for reinfarction does not change. Most studies confirm that physical training is the most important component of rehabilitation (Class I, level A). In a single randomised controlled trial, which enrolled 100 patients with single vessel coronary artery disease, intensive physical activity (daily training) had similar or better effect as PCI.

A meta-analysis including mainly middle-aged men, most of whom had a previous acute myocardial infarction and the rest with a previous CABG or percutaneous transluminal coronary angioplasty or affected by stable angina pectoris, showed a 30 % reduction in total cardiovascular mortality for aerobic exercise training programmes of at least 3-months' duration. This percentage increased to 35 % when only deaths from CHD were considered. Insufficient data were available on to the effects of aerobic exercise training on revascularization rates; moreover, aerobic exercise training did show no effect on the occurrence of non-fatal myocardial infarction.

In any case, recent data confirm the existence of an inverse dose–response relationship between cardiovascular fitness (evaluated by treadmill stress testing) and all-cause mortality in large populations of both male and female cardiovascular patients with a history of angiographically documented CHD, myocardial infarction, CABG, coronary angioplasty (PCI), chronic heart failure, peripheral vascular disease, or signs or symptoms suggestive of CHD during an exercise testing. The results were the same irrespective of use of beta-blocking agents. With moderate physical activity, incidence of cardiac arrhythmias may be reduced as has been shown in one single study. So, these findings are significant for working persons returning to work after cardiac events such as myocardial infarction.

Risk during training in cardiac diseases

In general, the occurrence of major cardiovascular events during supervised aerobic training in cardiac rehabilitation programmes is rare: from 1 in 50 000 to 1 in 120 000 patient-hours of exercise, with fatality incidence ranging between 1 in 340 000 and 1 in 750 000 patient/hours of exercise. The same is also true for patients with chronic heart failure and reduced left ventricular function, New York Heart Association class II–IV symptoms, and treated with optimal, guideline-based background heart failure therapy. More evidences are needed therefore training supervision is now facilitated by tele monitoring.

Heart Failure

The effects of aerobic exercise training on cardiac mortality rate in patients with chronic heart failure have been evaluated in a meta-analysis. Overall, moderate to vigorous intensity aerobic exercise training resulted in improved survival in patients with chronic heart failure due to left ventricular systolic dysfunction, and time to readmission to hospital was also significantly extended. Regular physical activity not only reduces morbidity and rehospitalisation but also mortality. Left ventricular function increases as shown by Vo2max and ejection fraction. Physical capacity thus is improved and quality of life increased by 27 % (Edelmann et al., 2011, Kitzmann et al., 2010).

Current multicenter study demonstrated that high intensity interval training (HIIT) in patients with cardiac failure can be safe and effective in increasing physical capacity (Class II a, Evidence B). During interval exercise, there are short bouts with high intensity (up to 90% of maximal exercise capacity) alternating with lower recovery periods. This kind of training improves cardiorespiratory fitness within short time (some months). HITT can also be combined with endurance training as a kind of basis training. However, one large, just finished multicenter study on HITT shows that there is no difference on the long time between endurance training or HIIT (Smartex-Project). Therefore, interval training will only be partly integrated into the physical activity program. Endurance training will be the mainstay of training in primary and secondary prevention. For competitive athletes, such a combination of longer duration endurance training together with longer intervals is well established since long.

General recommendations for physical activity

For long-term development and conservation of health related fitness and risk reduction, moderate intensity recommendations are first line and most important approach (150 min/week of moderate and 75 min/week of vigorous exercise). Ratings of perceived exertion related to exercise intensity are between 11 and 13, they can easily used by healthy and ill subjects. The *rate of progression* within an exercise program depends on the individual's health and fitness status. To get started, the advice is *start low and go slow.* Details and comprehen-

sive informations are given in the inte website of EFSMA (www.efsma-scientific.eu), the ACSM Guidelines (Pescatello et al., 2014) and Swedish recommendations (Swedish Nat). On the EFSMA website, detailed recommendations for all diseases and for prevention are listed (Figure 1). Especially, intervention like physical activity improve work life- balance, prevent burn-out or depression and symptoms of fatigue thus enhancing satisfactory of working people.

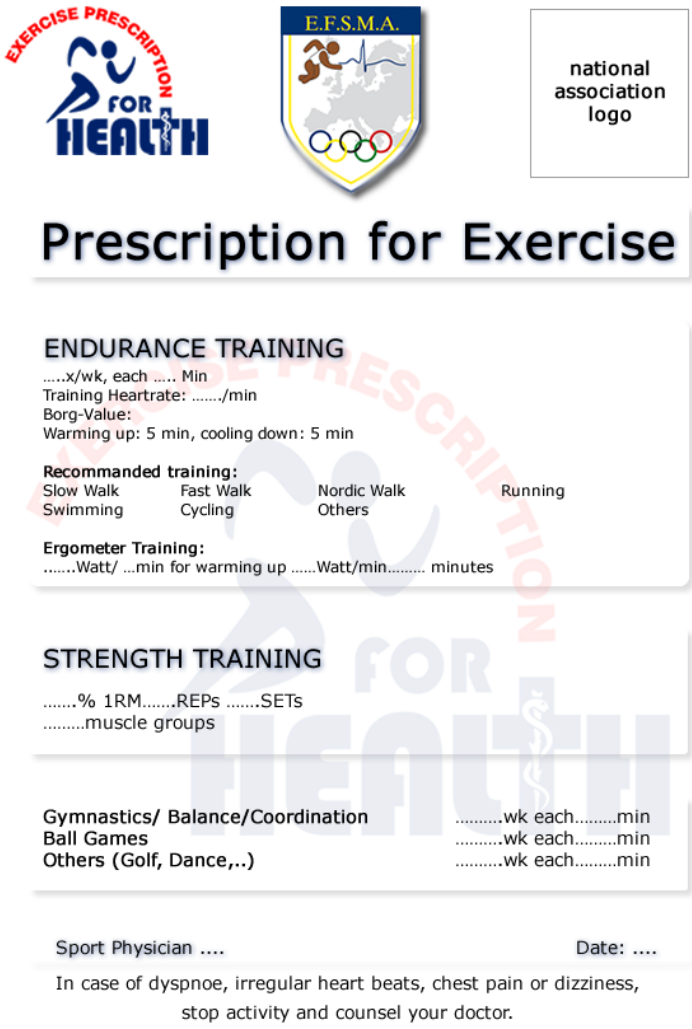


Figure 2: Exercise Prescription for Health (Löllgen et al., 2013, Zupet et al., 2015).

Population based approaches to physical activities at the workplaces

There is a need for comprehensive worksite fitness and wellness programmes together with education in healthy diet and nutrition. Fitness centers at work-

site can be considered. Worksite programmes should be well structured to encourage working people to be active even during working time. Use of stairways should be encouraged with visible signs and short hints on the health promotion by using staircases instead of elevators. Repeated short time exercise bouts (5 – 10 min. duration) during work can also be enough to reduce cardiovascular risk. The non-linear dose–response relationship between CFR and reduction in cardiovascular risk observed in primary prevention also applies to the secondary prevention setting. Advice that every doctor at every contact with a patient should ask for his physical activity improves patient's adherence to an active lifestyle. Role and sustainability of modern technology in improving health and motivating people to more physical activity. This comprises wearable technology, exergaming and App's to be downloaded.

Conclusion

Physical inactivity and sedentary lifestyle are among the three most frequent risk factors for cardiovascular diseases. Conversely, regular physical activity in prevention, rehabilitation and therapy, reduces cardiovascular morbidity, mortality and disability, improves cardiovascular function and quality of life as well as metabolic disorders. Similar effects are observed for hypertension, some central and peripheral diseases and diabetes mellitus. Effects of physical exercise are similar or superior to a single drug therapy. Exercise prescription for health should be used in healthy subjects and in all patients. Due to its pleiotropic action, physical activity has to be an essential part of prevention and therapy of in- and outpatient's therapy. Wearable technology will support training recommendations in the near future as do exergaming and many Aps which can be downloaded to the smartphone.

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The quality of sexual life after experiencing the episiotomy birth

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Abstract

Introduction: Episiotomy is a surgical cut of the perineum during childbirth to widen the pelvic outlet. The evidence shows women are less interested into sexual intercourse in the period after birth than they were before or during the pregnancy. This is the consequence of the changes in the postpartum period and often affected also by the perineal trauma. The purpose of literature review is to study the connection of perineal trauma on pain during sexual course in the postnatal period. *Methods:* Descriptive research method has been used, based on the review of relevant national and international literature on the scientific and professional level. The review of the literature took place in the January 2017, with the help of international databases. Searching terms included the following *Key words:* »episiotomy«, »sexuality«, »postpartum« and »dyspareunia«. The literature searching was limited on the Slovenian and English language and included the relevant papers published between 2007 and 2017. *Results:* The incidence of episiotomy in Slovenia is lower than 30 % and varies between individual birth hospitals. The first episiotomy is a frequent reason resulting in women's fear of their first sexual intercourse, mostly the accompanied pain. *Discussion and conclusions:* The research shows that dyspareunia is more common in women having a vaginal birth, especially if the woman sustained a perineal rupture or episiotomy. Women usually return to their sexual life before the pregnancy after 6-12 months after birth. The quality of sexual life may be affected the whole year after childbirth.
Key words: sexuality, postpartum period, perineal trauma, genital pelvic pain

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.135-141

Episiotomy is a surgical incision into the perineum in order to assist the birth of a baby (Dahlen, 2015). The correct performance of the cut is of crucial meaning for the future sexual life of the labouring woman.

Episiotomy

The recommended use is restrictive (only in the case of indications such as foetal distress and the urgent need to finish the labour quickly) (Jiang et al., 2017). In case of the need for episiotomy, the correct timing to perform the procedure is when 3-4 cm of presenting part of the baby is visible in between the contractions. Local anaesthetic should be applied before the procedure (Dahlen, 2015). National Institute for Clinical Excellence - NICE (2017) suggests mediolateral type of episiotomy that must be executed in one clear cut. The recommended length of the incision is 2 and not more than 4 cm. The cut should start at the midpoint of the fourchette, directed mediolateral at a 45-60° angle, toward the ischial tuberosity (Kalis et al., 2017).

If the start of episiotomy is too lateral, Bartholin's glands can be damaged and if performed too soon, episiotomy can cause more bleeding (Holmes and Baker, 2006) and the musculus levator ani (Dahlen, 2015) that pays a major role in the woman's sexual excitation can be damaged. Episiotomy also weakens perineal muscles (Walsh, 2007) and can predispose woman to perineal trauma, therefore routines use is not advised (Jiang et al., 2017).

Dyspareunia

Dyspareunia is genital-pelvic pain, evoked by the penetration during the sexual intercourse and is classified as a sexual dysfunction by American Psychiatric Association – APA (2013). It can be expressed as a local pain at the vaginal introitus or a diffuse pain in the pelvis. The nature and intensity of pain varies. Dyspareunia can be primary or secondary and is closely connected to vaginismus and/or vulvodynia (Edwards and Bowen, 2010; World Health Organization - WHO, 2010).

The incidence of dyspareunia is increasing (APA, 2013), especially among young women. Systematic review by Latthe et al. (2006) showed that studies report very different rates of dyspareunia. Numbers in the reviewed studies varied from 8 to 21.8 %. Slovenian online study among women under the age of 30 (N = 408) revealed prevalence of 15.4 % (Kovačič, 2014).

The causes for dyspareunia can be physical or psychological (WHO, 2010). In the case of vulvo-vaginal pain are physical causes more common, especially common cause is perineal trauma (Edwards and Bowen, 2010). This can be closely connected with episiotomy. A very important determinant of postpartum sexual function is perineal pain and resultant dyspareunia (Škodič Zakšek, 2015).

Slovenian online study among 368 women who gave birth in the last 24 months and had episiotomy during it showed that women often postpone first

sexual intercourse after the birth due to fear of pain (77 %). 331 of them reported lower sexual desire and among those, 45 % of them identified pain as the most common cause (Grabner, 2015).

Therefore authors were interested in investigating the connection between dyspareunia and episiotomy after the childbirth.

Methods

Descriptive research method has been used, based on the review of relevant national and international scientific literature. The review of the literature took place in the January 2017, with the help of international databases.

Searching terms included the following key words: »episiotomy«, »sexuality«, »postpartum« and »dyspareunia«. The literature search was limited on the Slovenian and English language and included the relevant papers published between years 2007 and 2017. Later on the search was narrowed to the publications in the last five years in order to get the best and newest evidence.

The following databases were searched: CINAHL, Cochrane Library, EIFL Direct, MEDLINE, ScienceDirect, ProQuest, ERIC, Midirs and Embase.

We excluded studies of dyspareunia among women after different gynaecologic operations, with simultaneous mental health problems and studies among women with dyspareunia due to congenital malformations of reproductive organs. Excluded were also studies that investigated dyspareunia after the perineal lacerations, vacuum extraction, cesarean cestion or spontaneous delivery with intact perineum.

The search returned alltogether 77 references. Studies were sorted according to exclusion criteria. At the end 14 sources were included in the review (2 from CINAHL, 1 from Cochrane, 2 from EIFL Direct, 3 from Science direct and 6 from Springer).

Results

Sexual disfunctions are more common in postpartum year as in other periods of women's life (Abdool et al., 2009). Buurman & Lagro-Janssen (2013) have found in their qualitative study 73 % incidence of sexual disfunctions in the puerperium. Their sample was small and one could argue that their research design provide insufficient results. However also Rosen and Pukall (2016) and Khajehei et al. (2015) confirmed high incidence of problems in sexuality in the postpartum period. When comparing the incidence 3-, 6-, and 12- months postpartum it is obvious that the ratio of sexual dysfunctions decline in time after the childbirth (Khajehei et al., 2015).

In the case of perineal trauma Williams et al. (2007) found out that women experience in 54,5 % sexual dysfunctions even after 12 months after the birth. Some authors (Doğan et al., 2017) report impact of the episiotomy on sexual desire, arousal and orgasm even 5 years after the birth. On contrary some stud-

ies did not found differences in reasuming sexuality postnatally among women with episiotomy or those with intact perineum (Lagana et al., 2015; Kramna and Vrublova, 2016).

Dyspareunia is reported by 41 %-67 % of women 2 to 3 months postpartum in case of some kind perineal trauma quote Yeniel and Petri (2014). Acele and Karacam (2012) report even higher proportions of postnatal women with dyspareunia – 58,3 %. Necesalova et al. (2016) investigated diferrences in incidence of dyspareunia after mediolateral and lateral episiotomy. Women of both groups reported similar proportions of pain during sexual intercourse – 15,6 % in the group with mediolateral episiotomy and 16,1 % in the group with lateral episiotomy.

The studies by Acele and Karacam (2012), Boran et al. (2013) and Sayasneh and Pandeva (2010) confirmed the results of older studies (Rogers et al., 2009; Klein et al., 2009) that episiotomy is more frequently connected to dyspareunia than ruptures of perineum. Statistically significant differences in the incidence of dyspareunia were found with higher age and presence of sexual problems already in the time of pregnancy (Acele and Karacam, 2012). Women with episiotomy in general have lower postpartum sexual function on FSF (Female Sexual Function) Index in comparison to those with no episiotomy (Lukas, 2014).

Discussion

Many postpartum changes may afect sexual health after the birth – even non-organic. One of those might be also the changes in the relationship after the arrival of the new family member (Simšič, 2009). Physical changes can affect sexuality indirectly (for example higher levels of oestogen or tiredness) (Acele and Karacam, 2012) or directly (like perineal trauma) (Luire et al., 2013). Dyspareunia can be also a result of incorrect perineal repair (Dahlen, 2015).

Women with perineal trauma tend to resume sexual activity later than women with intact perineum (McDonald and Brown, 2013). However women in general have decline of sexual life in the postpartum period, no matter what the mode of delivery was, claim Faisal-Cury et al. (2015) and women in general report dissatisfaction with the sexuality in the postnatal period (Khajehei et al., 2015).

When looking at the results of the studies that investigated the effect of episiotomy on the prevalence of dyspareunia in puerperium, the evidence are inconclusive. Further meta-synthesis should examine the differences in the proportions of dyspareunia among women with episiotomy, second degree lacerations or intact perineum.

Conclusions

Dyspareunia is one variable that may have a negative impact on women's lives and her partnership, especially if she cannot share her own sexual feelings and difficulties to her partner and health professionals.

Through the article we have shown that episiotomy birth may affect woman's sexual life during the first year postpartum with more frequent pain, sexual dissatisfaction and decreased libido.

Perineal trauma affects women's physical, psychological and social wellbeing. This is the reason why clinicians, midwives and health care providers need knowledge and skills of sexual postpartum counselling, perinatal clinical care and treatment. They should be educated in order to counsel women regarding the potential postpartum sexual feelings and difficulties and to promote or improve the quality of their sexual functioning and relationship with partner.

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Women's experiences with perinatal loss of a child

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Abstract

Introduction: Perinatal death is an extremely sensitive area in a parents' life since it is considered to be the most painful of losses. From health care professionals it requires expert and compassionate treatment that will help parents in the process of coping with the loss of a child. Health care professionals should be able to listen and to be receptive to parents' needs and not become insensitive to their grief. The purpose of the research was to gain insight into the experiences of women in Slovenian maternity hospitals who have experienced the loss of a child in the perinatal period. *Methods:* A quantitative research approach was based on an online survey convenience sample of women (n = 114) who have experienced the loss of a child in the perinatal period. Women were previously requested to participate via online forums and groups where they also get a link to the online survey. The survey was conducted from January to June 2015. The data were analyzed using basic descriptive statistics. *Results:* The results showed that the majority of women which have experienced perinatal loss of a child, wants to talk about their experience. Health care professionals have been mostly empathic, respectful and supportive to them in the treatment. Despite the fact that health care professionals are sensitive to the needs and aspirations of women and respect their feelings, their professional behavior in emotionally demanding situations was more reserved, which is against the wishes and women's needs. This is sometimes due to the way of working, which allows and encourages more rigid professional behavior. *Discussion and conclusions:* In the area of perinatal palliative care there is the need to further improve understanding of the needs of grieving parents among health care professionals and additionally trainings to work with bereaved parents. It is also necessary to overcome the shortcomings in the system of treatment to be more supportive to grieving parents.

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.143-148

Keywords: perinatal death, needs of grieving mothers, health care professionals, help

Death in old age is more widely recognized, but when death and loss relate to the opposite extreme of age, we are quite uncertain (Mander, 1994). No one expects his child to die before him - we see the death of the child as something that should not have happened and is against natural laws (Globevnik Velikonja, 1997; 2000).

Stillbirth is defined as the birth of a child after the 22nd week of pregnancy, when child has no signs of life, and at the age of weighing at least 500 grams or the length of his body at least 25 centimeters (Statistical Office of the Republic of Slovenia, n. d.). Barfield (2011) adds that during the perinatal death we also count all live births, who died in the first 7 days of life.

The health care of a deceased newborn should be directed to the whole family, and requires health professionals to individually address the physical, emotional, social and spiritual needs of the mother and child or family from the beginning of the delivery process to the adaptation of the entire family (Skoberne, 1991). In this point, Globevnik Velikonja (1999) adds that the real needs of mourning parents depend on their individual feelings, personality and circumstances of the child's death, but nevertheless they all deserve to be treated with the utmost sensibility. The field of pediatric palliative nursing in Slovenia is an extremely poorly explored area, therefore, we wanted to gain insight into the experience, feelings and emotions by women who experienced a loss of a child in a perinatal period. Thus, on the basis of their personal experience, we would highlight and emphasize the advantages or disadvantages of treatment by healthcare professionals.

Methods

The research was based on a quantitative research approach. The convenient sample included women (n = 114) who experienced a child's loss in the perinatal period. The data were collected using an online survey questionnaire from January to June 2015. The question sets in questionnaire were related to the display and expression of respect, empathy and emotions, respect for decision-making, needs and wishes of mothers, respectful communication, information, providing psychological assistance, and about respecting the spiritual or cultural needs of mothers by healthcare professionals. Replies were processed using basic descriptive statistics.

Results

Most women (76%) who experienced a child's loss in a perinatal period wanted to talk about their experiences and would like to speak today. They needed a conversation and it was helpful for them, but many did not dare to ask them or wanted to ask them about it.

The results of the research showed that the healthcare professionals were relatively respectful in relation to women, since they largely ensured intimacy of the moment (68%), took into account the needs for respectful, discerning and empathic communication and respected the feelings of women (76%), met the need for ‚being listened to' at least sometimes (78%) and for psychological assistance (50%), providing information related to child's death (50%). In a large proportion (97%), professionals also respected the decisions of the mothers (e.g., about the way of treatment, the place of burial), but in many cases (58%), mothers were also required to make decisions immediately after their birth (e.g., about the name of the child, the manner of burial etc.).

The need for information was largely neglected: information about treatment after discharge from hospital (31%), about possible consequences requiring immediate action (28%), and written information was not provided (42%).

In the area of emotional support for women, there were bigger deficits in the respondents' responses. The professionals did not meet the needs and fulfilled the wishes of women's own choice of the department where they would be accommodated (86%). Most (54%) were not able to spend the first night in the hospital with a partner, as well as not to coexist with him throughout the hospitalization (61%). They also did not have the opportunity to say goodbye to the deceased child after 12 hours (82%). In most cases, they were not encouraged to choose the child's name (80%), or to see the dead child (57%), to cradle it (56%), or to collect memories of the child (53%). The lack of emotional support also shows the answers about receiving attention by healthcare professionals always or sometimes (78%), yet in most cases (73%) they felt alone with their own pain. Comforting touches and time from healthcare professionals received slightly more than half women (56%).

In meeting the spiritual, religious and cultural needs about the method of childbirth, care or burial, 54% women did not have specific desires, however in 24% answers showed that treatment of this area has not been respected. Many of them also received inappropriate ‚comforting' comments from professionals related to the youngness of women and to the possibility of subsequent pregnancy or to already pre-existing children. According to the majority of respondents (78%), these comments were well-intentioned, but completely unnecessary.

Discussion

This research shows that in the future more attention should be paid to the needs and desires of women who lost their child in the perinatal period. Many deficits in treatment have been shown in the consideration of women's wishes and needs, as well as in informing, in showing compassion and emotional support, and in the sphere of spiritual, religious and cultural needs of women. According to Cehner et al. (2005), healthcare professionals should be more aware

of the needs of the grieving woman and family so that they can approach in a more integrated and individual way.

Although healthcare professionals were relatively respectful in relation to women and also respected women's decisions, they sometimes also required from women to make decisions right after birth. This, in contrast to Skoberne (1991), argues that the mother must not be required to make a decision immediately after the child's death. If the mother is not prepared yet for taking decisions in a postmortem Therefore, in no way mother should be forced to make decisions in the maternity ward, if she is not prepared yet.

The respondents also received too little attention. Healthcare professionals were not available when they needed help, which also led to bad events. If healthcare professionals do not know how to approach a mournful family, they prefer to withdraw or to comfort in a innapropriate way (Globevnik Velikonja, 1997). Grieving parents can be assisted in a better way by those who can give them the opportunity to speak about the loss and recognize that their child existed.

Therefore, healthcare professionals should avoid rigid professional behavior, they should be friendly and honest, and if they feel sad, they should not be ashamed of crying with grieving parents (Skoberne, 1991). The respondents also missed a warm and comforting word and respectful communication; on the contrary, some were receiving inappropriate remarks. Skoberne (1997) points out that affected parents can be alert and sensitive to every spoken word of healthcare professionals; they attach great importance to it, which obliges healthcare professionals to be more accountable for what they say (Skoberne, 1997). It is also important to take into account the individual wishes of a woman, e.g., the choice of department she will be accommodated. The least that healthcare professionals can do is to offer the woman the option of choosing a post delivery period accommodation or to encourage her to decide to stay in a private room at the maternity ward where the whole family will benefit from quality health care. It is necessary to take into account the women's desire to go to a department that is isolated from the child's crying and other mothers (Skoberne, 1997).

Informing women is also problematic area. Women missed the acquaintance, help and encouragement in collecting memories of the child, which is according to Globevnik Velikonja (1999; 2000) very important because these objects serve as evidence of a child's life and offer parents the opportunity to mourn. Since memories of the child all that remains, each one is valuable. The situation is similar with the encouragement of giving a name to the child, cradling a child and to say goodby to deceased child. Skoberne (1997) points out that the healthcare professionals should encourage parents (but not force them) to choose the name of the child, even if it is stillborn or die shortly after birth, to see it and cradle it, to say goodbye, give him their things, take photos, healthcare professionals take photos, or other impressions to have memories.

High deficits in treatment are also reflected in the emotional support of women. Skoberne (1997) states that, in general, the best assistance to parents at that time is genuine contact, based on the compassion, understanding and receptivity of an individual, thus emphasizes:

> „*We should not be afraid to ask them what they feel and whether they want to talk about their distress. Above all, let's listen to them. Even our silent presence or touch can be encouraging enough to encourage parents to express grief or help them regulate conflicting feelings they are experiencing*" (Skoberne, 1991, p. 72).

Although the research has shown that the spiritual, religious or cultural needs of women are not taken into account, it is necessary to think of what the Globevnik Velikonja (1999; 2000) emphasizes that some ritual like baptising the child before death may mean a great deal for parents, so we have to allow them to do so.

In Slovenia, the Solzice Association has already changed many things in the field of treatment after perinatal loss of a child. Training in Slovenian maternity hospitals should become a constant practice in order to make healthcare professionals better trained in dealing with women in case of perinatal death. New findings based on researching perinatal child loss experiences are so necessary, especially in relation to the Slovenian space Slovenian area.

Conclusions

Although the loss of a child in a perinatal period is more and more common, this topic is still a major taboo. In Slovenia, this is a little researched area, and further research are needed. It would also be interesting to compare the treatment methods in Slovenian maternity hospitals with the aim of transferring good practices. There is also a need for improvements in the educational programs themselves, which at this moment perhaps do not offer knowledge in a way that would prepare future healthcare professionals for coping and proper handling of such cases. It would be necessary to integrate and to cooperate with associations helping grieving parents. This can be an important source of information and awareness for healthcare professionals of what are needs that grieving parents have at the time of a child loss. Informal forms of education and lifelong learning as seminars, professional meetings are also welcome. At the same time, personal involvement and responsibility of each individual healthcare professional is also necessary. Healthcare professionals are the first who have an opportunity to create a memory of a lost child, thus enabling a woman and her family to mourn through the mourning process. Therefore, women who have lost a child in a perinatal period should be listened and helped in a personalized and individualized way.

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Work related stressors and quality of life of nurses

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Abstract

Introduction: Burnout syndrome is a state of mental and physical exhaustion caused by excessive and prolonged stress. The aim of the research was to determine the influence of stress factors on the quality of life of workers in the surgical and internal medicine department. Methodology: The study was designed as a cross-sectional study with 150 subjects. The research was conducted at the University Hospital Foca, surgical and internal medicine department. We used a sociodemographic questionnaire, a questionnaire to assess the health status and the work related scale of stress. Statistical analysis was performed using the SPSS ver. 24.0. *Results:* The frequency of the burnout syndrome as a response to chronic stress is high (20%). The lower level of the quality of life of the respondents was found in dimension mental health (49.36%) and vitality (62.93%). Workers on the surgical ward are most obvious overloaded (82.60%) and have a lower quality of life. Disscussion and Conclusion: The most common stress-related factors of workers in the surgical department are overloaded with work, financial constraints, call time, a small number of health care workers.
Keywords: professionals, stressful factors, nurses, quality of life

In recent years, the greatest attention of the scientific public has been attracted by the number of studies of the influence of stress or stress factors on the health status of employees (Kang et al., 2015; Rybojad et al., 2016).Therefore, the rate of interest in the study of stress and its consequences on employees in the health sector increases (Lin et al., 2015; Kowalczuk and Krajewska-Kulak, 2015). Research of stress in the workplaces in the health sector with the aim of preventing its harmful effects, which lead to lower life quality and reduction of working capacity due to illness, becomes increasingly important (Romano et al, 2015). Neither the students in scientific disciplines are exempt from stress,

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.149-154

especially those who are preparing for future positions in the medical profession (Kaewanuchit et al., 2015).In 1984 in the journal Nursing Mirror, Hingly wrote the following: "Nursing is by its very nature, a profession that is experiencing high levels of stress. Nurses are faced with suffering, pain and death; nursing interventions are not appreciative and spirited. Many are, by normal standards, unpleasant, others are degrading and some are scary" (Hingly, 1984, pp.19–22). Some researchers have questioned whether the cited sources of stress in the scientific literature, similar or the same for all nurses employed in hospitals or depend on the type of department. One of the areas of nursing that particularly attract attention of scholars are departments of emergency medicine and intensive care units, departments of surgery and oncology ward. There is agreement that the experience of stress caused by work diminishes the quality of nursing work (reducing the job satisfaction increased psychiatric morbidity and may contribute to the occurrence of some forms of physical diseases, particularly cardiovascular diseases and musculoskeletal system). Because of the importance and sensitivity of the work performed by nurses, interest in researching the quality of life and psychosocial aspects of their working environment emerged. Although quality of life and job satisfaction are different constructs, data from the literature show that they are mutually connected and that there are factors that affect both constructs (Stacciarini and Troccoli, 2004). The aim of the research was to determine the influence of stress factors on the quality of life between patients in the surgical and internal department.

Methods

The study was designed as a cross-sectional study with 150 respondents and was conducted University Hospital Foca surgical and internist wards, in the period from February 2016 to June 2016. Criteria for inclusion in the study were: respondents who work at least one year and are directly involved in the care and treatment of patients. Criteria for exclusion from the study were: respondents who work less than one year, patients who are not involved in the care and treatment of patients and subjects who did not respond to five or more questions or have circled the same answers to all the questions. The survey used sociodemographic questionnaire, a questionnaire to assess the health status (Short Form-36 Health Survey SF-36) (Ware, 1993) and the scale of stress in the workplace of hospital health workers ie. modified questionnaire based on the basis of a standardized questionnaire OSQ (Lindblom, 2006).The modification was made by selecting only a part of the question from the questionnaire, which was supplemented with specific issues related to the health profession. Respondents were offered 37 related to work stressors related to work organization, shift work, career advancement, education, professional requirements, interpersonal communication, communication of healthcare workers with patients, and fear of dangers (Lindblom, 2006).Statistical analysis was performed using SPSS ver. 24.0. The statistical test used was -squared test. As the level of statistical significance of differences, taken a common value of $p < 0.05$. For dis-

playing the average values the arithmetic mean and standard deviation were used. The correlation is done with the help of the Pearson and Sperman correlation coefficient test.

Results

The study included 150 respondents, aged 20 years and over, and the average age was 39.97 years (SD = 12.84). The youngest patient was 20 years old while the oldest participant was 60 years old. The share of the female population in this, as well as in the majority of similar studies were dominant (72%), which is expected, when it comes to the profession. There was a significant difference in terms of age and sex (χ^2 = 17,987; p <0.001). More than half of respondents are (66%) while the remaining 34% are not married.

Table 1: Arithmetical means and standard deviations domain of the SF-36 questionnaire with nurses and technicians working in surgical and internal medicine department.

Domains of the SF-36 questionnaire	*Workplace of respondents Mean (SD)*		
	Surgery department	*Internal medicine department*	*Surgery and internal medicine department*
Physical functioning	83.80 (16.78)	86.32(18.39)	85.20 (17.68)
Limitation due to physical health	73.13 (36.49)	76.50(37.92)	75.00 (37.20)
Body pain	79.55(24.06)	82.40(24.43)	81.13(24.22)
General health	69.17(14.83)	72.71(18.63)	71.13 (17.07)
Vitality	60.59(13.58)	64.81(13.97)	62.93(13.91)
Social functioning	70.29(24.20)	74.36(26.03)	72.55(25.23)
Limitation due to emotional problems	71.08(16.78)	86.32(18.39)	73.93 (36.26)
Mental health	49.94 (6.66)	48.90 (7.05)	49.36 (6.88)
Body health component	76.37 (17.73)	79.39 (19.65)	78.04 (18.81)
Mental component of health	63.43 (15.37)	66.56 (14.69)	65.16 (15.03)

Between the the groups of different places of work no statistically significant difference in physical function as a measures of physical health, with the largest percentage of respondents (84%) belong to the category of excellent physical function, 14% belong to a group that has a good physical functioning, while only 2% of respondents have a poor physical functioning. Very good functioning 64% of respondents, 26% have a good level of functioning, while 10% of respondents have a poor level of social functioning. Expressed limitations due to emotional problems has 27.3% of respondents, moderate limitations

has 2.7% of respondents, while the majority of respondents (70%) do not have due to emotional problems. That respondents who work at the surgical department rated stress factors at work with the highest grades in higher percentage compared to respondents who work at the internal department: work overload (82,60%),financial constraints (79,70 %), 24-hour responsibility (73,60%), on-call duty (68,53%), unforeseen situations (50,53%), incurable patients (51,46%), a small number of health workers (48,40%), public criticism (63,43%).Pearson's correlation coefficient (r) has shown that there is a statistically significant correlation between workplace stress and quality of life of respondents working at the surgical and internal department (r = 0,263; p <0,001). That correlation is low and negative for respondents who fall under the category of those who are more exposed to stress in the workplace show a poorer physical and mental component of life quality (Table 2).

Table 2: Correlation coefficients between total stress-related to work and quality of life of the respondents.

Stress in the workplace and the quality of life	*The correlation coefficient*	*Stress in the workplace and the quality of life (total score)*	*The quality of life*
Stress in the workplace (total score)	The correlation coefficient (r)	1	-0.263
	p		0.001
	Number of respondents	150	150
The quality of life	The correlation coefficient(r)	-0.263	1
	p	0.001	
	Number of respondents	150	150

Discussion

Our research has shown that healthcare workers show the best quality of health in physical functioning, absence of physical pain, limitations due to physical health problems and limitations due to emotional problems, in social functioning and general health. A lower level of health quality is seen in the median values of mental health and vitality. The most frequent factors of stress in our research: work overload, financial constraints, 24h responsibility, duty, contingency, incurable patients. Respondents who are more exposed to stress

in the workplace showed poorer physical and mental component of quality of life According to our research, the level of stress among nurses is very high (60%). The difference was also observed in the view that financial constraints are one of the main stressors. Quality of life is obviously the first psychological category, which does not arise automatically from satisfying certain basic needs, but from the whole psychological structure of the individual interacting with the physical and social environment in which he lives. The results of our research have shown that nurses rated their physical health as excellent, while mental health was rated as good. Compared to similar studies, the results of our research were significantly better than the results of the study conducted in Chile (Andrades Barrientos and Valenzuela Suazo, 2007), and lower than the results of the study carried out in Turkey (Cimete, 2003). By analyzing the quality of life domains, it has been found that nurses have shown the best quality of health in physical functioning, absence of physical pain, limitations due to problems in physical health, limitations due to emotional problems, social functioning and general health. Positive emotions at work are associated with better health, a higher degree of job satisfaction, responsible behavior at work, higher work performance and quality of work, greater resistance to stress and burnout, less likely to change jobs, better relations with other people (Habazin, 2013).

Conclusions

The workplace significantly influences the emergence of stress. Respondents working at the surgical department have a higher level of stress compared to respondents working at the internal department, and there is a significant correlation between professional stress and quality of life. Respondents who are more exposed to professional stress show a lower level of physical and mental components of life quality. The most frequent professional stress factors in the respondents are work overload, financial constraints, 24 hours of responsibility, on-call duty, unpredictable situations, incurable patients, a small number of health workers and public criticism.

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Slovenian workers – is it too hot to work?

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Abstract

Introduction: Frequency, duration, and intensity of heat waves have increased in Slovenia (and Europe), so the thermal resilience of workers is being addressed in the European Heat-Shield project (Horizon 2020). *Methods:* Wet bulb globe temperature (WBGT) index has been chosen to assess the thermal load of workers. Air temperature and relative humidity inside the factory are being measured to calculate WBGT, meteorological data were gained from the Celje station. A survey about heat stress impacts was conducted among workers (in the factory, farmers, tourist guides, in publishing house, at faculty). *Results:* In the factory reached air temperatures in August 2016 to 33°C, WBGT values were mainly between 20 and 25°C. Workplace temperature is during summer suitable for less than 5% workers in the factory and agriculture, and for 20% office workers. Heat stress has a negative impact on productivity, concentration, and well-being. Thirst, excessive sweating, tiredness, headache, and exhaustion are common (mainly more than 55%), some have already experienced worse health problems (nausea, prickly heat, muscle and heat cramps, fainting, heat stroke). *Discussion and conclusions:* As heat stress is already causing problems, various solutions for its mitigation will be developed and tested in the next step of the Heat-Shield project.
Keywords: heat stress, heat wave, workers, productivity, health, well-being

As it states in its Executive Summary, EU funded project Heat-Shield (HS, 2016) addresses the negative impacts of workplace heat stress on the health and productivity of the EU workforce. The main mission of the project is to access the negative impacts of workplace heat stress on the health and productivity of workers in strategic European industries (manufac-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.155-164

turing, construction, transportation, tourism and agriculture) and the potential increase of these impacts as climate change progresses. Results of the project should provide the know-how to the European community ranging from the individual citizen to public and private policymakers towards implementing methods and procedures that will secure health and productivity despite aggravated workplace heat levels.

According to World Health Organisation (WHO, 2015), it is anticipated that the rising temperatures in Europe during the 21st century will have significant detrimental impacts on the health of local populations – especially in occupational settings – and, as climate change becomes more prevalent, excess heat-related morbidity and mortality will rise between 3% and 6%. Air temperatures in Slovenia have already increased more than in average in Europe, for instance in Ljubljana in the period 1961–2011 by 0.4°C per decade, maximum values and summer averages even more (ARSO, 2014). Under the moderate RCP4.5 scenario it can be expected that will the average air temperature in Slovenia in 2011–2040 increase by 1°C regarding the period 1981–2010 and by another one degree in the next 30-year period (ARSO, 2016). Also, the number of hot days and heat waves is increasing; one example can be seen in Figure 1, showing the decadal number of days and average maximum air temperature in heat waves in Bilje in the period 1966–2015.

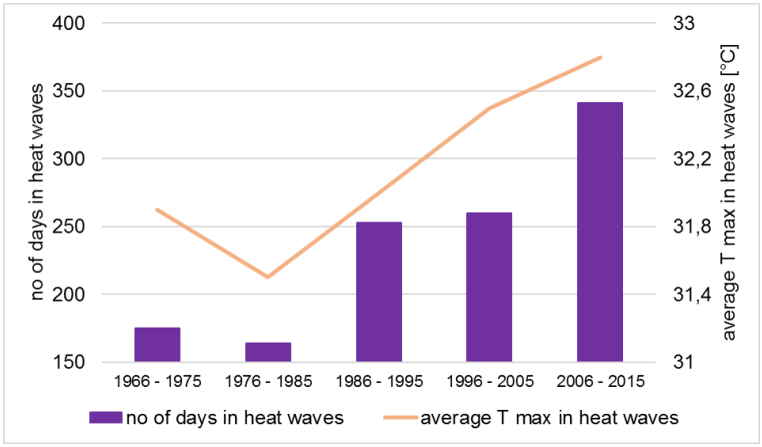

Figure 1: Decadal number of days (black) and average maximum air temperature (gray) in heat waves (at least 5 consecutive days Tmax ≥ 29.5°C) in years from 1966 to 2015 in Bilje(data: ARSO, 2016).

The hottest part of Slovenia is southwest. For example, in Bilje near Nova Gorica in 1960. and 1970. years in average 15 to 30 hot days (maximum daily air temperature equal or higher of 30°C) were detected per year, while in last 15 years there was 35 to 50 hot days per year. In 2003 daily maximum air temperature was higher than 30°C every day between 15 July and 24 August. There is also an increase in the number of tropic nights (minimum daily air tempera-

ture does not fall below 20°C), which have a negative effect on sleeping and regeneration after a hot day.

The 5-year Heat-Shield project has started in 2016, so it is at the end of its first stage, analyzing current working conditions in the five sectors. Heat stress is readily associated with high environmental temperatures and humidities (Bernard and Cross, 1999), so WBGT (Wet Bulb Globe Temperature) index has been chosen as the most appropriate one to describe working conditions (Gao et al., 2017) and will be used for monitoring, climate change projections and monthly forecasts. Some measurements of conditions in the manufacturing plant are presented, followed by results of heat stress survey among workers at various workplaces.

Methods

Air temperatures are measured every 15 minutes at several workplaces in the manufacturing plant near Celje at 1.5 and 0.05 m height along with relative humidity at 1.5 m. Measurements are carried out by Jozef Stefan Institute. Temperature and relative humidity data for 1 August to 20 August 2016 from one sensor at 1.5 m were used (the others have not work during last summer yet). WBGT index [°C] is calculated using Lemke and Kjellstrom (2012) formulation, following Bernard and Pourmoghani (1999). For in shadow/indoor conditions air temperature (Ta [°C]) and dew point temperature (Td [°C]); calculated from relative humidity) is used:

$$WBGT=0{,}67T\_pwb+0{,}33T\_a,$$

where T_{pwb} is a psychrometric wet bulb temperature (artificially created conditions with a wind speed of 3-5 m/s), determined by iteration from air and dew point temperature (equations in McPherson (2008)). Air temperatures at meteorological station Celje for the same period were obtained from Slovenian Environmental Agency.

Survey about heat stress at work, symptoms, health problems and their own solutions were made in the year 2016 among 808 workers using comprehensive questionnaires. Half of them are employed in manufacturing plant, 28% in agriculture (not necessarily their only financial source), 15% of participants work mainly in office (publishing house or Biotechnical Faculty), and 7% of them are tourist guides. Office workers were included for comparison although they do not belong in any of five sectors addressed by Heat-Shield. Men are prevailing only among agricultural workers (62%), and women in other groups (65% in manufacturing plant and offices, 52% in tourist guides). Groups are age-homogenous: 25% under 30 years old, 29% from 31 to 40 years, 25% from 41 to 50 years, and 21% over 50 years old.

Results and discussion

Measurements in the manufacturing plant are showing very high temperatures during summer, but the situation is only a little better during the rest of the year. In the analysed period, the temperatures outside vary from 6 to almost 30°C, but the temperatures at the workplace never fall below 22°C and rise up to 33°C (Figure 2). WBGT values are mainly between 20 and 25°C, which is already high for moderate or heavy work, as heat stress management have to start around WBGT value of 25°C for heavy work (Gao et al., 2017).

Workers in this manufacturing plant are reporting thermal discomfort, especially if they need to wear specific clothes like thick black polo shirts, which are not a part of protective clothing. The effectiveness of our autonomic heat dissipation capacity is related to what type of clothing is worn and the environmental conditions (Lucas et al., 2014).

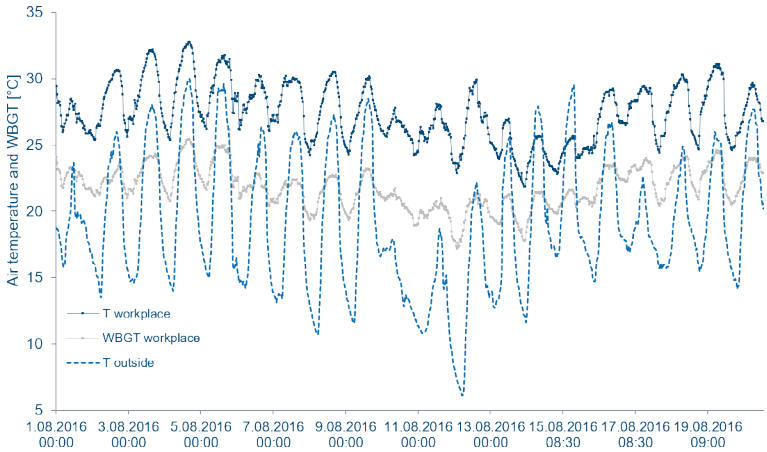

Figure 2: Working conditions in the manufacturing plant near Celje: measured air temperature at one workplace at 1.5 m height (T workplace), calculated WBGT index (WBGT workplace) and measured air temperature at meteorological station Celje (T outside).

In the manufacturing plant, the cooling system is not efficient enough due to injection molding machines as additional heat sources. For 20% of workers working conditions during heat waves are perceived as hot, for another 20% too hot, and for 45% extremely too hot (Figure 3). Tourist guides did not answer that question as they do not have a permanent workplace. Conditions are certainly better in offices, as 66% workers have air conditioning at their workplace and 11% in the vicinity. However, more than half of them did rate working conditions during heat waves as hot (or worse), and only for 20% workers is the temperature suitable, so air conditioning does not solve the problem as a whole. For 27% of agricultural workers is working outside during heat waves extremely too hot and for 36% too hot. There were no significant variations be-

tween age groups even though with the aging of the workforce, it's resilience to heat stress degrades with further negative effects on health and productivity.

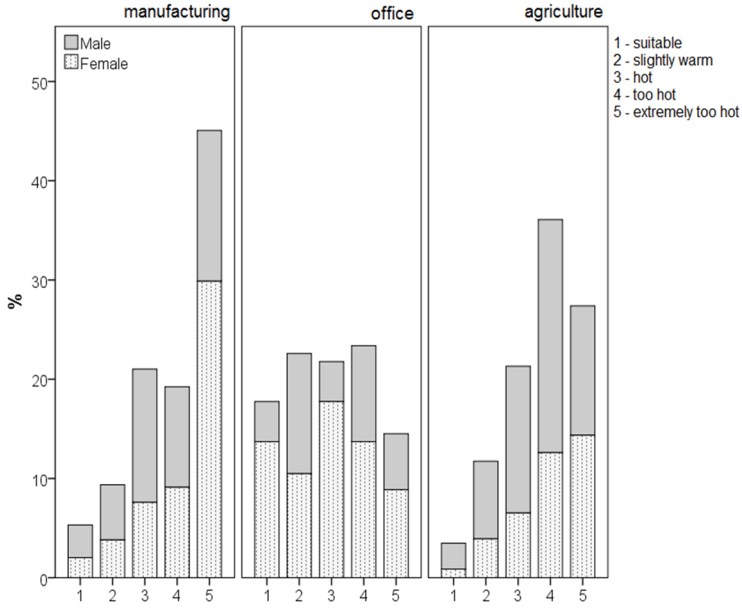

Figure 3: Thermal comfort at workplaces during heat waves (754 workers).

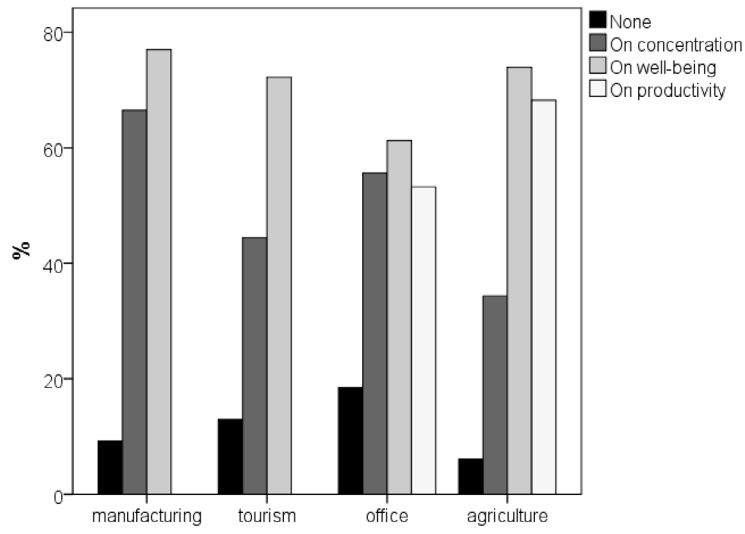

Figure 4: Perceived negative impact of hot working conditions during heat waves (808 workers).

According to Lucas et al. (2014), occupational heat exposure threatens the health of a worker not only when heat illness occurs but also when a worker's performance and work capacity is impaired. Figure 4 gives a clear sign, how high is the negative influence of heat stress on various areas, although workers in the manufacturing plant and tourist guides did not have a choice of the answer 'impact on productivity' due to their working regime. Only 20% office workers and even fewer others think that there is no negative impact of heat. The highest assessed is the negative impact on well-being (60-75%), followed by the negative impact on productivity in agriculture (68%) and by the negative impact on mental concentration in the manufacturing plant (67%) and in offices (56%).

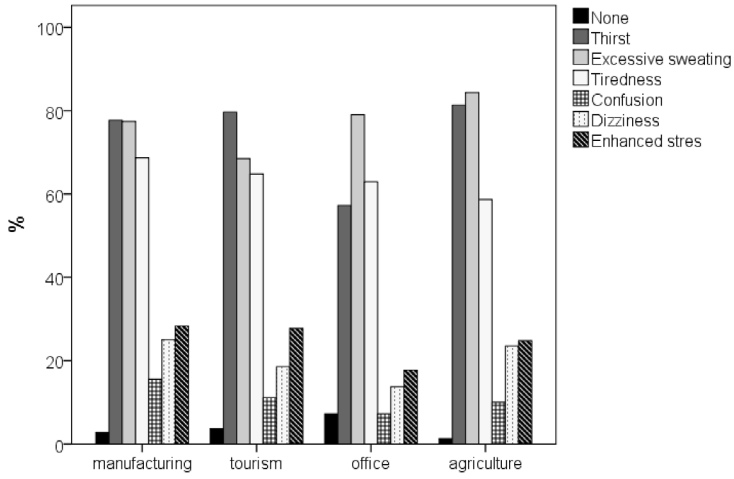

Figure 5: Perceived symptoms of heat stress during work in the summertime (808 workers).

The highest negative impact on well-being is well reflected in perceived symptoms of heat stress (Figure 5). Thirst and excessive sweating are common during summertime, but it can be seen that in the office is easier to drink regularly than at other workplaces. Around 60% of workers in each sector are tired because of heat stress, they are reporting also about enhanced stress and dizziness (15-30%), and confusion (5-15%). The latest three symptoms are the least expressed at office workers and comparable for the others.

Mild effects are certainly more common, but in extreme cases, people can get seriously sick or die. Among 808 workers have 31 already been hospitalized because of heat-induced health problems. The most common health problems in the manufacturing plant are a headache and exhaustion (more than half of the workers), and in other three sectors exhaustion – in agriculture, more than 60%, followed by a headache (Figure 6). In tourism is the next problem prickly heat and in the manufacturing plant nausea or vomiting (more than 20%).

There have also already been problems with muscle cramps, fainting, and exceptionally heat cramps or even heat stroke.

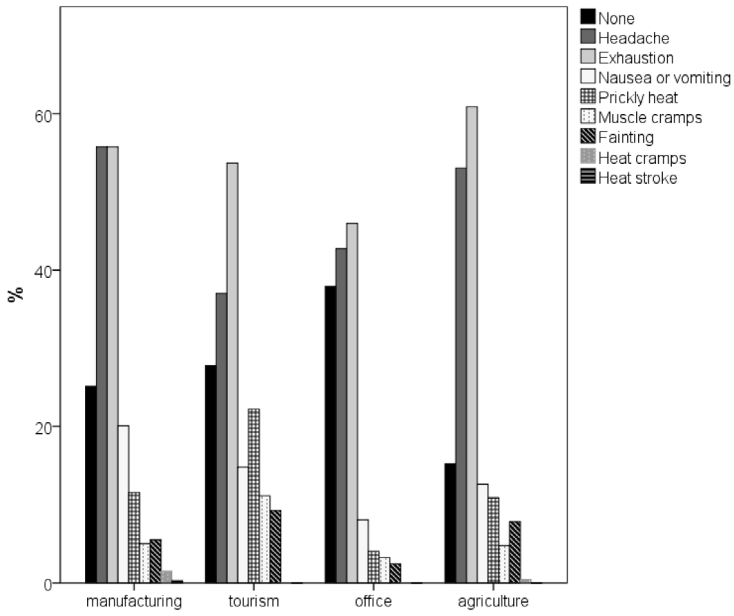

Figure 6: Heat-induced health problems experienced working during heat waves (808 workers).

To minimize excessive heat exposure in the workplace, it is recommended that workers and employers regularly review the potential impacts of heat on workers' health and productivity (Lucas et al., 2014), but this is not yet a common practice in Slovenia. There are some instructions published on the Labor Inspectorate web-site (IRSD, 2015) and for internal use on Chamber of safety and health at work (ZVZD, 2015). However, only workers in the manufacturing plant were in majority informed about heat stress impacts (4 out of 5), while 80% of office workers was not informed by the employer, and also 75% of tourist guides and almost 60% of agricultural workers did not get any heat-related warning by advisors. Mainly only agricultural advisors in Southwestern Slovenia have the necessary knowledge on heat stress and important precautions.

Anyway, workers try to help themselves by drinking more water (80-90%). In agriculture, the majority of workers try to adjust their working schedule (70%) and take breaks in a cooler space. In office and in tourism they try to wear appropriate clothes and in tourism also to take breaks in a cooler space (Figure 7). In the manufacturing plant, they have to follow many regulations and fulfill the working norm, so they have much less freedom in the choice of clothing, working schedule and breaks, therefore more than 20% of them answered that they cannot do anything to reduce the exposure to heat stress.

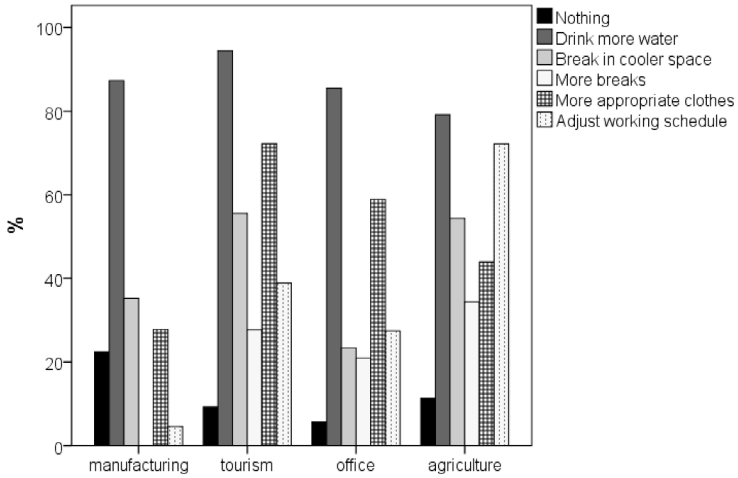

Figure 7: Workers' opinion (808), how one can reduce the exposure to heat stress.

Conclusions

In the field of heat stress negative impacts on workers' health and productivity is a major need for intersectoral collaboration. The knowledge that we already have or that we will obtain in further research needs to be transferred into recommendations so that employers can maintain health and productivity of their workforce. Among many themes that need to be addressed in the future is also the definition and analysis of heat waves, which is in progress in Slovenian Environmental Agency and Biotechnical Faculty. Even though summer temperatures do not seem extremely high in Slovenia, workers already report on heat stress at their workplaces. Climate change will bring a further increase in a number of hot days, which will worsen the heat stress working problems in Europe and also in Slovenia.

The survey among 808 workers has shown that there are some symptoms of heat stress very common among workers (thirst, excessive sweating, tiredness) and that they usually lead to a headache, exhaustion, nausea or vomiting, and prickly heat. Workers sense the negative impact of heat stress on their well-being, mental concentration, and productivity. In some cases, health problems even had to be cured in the hospital. However, apart from some web instructions, there has never been a serious campaign to inform employers and workers about heat waves and to propose solutions. This is also one of the further steps in the Heat-Shield project, where we will develop a warning system and test various solutions, depending on workplace specifics.

Acknowledgments

The work was supported by the European Union Horizon 2020 Research and Innovation Action (Project number 668786: Heat Shield). We are indebted to

Profs. Igor Mekjavić, Lars Nybo, Andreas Flouris and Tord Kjellstrom for their assistance.

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Characteristics of physical activity among pregnant women

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Abstract

Introduction: Moderate physical activity should be a part of every day life during pregnancy of course if the woman does not have any health problems or any complications relating to pregnancy. The aim of the research was to determine how and in which way pregnant women are physical active and if there is any correlation between physical activities during pregnancyregardless of their socio-demographic characteristics. *Methods:* The nonexperimental empirical method was used. Semi-structured questionnaire was applied on convenience sample of pregnant women (n = 46) who had been attending prenatal education courses in December 2015 and January 2016. The average age of the respondents was 29 years (s = 4.0). The majority of them (39.9%) had completed an upper secondary education; lived in rural areas (63%); were in 29th week of gestation (s = 6) and were primiparous (84.8%). In addition to the basic descriptive statistics Pearson correlation coefficient was used. *Results:* The results suggest that pregnant women are trying to be physical active during pregnancy, because they are aware of its positive effects on pregnancy, childbirth and know the reasons when physical activity is contraindicated. The majority of them are engaged inphysical activity four times per week; walking is the most common type (54.5%); only 19.6% of pregnant women attend organized physical exercises for pregnant women. Multiparous women compared with primiparous women are more physically active (p = 0.543). Age, levelof education and place of residence are not statistically significantly associated with the implementation of physical activity in everyday life (p>0.05). *Discussion and conclusions:* One of the most important factors that contribute to a healthy pregnancy, childbirth and postpartum period is physical activity during pregnancy. The results suggest that pregnant women are well aware of these effects, but the implementation of physical activity

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.165-170

is not always proportional to this. Organized physical exercises, where established, are insufficient for adequate preparation for childbirth.
Key words: physical activity, pregnancy, health, lifestyle, fetus

Regular, appropriate and adapted to the appropriate intensity physical activity is nowadays one of the most important factors of a healthy lifestyle and has an extremely positive effect on the human organism (Videmšek et al., 2015). In addition Videmšek at al. (2015) report that moderate physical activity during pregnancy should also be a part of an expectant mothers‘ everyday life; if the latter does not have any health problems or any complications relating to the pregnancy.

Physical activity during pregnancy, initially has a very positive impact on the health of pregnant women and the developing fetus, but it has also proved to be extremely helpful in preparation for childbirth (Videmšek et al., 2015). Blenkuš et al. (2015) claim that various research shows that physical activity during pregnancy reduces the occurrence of certain risk factors, thereby reducing the risk of poor health of pregnant women and the fetus. Physical activity has a beneficial effect on both the immune system and the mental state of pregnant women.

In the case of a pregnant, healthy woman, there is almost no reason to avoid physical activity. If the pregnant woman is both physically and mentally well prepared the birth will be easier and recovery faster. A suitable physical activity in combination with a healthy diet has a positive effect on fetal growth and development, contributing to better health and to facilitate childbirth and a faster return to physical fitness after childbirth itself (Mlakar et al., 2011).

The aim of the research was to determine how much and how physically active womenare during pregnancy, and what connection there is between physical activity during pregnancy, and their socio-demographic characteristics.

Methods

Sample description

The sample included 46 women.They attended schools for future parents in the period from mid-December 2015 till the end of January 2016. The average age of the respondents was 29 years (s = 4.0). From the sample 39.9% had completed secondary education; live in rural areas: 63%; on average, they were 29 weeks intothe pregnancy (s = 6) and primiparous women: 84.8%.

Description of the instrument

The method of data collection based on a questionnaire consisted of 20 questions mostly closed type. The questions are divided into three sections. The first part of the questionnaire includes demographic information, a second set cov-

ers issues relating to the implementation of physical activity during pregnancy,the appropriate choice of activities during pregnancy and knowledge of the positive effects of physical activity during pregnancy and it impact on pregnancy and childbirth.In the third part, the respondents were offered the opportunity to express their opinions and feelings.

Data processing

The survey was conducted between 15/12/2015 and 31/1/2016. Participation was voluntary and anonymous. Participants were presented the aims and objectives of the study and given the option of feedback.

The data were analysed after the completion of the program using an excel spreadhseet. It was decided that the best way to test the hypotheses was to use Pearson's correlation coefficient. The statistical significance level of $p < 0.05$ was applied.

Results

Our results showed that more than half (69.6%) of women surveyed were already physically active before pregnancy. Before pregnancy, women prefered walking (brisk walking, hiking). This form of activity is carried out by almost a third (28.1%) of respondents. This was followed by other types of physical activity, such as jogging, fitness, cycling and aerobics. All these activities, most respondents (77.4%) before pregnancy carried out several times a week, while other respondents (13%) were physically active only once a week. Some women surveyed were active every day (9.7%).

Physical activity was discouraged in 8 pregnant women (17.4%). 33 pregnant women (71.7%) confirmed that they were regularly physically active during pregnancy. The type and level of physical activity during pregnancy slightly changed. Still, more than half (54.5%) of the respondents decided to walk. Almost 20% (19.6%) of women attended an organised exercise for pregnant women, less than 15% of the women conducted yoga and aerobics, ran and swam. On average they exercise regularly 4 times a week. Runtime exercise is varied from a minimum of 14 minutes to 120 minutes, on average, 48 minutes. The proportion of women who were active once a week before pregnancy, decreased their physical activity during pregnancy, in comparison with proportion of those who were active before pregnancy every day, but during pregnancy they increased their physical activity.

According to the other results of the study we canadopted certain conclusions such as:

– demographic factors such as age ($p = 0.06$), education level ($p = 0.28$) and living environment ($p = 0.08$) can not affect the physical activity of women;

- 71,7% of those women, who parcitipated in the survey and who are physically active during pregnancy, believe that the doing physical activity during pregnancy does not endanger the health of their fetus or cause it to be lost, just the opposite;
- 100% of women who participated in the survey, believe that physical activity during pregnancy could have a significantly positive impact on the health of the child and themselves, women were generally well aware of the positive effects of doing physical activity during pregnancy to childbirth and fetal development, and the belief that activity during pregnancy harms the health of the fetus is no longer valid;
- those women who have already had experiences with pregnancy and childbirth, find it easier to opt for physical activity during pregnancy and are more physically active ($p = 0.54$).

Discussion

If the results of our research are compared with the results of the survey, which Makara-Studzinska et al. (2013) conducted in Poland, we see that the majority of women in the Polish study (71% of respondents) were physically active before pregnancy, the percentage of active of women during pregnancy also increased. Before pregnancy, in the Polish study (ibid.), women prefer walking. Other practiced aerobics, few werecyclists, attended gym, swimming and running. The Polish study also founds that the majority of women surveyed before pregnancy were active several times a week, some at least every day. During pregnancy, the degree of physical activity change, as the majority of women were physically active once a week, a few less times a week, but at least every day.

Among the types of physical activity the most popular was walking, some of the women surveyed had chosen exercise at home, swimming, exercise and yoga for pregnant women. Just as in our study, the Polish study of Makara-Studzinska et al. (2013) shows that the relationship between physical activity before and during pregnancy is very low or non-existent.

With results of both studies (our and above mentioned Polish study) we can see the assertion that women,when they are recognising that they are pregnant, stop with physical activities and spend the rest of the pregnancy sitting down because of the convictionthat physical activity during pregnancy causes injury and the loss of a child, it is not valid anymore.

If, however, our research compared with the research of Merkxet al. (2017) conducted in the Netherlands, we see that more than half of the 455 healthy pregnant women participating in the survey of Merkx et al., decreased level of physical activity during pregnancy. Less than 5% of the women participating in the study of Merkx et al. (2017), increased physical activity during pregnancy. Which means that the results of that research, is in contrast with the results of our research. The results of our study showed that the proportion of wom-

en surveyed who have opted for physical activity during pregnancy increased above the proportion of women surveyed who were physically active before pregnancy.

It is understood how important it is that pregnant women are properly informed about what is recommended during pregnancy. In conjunction with this, our research found that a 100% of women surveyed are aware of the positive effects of physical activity during pregnancy on pregnancy, childbirth, and on pregnant woman.

Conclusions

During pregnancy women's emotions are more intense, there is a psychological change, and the body makes both visible and invisible changes. Pregnancy is a happy and miraculous event and a lot of things start to change during this period. When women find out about being pregnant they frequently asked themselfs what they can do while pregnancy. One of the most important factors affecting the good course of the pregnancy, childbirth and the health of pregnant women and children, is definitely a physical activity of pregnant women. Just a while ago, on the news that they were pregnant, women stopped using all physical activity because they were convinced that physical activity would harm the development of their child and due to pregnancy they were among the most vulnerable groups of women. Since this the world and the way of life are constantly changing and new discoveries emerged, this belief has been somehow eradicated in women's perception. The results of our research showed that women today are well aware of the effects of physical activity during pregnancy on the health of the pregnant woman and the baby, and on pregnancy and child birth as well. They know when physical activity is advised during pregnancy and when should it be stopped. However, a lot more women choose physical activity during pregnancy precisely with the reason that they will contribute to the best possible development of the child, to the health of their own and to the easier and more beautiful course of pregnancy and childbirth.

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The impact of shift work on cardiovascular diseases among nurses

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Abstract

Shift work is defined as the work, which is time-permanently or frequently disposed outside the standard operating time. It affects the majority of bodily functions which are synchronized with the 24-hour circadian rhythm. The most pronounced impact on sleep, on an autonomous vegetative processes and the ability to work. Nurses in order to ensure quality and continuous care work within these flexible working time, which still remains a necessary form of their work. Numerous studies have shown that age and the years of doing shift work among nurses increases susceptibility to internal desinhronisation and thus to a reduced tolerance for shift work, which is manifested by the appearance of health problems associated with shift work. Neurovegetative reactions in response to the collapse of the circadian rhythm, leading to increased hormonal reactions, which together with other risk factors lead to an increased risk for developing cardiovascular diseases. A review of Slovenian and foreign scientific literature confirm and reduce the existence of evidence to support the theory on the impact of shift work on the incidence of cardiovascular disease in nurses. The findings show solutions, because we are faced with the need to define additional strategies that will reduce the incidence of cardiovascular disease in nurses and the negative consequences in health care institutions and the general public policy.

Key words: nurse, shift work, circadian rhythm, cardiovascular disease

In recent decades, we are faced with the increasing complexity of health systems (Pryce, 2016) and social and economic requirements to increase 24-hour accessibility of health care (Vetter et al., 2016). Due to the growing demand for continuing care within shift work (Hughes, 2015), currently there is no specific definition of working time in healthcare sector, but it is un-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.171-177

derstood as the work outside the normal daily working hours (Mosendane et al., 2008). As unusual working hours is considered working extended time until the evening and night hours, which lasts more than 8 hours a day (Merijantia et al., 2008). These atypical working patterns cause disorders of circadian rhythms (Vimalananda et al., 2015) or disorders in biological rhythm in a period of 24 hours. Circadian rhythm is one of the internal rhythms caused by external stimuli (e.g. light) and synchronized with the environment. In humans, the most well-known internal rhythms, are the rhythm of sleeping and wakefulness, and body temperature rhythm (Špeninger et al., 2009). Abnormal endings of sleeping and wakefulness phases cause disturbances in hormones secretion (mostly melatonin and cortisol) and increase the risk of cardiovascular disease (CVD) (Anjum et al., 2015), which are the leading causes of death in industrialized countries (Yu et al., 2016), and affects more women than men (Allesøe et al., 2010; Gangwisch et al., 2013). In addition to the unbalanced circadian rhythm in nurses several other risk factors for CVD are included. Lifestyle comes first, including an unhealthy diet, reduced physical activity, excessive consumption of caffeine and an increased tendency to smoke (Buchvold et al., 2015; Pryce, 2016). The second group includes endocrine disorders and diseases, which include obesity, increased blood levels of triglycerides, impaired glucose tolerance and insulin sensitivity. Consequently, it comes to high blood pressure and diabetes (Wang et al., 2011; Buchvold et al., 2015). The third group includes stress, which is a high risk factor, because the 24-hour nursing care for the patient is very stressful for the nurse (Lo et al., 2010; Roskoden et al., 2017). The combination of all risk factors, in conjunction with long-term shift work in nurses, increases the chance of myocardial infarction, coronary complications (Vyas et al., 2012) and stroke (Brown et al., 2009).

Methods

We used a descriptive method. We reviewed Slovenian and English scientific literature. We used databases CINAHL, PubMed, Medline, Web browser and Google Scholar and we used the following keywords: nurse, shift work, circadian rhythm of cardiovascular disease. Also, we used the following limitations: full-text articles from 2007 to 2017. In the article we included a research conducted in 2004 since its contribution was considered important for our research. The exclusion criteria were articles with inappropriate content (e.g. did not include women as health care workers and as we said did not include articles which were older than 10 years, not full-text articles). The articles acquired have been systematically analysed. A literature review was conducted from February to May 2017.

Results

Following the inclusion and exclusion criteria, we obtained 10 journal articles reporting studies which show tangible evidence of the connection between shift work and CVD incidence in nurses.

Table 1: Overview of the studies.

Author/year	*Purpose of the research*	*Methodology*	*Results*
Admi et al., 2008	Determination of the incidence of health problems and sleep disorders among men and women in health care.	A cross-sectional study	Shift work does not represent an independent risk factor for nurses health; failure to adapt the work schedule does not cause significant differences in the performance of the work.
Allesøe et al., 2010	Effect of psychosocial work environment ischemic heart disease in Danish nurses.	Cohort study	Psychosocial work environment increases the risk of ischemic heart disease in younger nurses (<51years).
Brown et al., 2009	To evaluate the relationship between the shift and night work for women.	A prospective cohort study	Nurses working in shifts for 15 years or more have increased risk of stroke.
Buchvold et al., 2015	Relationship shift work with a BMI (body mass index), smoking, alcohol and caffeine and exercise in Norwegian nurses.	A cross-sectional study	Night shift is positively correlated with BMI, smoking, alcohol and caffeine and exercise.
Jørgensen et al., 2017	Examine the link between shift work and the mortality rate in nurses.	Cohort study	Among nurses who perform night and/or evening shift: increased risk of mortality.
Kim et al., 2013	Relationship between shift work with a BMI in Korean nurses.	A cross-sectional study	The duration of shift work is positively associated with the prevalence of overweight/obesity in nurses in Korea.
Morris et al., 2015	The study of circadian rhythm as a result of shift work and its impact on the occurrence of hypertension, inflammation and CVD.	Experimental study	Shift work causes significant changes in the circadian rhythm, which increases the risk of hypertension, inflammation and CVD.
Škrbina and Zurc, 2016	Physical activity between nurses in relation to the work schedule and search for suitable ways of motivating to help overcome barriers and promote physical activity purchased under WHO guidelines.	Quantitative cross-sectional study	Shift work reduces the person's motion.
Van Amelsvoort et al., 2004	The impact of changes in the incidence of risk factors for CVD within one year.	A prospective cohort study	Shift workers who smoke have increased BMI and sholesterol levels.
Vyas et al., 2012	Link between shift work and major vascular events.	A meta-analysis	Shift work is associated with myocardial infarction, stroke and other coronary events.

The findings suggest that shift work leads both to physiological and psychological consequences, such as biological rhythm disorders, sleeping disorders, health problems, reduced work performance, dissatisfaction at work and social isolation (Admi et al., 2008).

Key factors which determine the health of nurses are: gender, age and body weight. The consequences of sleep withdrawal in female nurses are expressed more intensely than in their male counterparts (Admi et al., 2008). Sleep disturbances in nurses with more than 15 working years and with shift work, increase the risk of CVD. In correlation between CVD and shift work: the CVD occur in 23% and rising to 4% every 5 years of age (Brown et al., 2009). The disrupting of circadian rhythm is associated with an unhealthy lifestyle and unhealthy food, smoking, drinking and low physical activity. As a result, the increasing BMI has a negative impact on health (Kim et al., 2013; Buchvold, 2015). The reducement of physical activity is associated with chronic fatigue, low productivity and quality of work, irreversible impacts on health and quality of life (Škrbina and Zurc, 2016). Shift work increases the risk of CVD in nurses under 51years of age (Allesøe et al., 2010). The impact of socio-economic status and genetic predisposition contribute to the development of CVD (Morris et al., 2015).

Some authors do not confirm the thesis that shift work indirectly affects the occurrence of CVD (Van Amersvoort et al., 2004), but introduce the incidence of different risk factors, which subsequently lead to the formation of CVD, most commonly stroke (Brown et al., 2009), ischemic heart disease (Allesøe et al., 2010), myocardial infarction and other coronary complications (Vyas et al., 2012), which are the main causes of disability (Brown et al., 2009) and mortality among nurses (Brown et al., 2009; Jørgensen et al., 2017). Besides all this we must not forget that all of these risk factors are affecting public health, public policy and the organization of work in occupational medicine (Vyas et al., 2012). At the same time, the authors ask, what are the characteristics of nurses who successfully navigate through the challenges of shift work (Hughes, 2015).

Discussion

The global epidemiological data shows that 30% of the active population works in shifts. Shift work is a model of stressors that occur when job requirements do not match the capabilities, resources or needs of the worker and is highly correlated with CVD, irritability, dizziness, sleep disorders and muscle pain. As a result, reduced work productivity deteriorates the health status and quality of life. Therefore, health promotion is becoming an important strategy of many companies. The effort is to integrate targeted programs to change workers lifestyles and thus prevent the negative influence of risk factors (Richter et al., 2010). There is a growing need to integrate and implement workshops of healthy lifestyle in the healthcare sector/organizations. The workshop should be focused on nutrition, physical exercise, relaxation techniques and sleep hy-

giene. Change in lifestyle and successful adaptation to shift work also depends on an individual's personality traits and external support. One of the major roles of leadership is to encourage the implementation of healthy lifestyle workshops and regulate schedules to implement strategies to reduce stress in the workplace (Hughes, 2015). Preventing CVD consequently reduces the costs of employees' absence (Mosca et al., 2007).

Conclusions

Without systematically planned and organized shift work, modern healthcare systems would not be high-quality and effective. Several scientists explored the link between shift work and the emergence of CVD. They found a positive correlation. Long-term shift work and quick replacement of circadian rhythms have a negative impact on the health and general welfare. However, we must not forget other risk factors and their influence on the development of CVD (Vyas et al., 2012).

Based on our findings we propose a research on the relationship with the incidence of shift work CVD in nurses using longitudinal studies. For a certain number of nurses the track would be kept from the commencement of their employment until retirement. Sample of nurses from the research would be included in the health promotion program, which would measure the effects of the program and the results of both research groups would be the base to plan further research and action to improve health and psycho-physical well-being of nurses.

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Association between perceived stress, self-rated health, work productivity and stress management interventions – a study of employees in the Slovenian processing industry

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Abstract

Introduction: Employees' high levels of perceived workplace stress has been associated with impaired health and lost productivity due to sickness absenteeism and sickness presenteeism. As a result, there's been a growing interest in programs and interventions to reduce stress at work among organizations. *Methods:* The study was conducted as a part of the project Healthy on a square II – workplace health promotion for employees in the chemical and other processing industries, in March 2016 in the sample of N=796 employees in processing industries. The aim of the study was to examine the relationship between employees' frequency of perceived stress, self-rated health, sickness presenteeism, sickness absenteeism and implemented stress management interventions. *Results:* The results indicated that higher frequency of perceived stress is associated with poorer self-rated health, higher number of health problems in the past month and more days of sickness absenteeism and sickness presenteeism in the past year. Regarding the implemented activities for managing work-related stress in included organisations, most commonly reported activities were informing employees about work-related stress and its consequences and stress management training provision, while organisational-level interventions were rare. Discussion: The study highlights the need for systematic implementation of stress management interventions and research on their effect on employees' well-being and work productivity.
Key words: stress at work, self-rated health, sickness absenteeism, sickness presenteeism, stress management interventions

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.179-188

Stress has been given several definitions, but generally refers to individual's physical, mental and emotional response to environmental demands or pressures that are perceived as straining or exceeding individual's perceived adaptive capacities (Cohen et al., 1986). So far, a growing body of evidence suggests that excess or long-term stress contributes to impaired physical and psychological health (i.e. Schneiderman et al., 2005). Similarly, impaired employee's physical and psychological health has been shown to be one of the most undesirable consequences of high-levels of stress at work (i.e. Cox, Griffiths and Rial-Gonzales, 2000; Novak, Sedlar and Šprah, 2014; Stansfeld and Candy, 2006).

Stress at work gained increased attention among professionals and researchers over the last decades, mostly due to its high economic and human costs for organisations. Numerous studies (i.e. Biron et al., 2006; MacGregor, Cunningam and Caverley, 2008) have confirmed that impaired employee's health and high levels of stress at the workplace result in lost productivity, arising from two sources: absenteeism and presenteeism. The first one refers to an employee's time away from work due to illness or disability (i.e. Johns, 2003), while the second one occurs when employee comes to work ill and his job performance is limited in some aspects by a health problem (i.e. Johns 2010). Both outcomes are considered part of a continuum, with presenteeism being placed between full work engagement and absenteeism (Johns, 2009) and employees are likely to transit from one to another over time (i.e. Escorpizo et al., 2007).

To measure work-related stress across various types of jobs and organizations several self-report instruments have been developed. However, sometimes when monitoring stress at work comprehensive scales might not be accepted by the target organisations. Therefore researchers (i.e. Elo et al., 2003) proposed the use of a single-item measure of stress. The scale refers to the general experience of stress, not explicitly to work-related stress, but was shown to be a valid instrument for group-level analysis when monitoring stress at work. In a similar vein, a single-item measure of self-rated health is generally accepted as an easy to implement and valid indicator to measure individual's health status (i.e. Borg, Kristensen and Burr, 2000).

Employee's stress and its negative outcomes have become a concern for many organisations. Therefore there is a growing interest in programs and interventions to reduce stress at work (González, Cockburn and Irastorza, 2010; Irastorza et al., 2016). Implemented stress management interventions in occupational settings most often focus on reducing the presence of work related-stress or aim to minimize the negative outcomes of exposure to these stressors. However, the research shows that their effect most importantly depends on the intervention type (Richardson and Rothstein, 2008).

Using a sample of Slovenian industrial workers, our study investigated the relationship between employees' level of perceived stress in terms of frequency, self-rated health, sickness presenteeism, sickness absenteeism and implemented stress management interventions in included organisations.

Methods

Data for his cross-sectional study were collected in March 2016 as part of the project 'Zdravi na kvadrat II' (engl.: 'Healthy on a square II') – workplace health promotion for employees in the chemical and other processing industries, conducted in 17 Slovenian companies in processing industry (n=2 small-sized companies (<50 employees); n=11 middle-sized (50-250 employees); n=4 large-sized (>250 employees)). 2-74% of the population size of included organisations completed the self-administered questionnaire.

The average age of the final sample (N=796) was 41 years and there was a slight male predominance (55.2%). Third of the participants reported having completed secondary educational level, while approximately 26% completed vocational and higher vocational educational level/graduate degree. Almost half of the participants reported having sufficient income to meet their (household's) needs (46.6%), while the rest of the sample reported having (occasional) difficulties. Most of the participants were performing sedentary (43.6%), mostly standing (34.4%) or light physical work (36.5%). Further details are presented in Table 1.

Table 1: Socio-demographic characteristics of the sample.

	Total sample (N=796)
Gender (male), *n*(%)	439 (55.2)
Age (years), *M*±*SD*	40.9 ± 10.3
Educational level, n(%)	
Primary or less	92 (11.4)
Vocational	205 (25.8)
Secondary	267 (33.5)
Higher vocational, graduate degree	204 (25.6)
Postgraduate degree (master's, doctorate)	28 (3.5)
Subjective sufficiency of income, n (%)	
Sufficient income to meet (household's) needs	371 (46.6)
Occasional difficulties	338 (42.5)
Difficulties	87 (10.9)
Type of work, f (%)	
Sedentary work	375 (43.6)
Mostly standing	296 (34.4)
Light physical work/standing or walking without major physical strain	314 (36.5)
Heavy physical work/often lifting or moving heavy things	167 (19.4)
Forced posture	132 (15.3)
Repetitive movements	200 (23.3)

Questions regarding socio-demographical data (gender, age, educational level, subjective sufficiency of income, type of work) comprised the initial section of the questionnaire.

Frequency of perceived stress was measured through a question: 'How often do you feel tense, stressed or under intense pressure?' (1 – never; 2 – rarely;

3 – sometimes; 4 –often; 5 – every day). Response categories 4 and 5 were used to define groups with *high*, 3 with *medium*, and 1 or 2 with *low perceived stress levels*. Subjective assessment of individual's health was measured through a question: 'How would you assess your present health? (1 – very good; 2 – good; 3 – fair; 4 – poor; 5 – very poor). Additionally, respondents were asked to indicate whether they had experienced any of the stated health problems in the previous month (chest pain during physical activity, low back pain, neck/shoulder pain, joint pain, chronic cough and mucus, swollen legs, allergy, constipation, headache, insomnia, depressive symptoms, toothache, urination problems). The total number of reported health problems per participant was calculated. All three questions were adapted from CINDI Health Monitor Core Questionnaire (Prättälä et al., 2001).

Sickness absenteeism was measured through the question: 'How many days in the last 12 months have you been absent from work because of sick leave? (ie. Gustafsson and Marklund, 2011). To measure sickness presenteeism the question: 'Did you go to work even though you should have taken sick leave during the past 12 months? (yes; no; I have not been sick). If yes, how many times?' was used (Aronsson et al., 2000).

Furthermore, management of each included organisation was asked about implemented stress management interventions (i.e. provision of training; a redesign of the work area; for total list see Table 3), adapted from European Survey of Enterprises on New and Emerging Risks, ESENER (Cox et al., 2010).

Health and safety representative from each organisation was asked to assist with distribution and collection of questionnaires for management and employees. Employee participation was voluntary and anonymity guaranteed; the questionnaires were collected immediately after completion and sent to the project coordinator.

In total, there were 0.2 - 14.8% missing values per variable. Missing data were imputed using the EM algorithm, which has been demonstrated to be an effective method of dealing with missing data (Graham, 2009), and all analyses were conducted using a total of 796 participants. Kendall's tau b rank correlation coefficient was calculated to evaluate the associations between frequency of perceived stress and other variables (health-related characteristics, the number of implemented stress management interventions). Multiple linear regression was conducted to examine which of the included variables predict frequency of perceived stress. All analyses were performed using SPSS V.21 (SPSS, Chicago, Illinois, USA).

Results

Almost half of the participants (46.0%) reported *medium*, 28.5% *low* and 25.5% *high perceived stress level*. Regarding self-rated health, more than half (62.3%) of the sample reported good or very good, 31.4% fair and 6.3% poor or very poor

self-rated health. However, participants on average reported they have experienced three health problems in the last month. Half of the participants reported no sickness absenteeism in the past year, 24.0% one to seven days and 21.4% eight to 30 days. Similarly, almost half of the sample (46.0%) reported no sickness presenteeism in the past year, while 33.2% one to seven days and 21.4% eight to 30 days (for details see Table 2).

Table 2: Frequency of perceived stress and health-related characteristics/ outcomes of the sample.

	Total sample (N=796)
Perceived stress level, M±SD	3.0 ± 0.9
High, *f* (%)	203 (25.5)
Medium, *f* (%)	366 (46.0)
Low, *f* (%)	227 (28.5)
Self-rated health, *M±SD*	2.3 ± 0.8
Good or very good, *f* (%)	496 (62.3)
Fair, *f* (%)	250 (31.4)
Poor or very poor, *f* (%)	50 (6.3)
Number of experienced health problems in the past month, M±SD	3.0 ± 2.3
0-2, *f* (%)	362 (45.5)
3-6, *f* (%)	371 (46.6)
7-10, *f* (%)	63 (7.9)
Sickness absenteeism in the past year (days), M±SD	7.6 ± 19.4
0 days. *f* (%)	400 (50.3)
1-7 days, *f* (%)	191 (24.0)
8-30 days, *f* (%)	170 (21.4)
31-90 days, *f* (%)	29 (3.6)
≥ 91 days, *f* (%)	6 (0.8)
Sickness presenteeism in the past year (days), M±SD	4.6 ± 7.5
0 days, *f* (%)	366 (46.0)
1-7 days, *f* (%)	264 (33.2)
8-30 days, *f* (%)	162 (20.4)
31-90 days, *f* (%)	3 (0.4)
≥ 91 days, *f* (%)	1 (0.1)

$^{**}p<0.01$

Frequency of perceived stress was significantly associated with self-rated health (r=0.29**), number of experienced health problems in the past year (r=0.39**), days of sickness absenteeism (r=0.12**) and sickness presenteeism (r=0.28**) in the past year.

Total number of implemented measures to prevent or manage work related-stress ranged from zero to five ($M\pm SD$=2.2±1.5) in the included organisations and was significantly associated (r=-0.13**) with frequency of perceived stress. Among the most commonly implemented stress management interventions were: informing employees about work-related stress and its consequences (58.8%), stress management training provision (35.2%) and informing em-

ployees about whom to adress when encountering (work-related) psychosocial problems (23.5%). Organisational-level interventions (ie. changes to working time arrangements or to the way work is organised) were more rare (see Table 3).

Table 3: Implemented stress management interventions in the included work organisations.

	n (%) of included organisations
Informing employees about work-related stress and importance of mental health and their effects on health and safety.	10 (58.8)
Provision of training on the prevention of work-related stress.	6 (35.2)
Informing employees about whom to address in case of (work-related) psychosocial problems.	4 (23.5)
Changes to working time arrangements.	2 (11.8)
Setting-up of conflict resolution procedure.	2 (11.8)
Assessment of work-related stress and psychosocial risk factors in the organisation.	1 (5.9)
Changes to the way work is organised.	1 (5.9)
A redesign of the work area.	1 (5.9)
Confidential counselling for employees.	1 (5.9)

Multiple linear regression analysis was used to demonstrate whether the investigated health-related variables and outcomes significantly contribute to the frequency of perceived stress. Results are presented in Table 4. Variables included in the model explained 28% of the variability of the frequency of perceived stress. Having worse self-rated health, having experienced more health problem in the past month, being absent from work due to illness more days, being employee of an organisation that has implemented fewer stress management interventions was significantly associated with higher frequency of perceived stress even after controlling for organisation, age and gender.

Table 4: Regression model of frequency of perceived stress (adjusted R2=0.28).

	Beta	*p*
Self-rated health	0.198	<0.001
Number of experienced health problems in the past month	0.322	<0.001
Sickness absenteeism in the past year (days)	0.076	0.015
Sickness presenteeism in the past year (days)	0.059	ns
Number of implemented stress management interventions in the organisation	-0.071	0.025
Organisation	0.028	ns
Age	-0.044	ns
Gender	0.052	ns
Education level	0.184	<0.001

Discussion

The results of this study demonstrate the association between higher frequency of perceived stress and worse self-rated health, more health problems in the past month and higher level of sickness absenteeism and sickness presenteeism in the past year. The findings are in line with previous research on the health- and productivity-related consequences of high levels of perceived workplace stress (i.e. Biron et al., 2006; MacGregor et al., 2008; Stansfeld and Candy, 2006). However, days of sickness presenteeism have not significantly contributed to the higher frequency of perceived stress in the regression model. This could be partially explained by the recent meta-analysis of Miraglia and Johns (2016) where various variables pertaining to job demands (constraints on absenteeism, elevated job demands and felt stress etc.) and job and personal resources (low support, low optimism etc.) were shown to be more important in explaining presenteeism than absenteeism.

A quarter of the sample reported high frequency of perceived stress (Table 2). This is somewhat similar to the results of the Fifth European Working Conditions Survey, EWCS (EUROFOND, 2012) where 20% of workers reported a poor mental well-being. Also, the results regarding the frequency of sickness absenteeism and presenteeism are comparable with those obtained by the most recent EWCS study (EUROFOND, 2017); 50% of the sample reported no sickness absenteeism (compared to 60% reported in the EWCS), while 46% reported no sickness presenteeism (45 % reported in the EWCS). It is interesting, however, that more than half (62.3%) of the participants rated their health as good or very good, while on average reported experiencing three health problems in the last month. A relatively low proportion of the employees rated their health as poor or very poor (6.3%); this is slightly less than estimates obtained in nationwide cross-sectional study by Farkas, Kragelj and Zaletel-Kragelj (2011; 9.6%). Yet, these employees are at highest risk for sickness absenteeism or presenteeism and could benefit the most from interventions targeting their health.

Our results also indicated that higher frequency of perceived stress is associated with fewer implemented stress management interventions in the organisations. According to the research (Richardson and Rothstein, 2008), however, the effect of interventions most importantly depends on the intervention type. No conclusions regarding that can be made for our study, as no further details on the interventions were obtained. Still, similar to the findings of Richardson and Rothstein (2008) included organisations rarely reported implementation of organisational-level interventions such as changes to the way work is organised, changes to working time arrangements etc. (Table 3). The higher number of implemented activities for managing work-related stress could, however, reflect a higher awareness about employees' mental health and well-being, which could partially explain obtained association.

The main limitations of our study pertains the cross-sectional design and non-representative sample as the employees' participation was voluntary. Furthermore, despite the satisfactory validity of a single-item measure of stress re-

ported by Elo and colleagues (2003), the measure was not additionally validated in our study. Also, the proposed regression model did not control for other working and psychosocial conditions.

Conclusions

Our study demonstrates that higher frequency of perceived stress in Slovenian chemical and other processing industry workers is associated with poorer self-rated health, higher number of health problems in the past month and higher frequency of sickness absenteeism and sickness presenteeism in the past year. The implemented activities for managing work-related stress in included organisations were relatively rare. Also, guidelines for their systematic implementation and research on their effectiveness are needed in the future.

Acknowledgements

Project 'Healthy on a square II' – workplace health promotion for employees in the chemical and other processing industries is a collaborative project of Chamber of Commerce and Industry of Slovenia - Association of Chemical Industries (lead partner), National Institute of Public Health (partner), Olympic Committee of Slovenia - Association of Sports Federations (partner), Sports Association Ljubljana (partner), Trade Union of the Chemical, Non-metal and Rubber Industry of Slovenia (partner), financially supported by The Health Insurance Institute of Slovenia.

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Fighting stressful situations from the viewpoint of emotional competence

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Abstract

Introduction: Stress is an important factor in daily life, affecting individual's health. It is organism's response to different inner and external factors. The degree to which an individual is capable of dealing with stressful situations is also related to his ability of emotional processing. Emotional competence shows the way a person understands emotions in a certain developmental period, the way he expresses, communicates and integrates them into his self-perception. The aim of our research project was to ascertain the impact of emotional competence upon individual's strategy of dealing with stressful situations. *Methods:* We performed a quantitative research. Regarding the calculation of the mutual dependence of degrees of emotional competence (based on the Emotional competence questionnaire) and stress handling strategies (Brief COPE questionnaire), we checked the conditions for the calculation of correlation coefficients and applied Spearman's rho for the bivariate correlation analysis. The analysis included data on 289 participants. *Results:* According to the research results every subdimension of emotional competence is related to at least four strategies of stress handling in a statistically significant measure. Correlation between variables is weak (r=0.154), at the level of 1% risk, to strong (r=0.589), at the level of 5% risk. Discussion: Acquisition of emotional competence is a factor affecting the choice of functional strategies of stress handling. Lifelong progress leads to a better emotional condition, which, in turn, sustains active population with the ability of creative performance in the business field, as well as with the feeling of living a full life in private sphere.
Key words: stress, stress handling, emotional competence, emotional condition

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.189-197

Theoretical Framework

Coping with stress is an everyday thing, playing important role in the physical and psychological well-being of a person (Carver, Scheier in Weintraub 1989). Stress is defined as physical response to life situations, as a reaction to physical threats of environment. It is the inner, conditioned reaction of individual to the perceived external pressures, manifested in the form of fight or flight. The individual's choice of stress handling strategy depends on his dealing with stressful situations and its impact on his health (van Heck in de Ridder 2001).

Emotions play key role in individual's life, representing a significant part in the diversity of everyday life: in the experience of self, mutual relations, workplace, creative processes, sports, etc. (Cvetek 2014, 5). Theories of lifelong emotional development are a relative novelty in the field of psychology of emotions. So far two theories of functional emotional development are known. The first theory is an internalized model of emotional development and emotional regulation by Holodynski and Fridlmeier, focusing mostly on the management of emotions competence. The second theory is Greenspan's theory of functional emotional development, which is somewhat wider and related to the development of self, consciousness and thinking. Greenspan promoted the idea of the higher mental competences (logical thinking and the use of symbols) basically resulting from the transformation of affect, meaning that development of these competences is in fact based on the prior emotional development (Cvetek 2014, 95). According to Greenspan's theory sequence of periods in emotional development cannot be skipped, every developmental competence comprising all the prior ones (Greenspan 1989). If a person fails to develop earlier emotional competences not all is lost for him yet; it just means this person has to make a conscious effort of returning to the lower developmental grade. Only when the individual manages to develop the lacking comptence can he develop or perfect the following one. According to Greenspan (Cvetek 2014, 95 - 167), the competences are: emotional steadiness and interest in the world, intimate connectedness to others, mutual deliberate exchange, mutual social problem solving, use of symbolic imagery, emotional logical thinking, comparative emotional thinking, differentiation of emotional nuances, reflective emotional thinking, consideration of the unconscious, contemplating one's future, inner emotional autonomy, intimate commitment, responsible care for other people and emotional parenthood, care for the wider social community, universal love and wisdom (Carver, Scheier in Weintraub 1989).

The Present Study

The purpose of our research study was to ascertain the impact of emotional competences upon individual's stress coping strategies. We posed the following research question: » How dimensions of emotional competences correlate with the utilisation of coping strategies?

Methods

Participants

There were 289 participants in the research project (M=40.24 years, SD=10.9, min=19, max=72), 30 or 10.4% of these were males (M=40.2 years, SD=11.2, min=19, max=72) and 259 oz. 89.6% females (M=39.8 years, SD=10.8, min=19, Max=69). 34 (11.8%) of the participants were single, 114 (39.4%) were married, 80 (27.7%) were not married but had a long-lasting relationship, 7 (2.4%) were in the process of divorce, 35 (12.1%) were divorced, 14 (4.8%) were divorced and in a new relationship, 5 (1.7%) were widowed. 1 (0.3%) participant had primary education, 15 (5.3%) participants had vocational training, 55 (19%) had secondary education, 84 (29.1%) had higher, university education or Bologna first level education, 100(34.6%) had university or Bologna second level education, 31 (10.7%) had specialization or master's degree, and 3 (1%) participants had doctor's degree. 37 (12.8%) participants were from the Gorenjska region, 11 (3.8&%) were from the Goriška region, 10 (3.5%) were from the South-Eastern part of Slovenia, 7 (2.4%) were from the Karst region, 14 (4.8%) were from the Karst-Coastal region, 148 (51.2%) were from the Central Slovenia, 17 (5.9%) were from Podravje, 11 (3.8%) from Pomurje, 16 (5.5%) from Savinjska region, 8 (2.8%) from srednjePosavje and 7 (2.4%) participants were from Zasavje region.

Measures

Questionnaire of emotional competence of the author Associate Prof. Mateja Cvetek, Ph.D. is a self-assessment questionnaire assessing the developmental degree of one's emotional competence. The questionnaire is divided into 8 dimensions: Trust into partner (Cronbach alpha=0.730) (eg.: »When me and my partner are faced with a conflict … I know who to ask for help.«), Mutuality and cooperation between partners (Cronbach alpha=0.940) (eg.: »When me and my partner are faced with a conflict … I feel we are emotionally close.«), Understanding and verbal expression of emotions (Cronbach alpha=0.757)(eg.: »When me and my partner are faced with a conflict … I cannot find words to express my feelings.«), Comparative emotional reasoning (Cronbach alpha=0.785) (eg.: »When me and my partner are faced with a conflict … I can foresee the impact of emotions.«), Emotional oscillations (Cronbach alpha=0.800) (eg.: »When me and my partner are faced with a conflict … my emotions are of diverse intensity: from weak to very strong.«), Autonomous search for new options Cronbach alpha=0.786) (eg.: »When me and my partner are faced with a conflict … I try to learn a lesson from the conflicting situation.«), Autonomous wish for self-improvement (Cronbach alpha=0.729) (eg.: »When me and my partner are faced with a conflict … I strive to improve my conflict management approach.«), Autonomy of judgement (Cronbach alpha=0.841) (eg.: »When me and my partner are faced with a conflict … I have the feeling of being capable of autonomous decision-making.«). The participants used a 5-grade scale for assessing the statements, i.e.: 1- almost never applies to me (from 0% to 10%), 2 – applies to me rarely ever (from 110% to 35%), 3-

applies to me sometimes (from 36% to 65%), 4 – applies to me frequently (from 66% to 90%), 5 – applies to me almost always (from 91% to 100%).

Brif COPE is a shortened version of the questionnary COPE Inventory (Carver, Scheier in Weintraub 1989); it is a multidimensional self-assessment questionnaire for measuring functionality of stress coping responses. The questionnaire is divided into thirteen dimensions: Self-distraction (eg.: » I've been turning to work or other activities to take my mind off things.«), Active coping (eg.: »I've been concentrating my efforts on doing something about the situation I'm in.«), Denial (eg.: »I've been saying to myself "this isn't real.«), Substance use (eg.: »I've been using alcohol or other drugs to make myself feel better.«), Use of emotional support (eg.: »I've been getting emotional support from others.«), Use of instrumental support (eg.: »I've been getting help and advice from other people.«), Behavioral disengagement (eg.: »I've been giving up trying to deal with it. .«), Venting (eg.: »I've been saying things to let my unpleasant feelings escape.«), Positive reframing (eg.: »I've been trying to see it in a different light, to make it seem more positive. .«), Planning (eg.: »I've been trying to come up with a strategy about what to do.«), Humour (eg.: »I've been making jokes about it.«), Acceptance (eg.: »I've been accepting the reality of the fact that it has happened.«), Religion (eg.: »I've been trying to find comfort in my religion or spiritual beliefs.«) and Self-blame (eg.: I've been criticizing myself.«). The participants used 4-grade scale for assessment. i.e.: 1- I haven't been doing this at all , 2 – I've been doing this a little bit , 3 – I've been doing this a medium amount , 4 – I've been doing this a lot.

Procedure

The questionnaire was published on website links, accessible to a vast number of internet users. The Brif COPE questionnaire is available at the website with permission for application, while the permission for the use of the questionnaire of emotional competence was acquired through personal communication with the author. Statistical processing of the participants' data was based on the SPSS programme. The first part of the quantitative research comprises basic descriptive statistics with analyses of the participants' demographic data, mean, standard deviations, participation shares. In the second part of the research we calculated the relation between degrees of emotional competence and stressful situations coping strategies. We checked the conditions for the calculation of the correlation coefficients (One-Sample Kolmogorov-Smirnov Test), applying Spearman's rho for the bivariate correlation analysis.

Results

Descriptive Information

The descriptive statistics data are presented in Table 1. They show the minimum, maximum and average number of points, standard deviation, skewness and kurtosis.

Correlation

There is a positive correlation link between the competence Trust into the other's help and the Active coping strategy (p =0.002, r=0.234), Use of instrumental support (p=0.000, r=0.394), Positive reframing (p=0.001, r=0.254) and Acceptance (p=0.020, r=0.181) is weak, while correlation link with the Use of emotional support (p=0.000, r=0.411) is medium. There is a weak negative correlation link with Self-distraction (p=0.003, r=0.232), Denial (p=0.001, r=0.256), Self-blame (p=0.001, r=0.265), and medium correlation link with Behavioural disengagement (p=0.000, r=0.427).

Positive correlation link between the competence Mutual cooperation between partners and Active coping (p=0.024, r=0.175), Positive reframing (p=0.009, r=0.203) and Acceptance (p=0.011, r=0.197) is weak. Also weak and negative is the correlation link with Self-distraction (p=0.022, r=0.177), Denial (p=0.017, r=0.185), Behavioural disengagement (p=0.000, r=0.331) and Self-blame (p=0.015, r=0.189).

Correlation link between the competence Understanding plus verbal expression and Active coping (p=0.000, r=0.284), Positive reframing (p=0.000, r=0.299), Planning (p=0.003, r=0.231), Humour (p=0.022, r=0.178) and Acceptance (p=0.001, r=0.262) is positive and weak. Self-distraction (p0.009, r=0.203), Denial (p=0.000, r=0.309) and Self-blame (p=0.001, r=0.245) have a weak negative correlation. Behavioural disengagement (p=0.000, r=0.409) has a medium negative link.

Correlation link between the competence Comparative emotional thinking and Active coping (p=0.048, r=0.154), Planning (p=0.011, r=0.196), Humour (p=0.025, r=0.174) and Acceptance (p=0.001, r=0.258) is weak positive. Weak negative is the link with Denial (p=0.045, r=0.156).

The competence Emotional oscillations has a statistically significant weak negative correlation link with the strategies Denial (p=0.014, r=0.190), Behavioural disengagement (p=0.006, r=0.214) and Self-blame (r=0.196).

The competence Autonomous search of new options has a weak positive correlation with Religion (p=0.000, r=0.286) and Self-blame (p=0.000, r=0.286) and a medium strong one with the subdimensions Planning (p=0.000, r=0.357) and Acceptance (p=0.000, 0.446), as well as a strong correlation with Positive reframing (p=0.000, r=0.589). There is a weak negative correlation with the subdimension Denial (p=0.003, r=0.233) and Self-blame (p=0.000, r=0.286) and a medium one with Behavioural disengagement (p=0.000, r=0.489).

The competence Autonomous wish for self-improvement has a weak positive link with Active coping (p=0.003, r=0.227), Positive reframing (p=0.047, r=0.155) and Religion (p=0.000, r=0.290); it also has a moderate link with Planning (p=0.000, r=0.371).

Table 1: Correlations and Descriptive Statistics of Studied Variable (N = 166).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	Trust into partner																						
2	Mutuality and co-operation between partners	,510**																					
3	Understanding and verbal expression of emotions	,358**	-,449**																				
4	Comparative emotional reasoning	0,114	0,099	,300**																			
5	Emotional oscillations	,169*	-,556**	,797**	-0,031																		
6	Autonomous search for new options	,320**	,340**	,392**	,231**	0,082																	
7	Autonomous wish for self-improvement	-0,040	-0,072	-0,092	-0,025	-,270**	,269**																
8	Autonomy of judgement	,365**	,373**	,427**	,317**	-0,093	,415**	0,035															
9	Self-distraction	-,232**	-,177*	-,203**	-0,071	-0,136	-,162*	0,089	-,154*														
10	Active coping	,234**	,175*	,284**	,154*	-0,097	,473**	,227**	,435**	-,258**													
11	Denial	-,256**	-,185*	-,309**	-,156*	-,190*	-,233**	-0,031	-,285**	,280**	-,381**												
12	Substance use	-0,028	0,005	-0,060	-0,069	-0,131	0,080	0,072	0,082	-0,005	-0,034	,209**											
13	Use of emotional support	,411**	0,025	0,075	0,030	-0,097	0,011	0,110	0,090	0,124	0,077	0,000	0,029										
14	Use of instrumental support	,394**	0,045	0,077	-0,002	-0,058	0,033	0,139	0,071	0,061	0,080	-0,017	-0,030	,863**									
15	Behavioral disengagement	-,427**	-,331**	-,409**	-0,073	-,214**	-,489**	-0,030	-,328**	,342**	-,478**	,487**	0,052	-0,014	-0,035								

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
16	Venting	0,115	-0,002	0,137	0,100	-0,143	-0,008	0,105	0,078	0,092	0,014	0,110	0,022	,397**	,406**	0,128							
17	Positive reframing	,254**	,203**	,299**	0,083	0,120	,589**	,155*	,196*	-0,058	,454**	-,222**	0,098	0,138	0,150	-,421**	,165*						
18	Planning	0,134	0,121	,231**	,196*	-0,118	,357**	,371**	,229**	-0,019	,524**	-,230**	-0,086	,201**	,236**	-,269**	,274**	,366**					
19	Humor	0,025	0,058	,178*	,174*	-0,005	0,140	-0,056	0,139	0,087	0,067	0,063	0,076	0,104	0,118	0,024	0,134	,311**	0,036				
20	Acceptance	,181*	,197*	,262**	,258**	0,048	,446**	0,056	,347**	0,013	,377**	-,399**	0,018	0,133	0,124	-,293**	,170*	,554**	,395**	,364**			
21	Religion	0,075	-0,077	-0,066	-0,11	-0,094	,268**	,290**	-0,047	0,058	0,137	-0,049	0,068	,240**	,267**	-0,071	0,130	,289**	,250**	0,075	,202**		
22	Self-blame	-,265**	-,189*	-,245**	-0,141	-,196*	-,286**	0,117	-,296**	,156*	-,263**	,405**	0,070	0,111	0,099	,495**	0,150	-0,109	-0,124	0,146	-,189*	0,037	
	Minimum	2	12	3	9	3	3	6	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Maximum	10	50	27	25	27	15	15	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	Mean	7,00	28,70	15,14	17,35	13,13	10,67	11,37	19,14	5,39	6,34	3,29	2,42	5,34	5,41	3,86	5,46	6,04	6,34	4,20	6,22	4,16	4,16
	Std. Deviation	2,30	11,17	7,02	3,36	8,45	2,66	1,99	3,51	1,53	1,22	1,46	1,01	1,70	1,72	1,60	1,26	1,46	1,26	1,74	1,28	2,07	1,59
	Skewness	-0,477	0,604	0,484	-0,167	0,522	-0,313	-0,144	-0,484	-0,017	-0,523	1,056	3,177	0,001	-0,065	0,792	-0,128	-0,557	-0,715	0,503	-0,391	0,551	0,782
	Kurtosis	-0,786	-1,084	-1,138	-0,040	-1,338	-0,226	-0,373	0,052	-0,667	0,010	0,568	12,350	-0,857	-0,897	0,181	0,275	-0,017	0,793	-0,612	-0,298	-0,994	0,001

***. Correlation is significant at the 0.01 level*
**. Correlation is significant at the 0.05 level*

Weak positive link was shown by the results of the correlation between the competence Autonomy of judgement and strategies Positive reframing (p=0.011, r=0.196), Planning (p=0.003, r=0.229), while the correlation with Active coping (p=0.000, r=0.435) and Acceptance (p=0.000, r=0.347) is moderate. There is a weak negative correlation with Self-distraction (p=0.047, r=0.154), Denial (p=0.000, r=0.285) and Self-blame (p=0.000. r=0.286), and a moderate correlation with Behavioural disengagement (p=0.000, r=0.328).

Discussion

According to the results, an individual that trusts into other people's help actively deals with problem solving in stressful situations, seeking help and emotional support with others. He is likely to perceive the problem from a positive point of view and to learn from the situation. He does not seek distraction in work and other activities to stop reflecting on the problem, neither does he deny it or despair. He does not blame or accuse himself for the situation. Mutual cooperation enables him to perceive the problem as a fact that can be dealt with.

Understanding, verbal expressing and comparative emotional thinking enable an individual – apart from actively confronting the problem – to develop a positive approach to problem, to plan solutions (also with humour), to accept them and live with them. He is thus less likely to distract himself with other activities (cinema, TV, reading,

daydreaming, sleeping, shopping) so as to stop bothering about the problem. He is also less prone to denial and despair.

Individuals autonomously seeking new solutions and believing they can still make progress in the field of conflict management, individuals striving to improve their manner of reacting are the ones likely to see a problem from the positive and spiritual side, to plan solutions and live with them in a positive way; they are, however, also less likely to deny the problem and to despair.

Greater ability of autonomous judgement can be expected from persons actively dealing with problems, having a positive approach to problem solving, planning, accepting facts and learning from situations. Such persons are less likely to seek distraction elsewhere, to deny problems, despair and blame themselves.

Research studies dealing with correlation between emotional competence and stress do not exist. In the research study (Vater in Schröder Abé 2015) it has been ascertained that every factor of a personal characteristic is related to at least one strategy of emotional regulation. Emotional regulation, however, is the key factor in the development of emotional competence. According to the research study (Leger et al. 2016) on correlation between personal characteristics and stress differences between personal characteristics affect one's estimation of potential stressful situation. Interactional and transactional stress models guide much of this personality and stress-related research. These models propose that personality is associated with stress in the following ways. First, those with certain personality characteristics are more likely to expose themselves to more frequent and severe stressful experiences. Second, individual differences in personality traits may influence appraisals of potentially stressful circumstances. Last, personality is associated with the effectiveness of the coping responses whereby cognitive and behavioural efforts can prevent, manage, or alleviate distress. Results of this study indicate that personality traits are differentially associated with positive and negative stressor-related affect; neuroticism, conscientiousness and openness to experience uniquely contribute to the degree of stressor-related negative affect, and stressor-related appraisals partially account for this relationship. Only agreeableness relates to the degree of stressor-related positive affect, but how people appraise their daily stressors are unrelated to this association. These findings suggest that these differences in stressor-related affect may serve as one potential mechanism through which personality traits impact health and emphasize the need for future studies to examine not just changes in negative, but also changes in positive affect in response to stress.

Conclusions

People confront stressful situations in more or less functional ways. According to the present research project, emotional maturity and acquisition of emotional competences throughout individual's life affect the choice of his stress

handling strategy. Emotional processing or, rather, the ability of emotional processing, is a new but ever more popular object of empirical research in psychotherapy, which is why it makes sense to determine in future, which are the key competences in individual work settings. Research studies will contribute to theoretical knowledge of emotional processes, serving as a basis for the creation of new therapeutic approaches, as well as for a more efficient clinical practice in the field of mental health.

Limitations

The research study has a few limitations. Research results cannot be compared to results of other research studies, as there are no research studies from the point of view of emotional competence

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Stress of conscience as a risk factor for burnout among ICU nurses in University Medical Centre Maribor

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Abstract

Introduction: A nurse's conscience is an important factor in clinical decision-making. Conscience can be clean or troubled; it can warn, encourage or judge. A troubled conscience appears when a person neglects the voice of their own conscience. When related to the quality of the provided service, a troubled conscience can cause stress. Work related stress is defined by endogenous and exogenous factors: the presence of various environmental stressors and the individual's coping ability. A prolonged period of exposure to stressful situations may lead to occupational burnout. Burnout is a state of physical and emotional exhaustion originating in an individual's internal processes, but triggered by external burden. Individuals with burnout syndrome exhibit symptoms of depression, anxiety and depersonalisation. Method: A descriptive method was used. A literature search was performed between March and June 2017 in databases CINAHL with full text and MEDLINE. *Results:* Stress of Conscience Questionnaire appears to be a valid instrument for measuring the stress of conscience in various situations in healthcare. The questionnaire has already been translated into Slovene language and will be applied in a future research within the intensive care units of UKC Maribor. Discussion: A troubled conscience can cause burnout symptoms, especially in intensive care units where patients are monitored constantly by highly trained professional teams.
Key words: workplace stress, occupational burnout, intensive care nursing, mental health, nurse.

Nurses perform effective professional decision making every day. Not only professional expertise affects their decisions, but also their attitudes, values, personality and constraints of healthcare organisation. And yet, sometimes there are adverse consequences. If the outcome is unfortu-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.199-207

nate, severe psychological stress, combined with feelings of guilt and troubled conscience can occur.

Conscience and troubled conscience

Conscience is an integral part of professional decision-making. At the beginning of life, conscience in general is formed through parental values. Religious values and various extrinsic factors are also important. Conscience in relation to established social norms can influence "judgement" which can cause an internal conflict (Thompson et al., 2006; Weinstock, 2014). People describe their conscience as "the voice that tells them what to do." It guides towards "good" and discourages "evil". Some religious theories interpret the voice of conscience as the voice of God. The Old Testament argues that a person has two choices. Conscience is God's emissary or teacher, but man himself must decide between his two tendencies towards good or evil (Fromm, 1987; Wood, 2009).

Trstenjak (1971) describes conscience as a compass that directs nurses towards professional goals by protecting against reckless decisions. There are two extremes: dulled conscience, navigating in the wrong direction and extra-sensitive conscience, acting as a brake. Properly formed conscience will not cause discomfort. Nurses with properly formed conscience constantly receive internal support for their professional conduct. Conscience helps to administer ethical standards to concrete situations. It accompanies every professional decision. A troubled conscience is sadness in conjunction with the idea of a past unexpected event and is a sign of helplessness. Nurses mention a troubled conscience when they are not able to provide sufficient high-quality care and when nurses do something, but at the same time know that this should not be done. Troubled conscience is followed by feelings of guilt (De Spinoza, 1988; Kelly, 1998; Strandberg and Jansson, 2003; Genuis and Lipp, 2013).

Stress and occupational burnout

Stress is defined as a physiological, psychological and behavioural response to stressors. A stressor can be an event, a person or an object (Dernovšek et al., 2006) which triggers a physiological response. Stress has many negative connotations, although positive stress is also possible. Stress becomes negative when individuals cannot control the situation or find themselves in distress that is impossible to deal with. Long-term negative stress results in deterioration of health, emotions and behaviour, signalling work overload. (Yehuda 2002; Hafner and Ihan, 2014).

In the past, burnout was initially only associated with caring professions (Selič, 2010). Occupational burnout is the result of prolonged workplace stress. The first questionnaire for burnout assessment was developed in 1981, measuring three dimensions: emotional exhaustion, depersonalization and personal fulfilment (Maslach and Jackson, 1981; Hafner and Ihan, 2014). Burnout occurs when discrepancies between the nature of work and the nature of man appear.

Indicators of discrepancies are: overload, lack of supervision, inadequate financial benefits, absence of strong workplace community, lack of honesty and conflicts of values. All discrepancies contribute to burnout, and focusing on the individual exclusively will not have the desired effect. Some individuals will seek refuge in their work as a solution to their personal problems. Burnout develops slowly over the years, making it difficult to diagnose and treat. Burnt out individuals are chronically tired, experience headaches, sleep disturbances, vomiting, changes in nutrition, are alienated from their work and feel that they are becoming less effective, motivated and more cynical. Complete burnout is a state of physical, emotional and mental fatigue and classified as a problem related to life management. Burnout is a gradually expanding disintegration of values, spirit and mood. Depression and anxiety are also common. One of the results of prolonged stress could be a stroke experience, heart attack and suicide (Maslach and Leiter, 1997; SZO, 2006; Hafner and Ihan, 2014).

Nursing care in intensive care units (ICU)

One of the nursing roles is supporting the treatment plan. Nurses in the ICU are known for their systematic and integrated approaches, which require psychophysical abilities and personality traits allowing a responsible attitude towards the patient (Kodila, 2008; Makovec, 2009). Healthcare workers need to be highly qualified, requiring theoretical knowledge, responsibility, and experience for an immediate professional response, making the ICU itself a constant stressor (Mealer et al., 2007; Polovšak, 2009). The psychological effects of stress are relatively unknown, but are related to the environment where treatment is complex and mortality of patients is high. Consequently, nurses may become irritable, depressed and frustrated. Continuous stress and the inability to adapt can cause burnout symptoms (Badger, 2001; Jonsson et al., 2003; Mealer et al., 2007).

Burnout in healthcare systems is often overlooked, because the focus is on caring, and professionals often do not recognise their own vulnerabilities. The authors are preparing a study on the impact of troubled conscience on burnout in a sample of ICU nurses in University Clinical Centre Maribor. The chosen research instrument was the Swedish Stress of Conscience Questionnaire (Glassberg et al., 2006). The aim of the article is to present results of studies that previously used the questionnaire to confirm its usability in Slovenian context.

Methods

A descriptive method was used. A literature search was performed in March 2017 in databases CINAHL with Full Text and MEDLINE. We used the exact search phrase "stress of conscience questionnaire". All studies that included registered nurses were chosen for the review, excluding the validation studies of the questionnaire. The final analysis included 6 studies, as seen in figure 1.

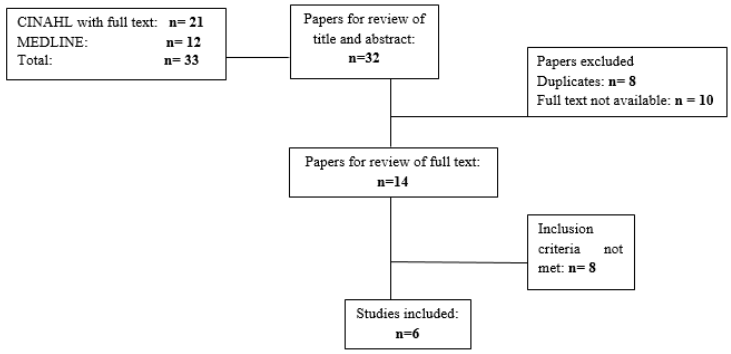

Figure 1: Literature search process.

Results

The following table (table 1) describes the main study characteristics of studies where Stress of Conscience Questionnaire (SCQ) was used to measure the stress of conscience in healthcare professionals

Table 1: SCQ study characteristics.

AUTHORS	*AIM*	*METHOD*	*RESULTS*
Glasberg et al., 2007	Analysis of the importance of the factors that contribute to the occurrence of burnout of health professionals.	Survey study 423 respondents	Most often there is not enough time for quality patient care. Most troubled conscience is caused by the fact that work is so demanding that it leaves too little time for family. Emotional exhaustion and depersonalisation can be largely explained by the stress of conscience.
Glasberg et al., 2008	Exploring the factors that contribute to stress of conscience or to the stress caused by a troubled conscience in health care.	Same as above	Stress of conscience can mainly be explained by the perception of conscience and moral sensitivity. Health workers that cannot follow the voice of their own conscience at work experience more stress of conscience. Female respondents had significantly higher averages compared to males in items about external demands and restrictions in health care.

AUTHORS	AIM	METHOD	RESULTS
Juthberg et al., 2007	Exploring the connection between the stress of conscience, perceptions of conscience and burnout in caregivers of the elderly.	Multiple questionnaires 146 respondents	Not enough time for quality patient care and work is too demanding to leave enough time for family. Private life rarely interferes with work.
Juthberg et al., 2010	Exploring the relationship between perceptions of conscience, stress of conscience and burnout in relation to occupational belonging.	Same as above Additional statistical analysis	Not enough time for quality patient care and work is too demanding to leave enough time for family. Private life rarely interferes with work.
Saarnio et al., 2012	Testing the Finnish version of SCQ to explore the stress of conscience on staff who care for elderly with dementia.	Survey study Stratified sampling 436 respondents from 45 different institutions.	Not enough time for quality patient care and work is too demanding to leave enough time for family. Health professionals rarely avoid patients or relatives who need help.
Tuvesson et al., 2012	Exploring the connection between environmental and individual factors and the stress of conscience in psychiatric nursing.	Multiple questionnaires 93 respondents	The variability of SCQ results is largely influenced by a sense of moral burden. Higher moral sensitivity has a greater impact during ethical dilemmas, leading to a troubled conscience.

Discussion

Nursing is associated with various stressors. In Slovenia, stress and burnout has been studied among mental health nurses (Čuk and Klemen, 2010; Peterka Novak et al., 2010; Bregar et al., 2011; Nemec and Čuček Trifkovič, 2017), emergency nurses (Kugonič, 2013) and community nurses (Kaučič, 2002). Conscience, troubled conscience and burnout in Slovenian nurses was described by Pahor and Peternelj in 2003, but the results have not been published. The existing literature also does not offer any research on conscience in ICU nurses, so the authors decided to contribute to the field with their own study. Judging by the results of the literature review, the SCQ is suitable for our research. However, due to lack of experience in scientific research, the authors were not fully prepared for the amount of time needed before the actual start of the study.

It seems that stress of conscience is strongest when lack time for quality patient care is present and when the complexity and shift of the job does not allow enough time for family. Troubled conscience appears in situations where patients are mistreated. On the other hand, avoiding patients or their family members is not a cause of troubled conscience, because healthcare professionals rarely avoid patients or relatives who need their help. Stress of conscience is an important risk factor for burnout in nurses (Glasberg et al., 2007; Juthberg et al., 2010; Saarnio et al., 2012). Theoretically, we should conclude that nurses often suppress their conscience to allow the working process to contin-

ue. This problem should be addressed by leadership of every healthcare institution to ensure the quality of service and preserve nurses' mental health at the same time.

Conclusions

Everyday professional demands can become a burden and lead to burnout. Nursing practice is associated with many situations that might cause a troubled conscience. Stress of conscience can contribute to burnout. Further research in the area would help identify early symptoms of burnout. The authors have drafted a protocol of a quantitative research study, which will be conducted among nurses working in two ICUs in the University medical centre Maribor, currently in the process of obtaining the appropriate permissions. The study is currently in the process of obtaining all necessary permissions before beginning actual data collection. The authors will use a Slovenian version of the SCQ. With our findings we wish to encourage changes which might help to reduce occupational burnout caused by a troubled conscience, and thus to improve the mental health of nurses in the ICU.

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Women's Quality of Life during the Grief Process after Perinatal Death

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Abstract

Background: Around one fifth of pregnancies worldwide ends in miscarriage, ectopic pregnancy or stillbirth. Women often do not show their feelings after these events; they suppress them or do not talk about their loss. Unresolved grief can affect many aspects of women physical and mental health in all stages of life. *Methods:* The study included 108 women who experienced perinatal loss. All of them completed the Munich Grief Scale questionnaire and a questionnaire on demographic data. *Results:* Statistically significant differences in the experience of grief were associated with gestational age of the child ($p < 0.01$), the age of the mother ($p < 0.05$) and the time that has elapsed since the child's death ($p < 0.01$). In the clinical setting women judged dealing of health workers, and reported more understanding and compassionate treatment at home. The research was the basis for developing protocols with instructions for handling a situation of stillbirth, focusing on mental well-being of the mother. *Discussion and conclusions:* The qualification of health professionals is very important. They have the first contact with the mother and at the same time the influence to prevent the pathological processes of bereavement. Careful planning of health care and by using the protocol, nurse can gain an insight into the process of bereavement, and has a tool that focuses on procedures and activities.
Keywords: grief, stillbirth, perinatal death, quality of life

The loss of a child is one of the hardest events, or namely one of the hardest and most painful experiences. People often associate grief with a wound that will slowly heal over time and eventually it will be completely healed, but the death of a child is more similar to the loss of a limb or its functioning; namely nothing can heal such a wound completely, in the case of a loss it can only come to the gradual acceptance and adjustment of the irreplace-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.209-217

able and painful loss. The society underestimates the experience in the case of the death of a newborn or in the case of a miscarriage. It is wrongly perceived that grieving is irrelevant in such cases and for that reason parents usually suppress their feelings and do not talk about their loss or ask for help. Perinatal loss therefore defies the modern expectations of a healthy outcome of pregnancy and it was proven to be as important as any other loss of a loved person (Cartwright and Read, 2005).

Grieving is a proces where we consciously say goodbye and transform the experience of a loss and integrate it in our life in a manner that we take with us what is important and essential and eventually try to move on. However, this is only possible if we manage to cope with the pain that is present, and we manage to process it in the process of grieving (Simonič, 2006).

There are many factors that determine how the grieving person will cope with the loss of a loved one: individual (gender, age, attachment, home environment), situational (cause of death, manner of receiving the news of the loss) and socio-cultural (accepted form of grief, burial ceremony, stereotypes, taboo subjects) (Ozbič, 2015); but most certainly strong emotions will always be present.

Women and Expressing the Feelings in the Grief Process

In the grieving process that usually lasts up to 24 months (Velikonja, 1999), the reactions of women are in most cases very intensive and long-lasting (Wing et al., 2001; Ozbič, 2015). In the stage of shock, experiencing depersonalization is more common for the mothers than the fathers. Right after the death of the child, intensive distress, depression and grief was observed in mothers; and all these states could still be observed long after the loss. Besides, intrusive thoughts, preoccupation, longing and the sense of being more vulnerable and anxious are also very frequent (Wing et al., 2001). Anger is intensive at the beginning of a grieving process and starts to slowly fade away over the period of two years (Ozbič, 2015). The feeling of guilt is especially present with mothers, when the cause of death is unknown. It can be inward - (they blame themselves) or outward-oriented (they blame the partner, doctors, God or fate). Searching for causes of death can be realistic (regarding medical conditions that were not in accordance with the imposed regime) or unrealistic (eating habits, recreation, sexual intercourse, arguing, thoughts or feelings about the pregnancy).

When the intensity of sadness and grief is so strong that an individual cannot accept the loss and the grief turns into depression and despair, this is called pathological grief. However, the clinical diagnosis does not know the term ‚pathological grief', and therefore the ones that are treated by psychiatrist are diagnosed with depressive episode (Peljhan, 2016). The mentioned states of women reduce their quality of life as well as the lives of close family members that are also dealing with the loss in their own way.

The quality of life here refers to the physical and mental well-being. It is based on five factors: functional state of an individual, presence of physical symptoms, emotional and social condition including social relationships and the impact of medical treatment. More and more studies research the link between the quality of life and health and also give opinions and standpoints from the patients' point of view (Kopčavar Guček in Franić, 2008).

Women's quality of life in the grief process after perinatal death is very individually oriented and can be affected by many different factors, among which are also the ones we have already mentioned. It is extremely important that grieving women are given the chance to respectfully and decently grieve; the process should start already in the maternity hospital and continue in their home environment. The key role have the health workers.

Methods

Sample

108 women participated in the survey and the average age in the time of the loss was 29.2 (SD = 5.18 years). Participants of the survey were in average 24 weeks pregnant (SD = 9.90 weeks). 34% of the participants, which represented the majority of women participating in the survey, had university degree, i.e. they completed the second cycle of the Bologna process. In the time of the loss of the child, 52% of women were married and 48% had a non-marital partner.

Research Tools

The initial questionnaire took demographic data, medical history, i.e. how many times were the women pregnant before and possible miscarriages or induced abortions. The questionnaire also included questions about how they received the news about their child's death, the course of stillbirth, the period after the labor and needs of the grieving mothers or both parents and what they would require afterwards from the health professional in that time. Added were also open-ended questions about their experiences of the treatment and handling in the maternity hospital from the time they were accepted in the hospital until their release and their home environment, the treatment of the home care nurse, about expressing their feelings after the loss and their search of the purpose afterwards, impacts of the loss on the relationship with the partner and their other living children and the completed grieving process.

Munich Grief Scale

Munich Questionnaire consists of 22 questions where participants answered with the Likert five point scale (1 – never, 2 – rarely, 3 – sometimes, 4 – often, 5 – always) and also described how they felt in that moment. The questions are combined into 5 subscales: grief (6 questions), fear of the loss (5 questions), guilt (5 questions), anger (3 questions) and search of the purpose (3 questions).

The whole questionnaire consisted of: open-ended questions (15 questions), partially openended questions (1 question) and closed-ended questions (31 questions) and the Munich Grief Scale consisting of 22 closed-ended questions.

Processing and Analysis of Data

The survey was conducted via web portal 1KA, that was available from the 8th of January 2016 until the 8th of March 2016. The participants agreed to participate in the survey and were explained the purpose and the objectives of the research prior to answering the questions. Data was analyzed with Microsoft Excel and SPSS ver. 20.0. The level of statistical significance was set at 0.05.

Results

We were interested, whether the time of a miscarriage or stillbirth has any impact on the level of grief due to the loss of the child. The participants were divided into two groups: women that lost their child before the 22nd week of pregnancy and women that lost their child in the 22nd week or later.

Table 1: Difference among women and their experiencing of grief regarding gestational age of child.

Gestational age of the dead infant (in weeks)	*N*	*M*	*SD*	*t-test*		
				t	*df*	*p*
Less than 22 (< 22)	65	3.70	0.54	2.484	106	0.015
More or equal to 22 (≥ 22)	43	3.40	0.70			

We found out that regarding the gestational age (less and equal or more than 22 weeks) there are statistically important differences among women and their experiencing of grief (Table 1).

We also wanted to know if experiencing grief might also depend on how much time has passed since the loss. Participants were further divided into two groups: women that lost their child relatively recently (i.e. less than 24 months ago) and women that experienced the loss more than 24 months ago.

Table 2: Comparisson considering time passed since the loss of the child.

Time passed from the loss of the child (in months)	*N*	*M*	*SD*	*t-test*		
				t	*df*	*p*
Less than 24 (< 24)	44	3.80	0.54	-3.919	106	0.002
More or equal to 24 (≥ 24)	64	3.43	0.64			

Results (Table 2) showed that how much time had passed from the critical event is a very important factor and has an impact on experiencing grief.

Further on, we wanted to find out if the age of the mother at the time of the loss also has an impact on experiencing grief. Participants were divided into two groups: on women that were under 30 years old at the time of the loss and on those that were 30 years old or older.

Table 3: Comparisson considering the chronological age of mothers in the time of child loss.

Chronological age (in years)	*N*	*M*	*SD*	*t-test*		
				t	*df*	*p*
Less than 30 (< 30)	60	3.46	0.63	2.297	106	0.024
More or equal to 30 (≥ 30)	48	3.73	0.59			

We found out that there are statistically important differences considering the chronological age of mothers in the time of the child loss (Table 3).

Further on, we found out that there are no significant differences in experiencing grief, other painful feelings, memories or the need to talk about their loss, to cry and miss the child etc. in regard to seeing the child or not seeing it after the miscarriage/labor.

Whether the medical workers were understanding and sympathetic to the mothers during the time they were in the hospital, 58% of the mothers said yes and 42% said no. Out of 108 participants, 68% felt that in their home environment the health professionals (personal doctors, at the gynecologist 3 weeks after the miscarriage or 6 weeks after the labor and by home care nurses) were understanding and sympathetic towards them, while 32% of the participants said they did not receive adequate treatment by health professionals.

One of the questions of the questionnaire was regarding the loss of the child and the consequential impact it had on the relationship with their partner, which also strongly affects the quality of life during the grieving process. As much as 63% of the participants agreed that their relationship with the partner improved, 16% claimed it stayed the same and 21% of women said their relationship worsened.

Discussion

Grieving is the process of slowly letting go of the emotional attachment towards the child. Still, the woman that lost her child is experiencing strong feelings and confusion. Such emotions are present no matter how early the pregnancy terminated, even if it only lasted a few weeks. Some women do not experience grief right after a miscarriage; however, that does not mean there is something wrong with them or that they are uncaring because every individual reacts differently and the grief and disappointment can also appear at a later time (Zečević et al., 2003).

We found out that there are significant differences in experiencing grief due to various factors, namely after the loss of the child, it also depends on how

much time had passed from a miscarriage or stillbirth. Women that lost their child in the 22nd week of pregnancy are showing stronger emotions of grief and other painful feelings, memories, a need to talk about their child, to cry and miss it etc.

The age of the mothers at the time of the loss also proved to be an important factor because it showed to be an important indicator of experiencing grief with the participants. Namely the grieving process was more intensive with mothers that had perinatal loss at the age 30 or older than mothers that lost their child before reaching 30 years of age. The first group showed more intensive feelings of grief and other painful emotions, memories, a need to talk about their child, to cry and miss it etc.

From this we can conclude that the age of the mothers also has an impact on the intensity of grief, or how deep it is and therefore the grieving process is also longer.

The time that had passed from the loss of the child and to the time the survey was carried out is also one of the important indicators that showed in which grieving stage the participant was or if she already completed the grieving process. Participants that experienced the loss of their child 24 months ago are still expected to show certain grieving patterns in comparison to women, who experienced the loss over 24 months ago. When the intensity of grief is so strong that an individual cannot accept the loss, which can eventually lead to depression and despair, it is called pathological grief (Peljhan, 2016). Results of the conducted survey showed that in average women got pregnant again 15 months after the loss.

The results also showed a significant difference in experiencing grief among the participants regarding the time that had passed from the loss of the child. Women that experienced the loss of the child 24 months prior to conducting the research (44 out of 108 participants) showed more intensive emotions of grief and other painful feelings, memories, the need to talk about their child, to cry and to miss it etc.

After the loss it is very important that the parents decide how long they should wait to get pregnant again. In any case, there is no rule when is the right time, but it is important that the woman lets herself grieve and deals with her feelings of the loss. A little over one third of the women participating in the survey were already pregnant again before they answered the questionnaire. Only one participant got pregnant as soon as one month after the loss of her child, which is rather fast. Regarding the theory of the grieving process, an individual after a critical loss barely moves from the stage of shock and realizes the reality of the loss in one month, as the acute stage of the grieving lasts from 2 to 6 weeks (Velikonja, 1999). Among the women participating in the survey the longest time that passed from the loss of the child to another pregnancy was 5 years.

It is an interesting fact that Gravensteen et al. (2013) came to completely opposite conclusions regarding holding or seeing the child after stillbirth or miscarriage. Namely they found out that seeing the baby afterwards had a positive effect on the grieving process and therefore they encouraged health workers to prepare the parents to see their child and spend the time with it to say goodbye.

However, it is concerning that only 58% of the participants were treated with understanding and sympathy by health workers. From the answers of our participants and other surveys (Baznik, 2005) we can conclude that parents criticized and had a negative experience with health workers after the loss of their child. According to other research, the grieving parents also said they did not get enough information regarding the tests made after the death of their child, the cause of death and the consequences the loss can have on the mother and her chances of getting pregnant again. Gravensteen et al. (2013) further on discovered that the majority of women were given support (85.6%) during the labor and were respectfully treated (94.4%) with the stillborn baby by the health workers.

It is of great importance that the help is offered to the parents‘ right after the loss of their child because it can reduce the risk of a negative outcome. The help can be offered by the doctors, nurses and other interdisciplinary members of the team, including psychologists and social workers (Wing et al., 2001).

More sympathy and understanding was given by health workers in the home environments of our participants, as was claimed by 68% of the participants. When asked, what they would require from the health workers in their home environments, women‘s answers varied. Majority claimed that they would need more pieces of advice on how to move on and where to look for help further on. This is the role of community nurse that has to document all the observations of a mother after stillbirth. In the case of a problematic outcome that the home care nurse cannot resolve by her own, a selected doctor, gynecologist or other suitable institution has to be informed (Kraševec, 2002).

Conclusion

In the health care process of the obstetric and gynecological care only emphatic healthcare workers should be employed due to special sympathetic treatment women should be given as they are under the influence of many hormones after giving birth. And when we also deal with perinatal death, the health workers should, besides being compassionate, also have enough knowledge and willingness to educate themselves further. Additional training is essential for health workers because, firstly they also have to deal with the loss themselves. And secondly, it is their help that is of extreme importance in such critical period for the parents as it can effect and make a difference between a healthy grieving process and an unhealthy one.

It is of great importance that the woman and her needs would truly be put first in the postnatal care. One of the participants of the survey wrote that she "*would wish that they would think about the particularities*" and gave us a great starting point for further research. Namely, the parents should be able to talk to the midwife or a nurse after receiving the sad news, who would explain the course of the labor, important information and encourage the parents to see and hold the baby and even name it, inform them of the grieving process, the nature and process of the bureaucracy and also offer them the time they need to think about their own needs in connection to their dead child, no matter how hard it is for them. When the parents would be given all the information right after they had received the sad news about the death of their child or already when they are accepted into the hospital for the arranged induced labor, they would cope better after seeing their child and also with their expectations and the reality of the loss. The positive effects of such a talk would later be observed during their grieving process and would also affect their quality of life in the process. We should also be aware of the fact that the grieving process of the parents cannot be alleviated and parents also do not want that from us. Our caring and sensibility that come before realization can help us to understand the pain of others, to listen to them and offer them our help (Globevnik Velikonja, 2000) that is in such times very much needed.

Later in the grieving process we should also encourage grieving women and other family members to search for additional psychological and therapeutical help in order to cope more efficiently with their feelings. It would also be very wise to integrate women in complementary methods of coping with their grief and other emotions. One of such efficient methods is the EFT (Emotional Freedom Technique), a technique to achieve emotional freedom (Craig, 2007). The EFT is a tool that helps to ease negative emotions and offers many ways to solve emotional problems (Craig, 2007; Fone, 2012).

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Absenteeism in Slovenian railways – comparison between different work groups

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Abstract

Introduction: In the working environment there are several (even negative) factors which can affect employees and the consequence is absenteeism. The most often causes of absenteeism in Slovenian Railways Group are musculoskeletal problems, nonworking infections and injuries, and mental and behavioral disturbances. *Methods:* We observed the percent of absenteeism between four work groups, of which two groups were regular work schedule and two groups were shift-work schedule. The absenteeism was observed between years 2007 and 2015. Regular work schedule employees were office workers and railway infrastructure maintenance workers. Shift-work schedule employees were train drivers and railway wagon inspectors. *Results:* Using 2-way ANOVA we found the greatest percent of absenteeism in railway infrastructure maintenance workers (6,38 % ± 0,95 %), followed by train drivers (4,49 % ± 1,39 %) office workers (4,23 % ± 0,58 %) and railway wagon inspectors (3,28 % ± 0,62 %). Conclusion: Because we did not have available data on the causes of absenteeism, we can about them only assume on the basis of knowledge of the working environment. In the next survey, we will ask employees about the causes of absenteeism and on the basis of the results we will produce guidelines and recommendations for preventive action.
Key words: percent of absenteeism, railway infrastructure maintenance workers, train drivers, office workers, railway wagon inspectors.

In working environment, the workers are influenced by several physiological and psychological risk factors. When workers are exposed to those factors for a longer period of time the consequence can be absenteeism. Three main causes for increased absenteeism are I.) incorrect posture and incorrect manipulation with objects, II.) increased body mass and III.) physical inactivity

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.219-226

(Albreht, 2016). Epidemiological research has been providing information on causality of infectious diseases and causality of some chronic diseases thus influencing occupational health and safety. Furthermore, epidemiology can explain causality of absenteeism. Absenteeism is expressed in percentage therefore giving the average fraction of lost working days per person (NIJZ, 2016). Between years 2007 and 2015 the absenteeism in the Slovenian Railways Group was higher in comparison with absenteeism in the Republic of Slovenia (Figure 1) therefore we wanted to examine the absenteeism by different occupational subgroups. In our research, we compared absenteeism between four groups of workers of Slovenian Railway Group. The data was acquired from annual workers health reports which are every year prepared for the previous year. Current annual reports represent just percent of absenteeism but not the detailed information about causality of absenteeism.

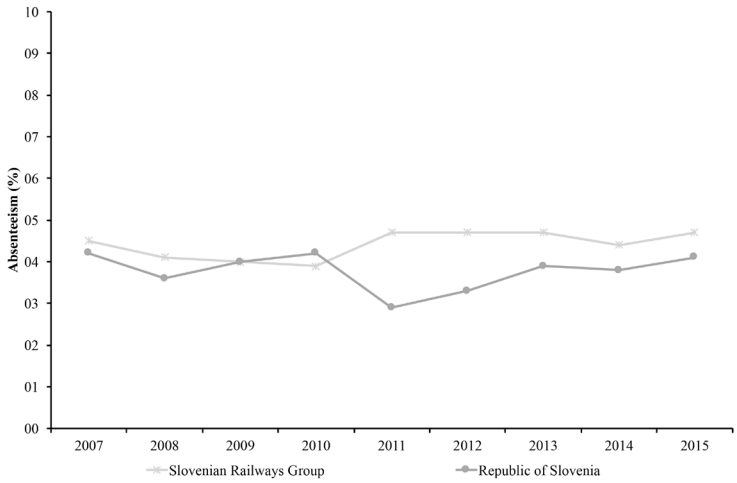

Figure 1: Graphically represented percent of absenteeism between Slovenian Railways Group and Republic of Slovenia.

Workers from the observed groups were railway maintenance workers, office workers, train drivers and railway wagon inspectors. Railway maintenance workers and office workers have regular work schedule, while train drivers and wagon inspectors work in shift-work schedule. The other difference between groups is the dynamic of their work with railway maintenance and wagon inspectors having dynamic work while office workers and train drivers have predominantly sedentary work. The health-risk factors in the maintenance workers group are lifting and moving heavy objects, work in the forced posture, and exposure to weather conditions. The health-risk factors in the office workers group include prolonged sitting (often in the forced posture) and stress. Train drivers work 8-12 hours and are exposed to prolonged sitting, forced posture and whole-body vibrations, accompanied by stress, exposure to electro-magnetic fields, sleep deprivation, eating disorders and other (Vrašec, 2015). Wag-

on inspectors also work 8-12 hours. They work outside therefore the health-risk factors in this group are exposure to different weather conditions, danger of falls, and asymmetrical posture at work.

On the other hand train drivers and wagon inspectors are part of executive railway workers. Executive railway workers are taking an active part in the railway traffic therefore must be at the good health, free of hearing or eyesight troubles, cardiovascular diseases, with settled blood pressure and other. Also, before starting a career, the train driver must perform an ultrasound or ECG which is required in the guidelines of the international association of the railway medical services (van Dijk, Govaart & Voumard, 2007).

The goal of our study was to assess if there are statistically significant differences in the absenteeism between these different groups of railway workers. Furthermore the potential effects of sedentary work and shift work on absenteeism were assessed. We hypothesized that there will be significant difference between different occupations and that shift work and physical work will result in more absenteeism.

Methods

We observed the incidence among four occupational groups of the Slovenian Railways Group, i.e. office workers (regular work schedule, sedentary), maintenance workers (regular work schedule, dynamic, heavy duty), train drivers (shift-work schedule, prolonged sitting) and wagon inspectors (shift-work schedule, dynamic duty). We acquired the data from annual reports on workers' health in the Slovenian Railways Group between years 2007 and 2015. Only the data about absenteeism was included. The data for the nursing or attendance were excluded (E8 by the ICD-10). The average number of employees in the observed period was 1590 in the office workers group, 390 in the railway maintenance group, 960 in the train drivers group and 206 in the wagon inspectors group (table 1). We didn't find the data for the age, gender and other in the annual reports.

SPSS version 20 (SPSS Statistics, IBM, New York, ZDA) has been used for the analyses. One-way analysis of variance (1-way ANOVA) was conducted in order to assess the differences between occupational subgroups (dynamic regular schedule, sitting regular schedule, sitting shift-work schedule, dynamic shift-work schedule). Two-way analysis of variance (2-way ANOVA) was conducted in order to examine the effect of the work schedule and the effect of the dynamics at work (physically active vs. sedentary) and the interaction effect (schedule (2) x dynamic (2)). Statistical significance was set at the $p < 0,05$.

Table 1: The number of employees by the occupation.

		Occupation			
	Year	*Maintenance workers*	*Office workers*	*Train drivers*	*Wagon inspectors*
The number of employees	2007	473	1670	1038	237
	2008	481	1708	1072	228
	2009	443	1735	1090	245
	2010	416	1553	958	193
	2011	378	1387	917	191
	2012	334	1371	892	195
	2013	315	1714	880	192
	2014	344	1417	922	190
	2015	322	1757	871	180
Average 2007-2015		390	1590	960	206

Results

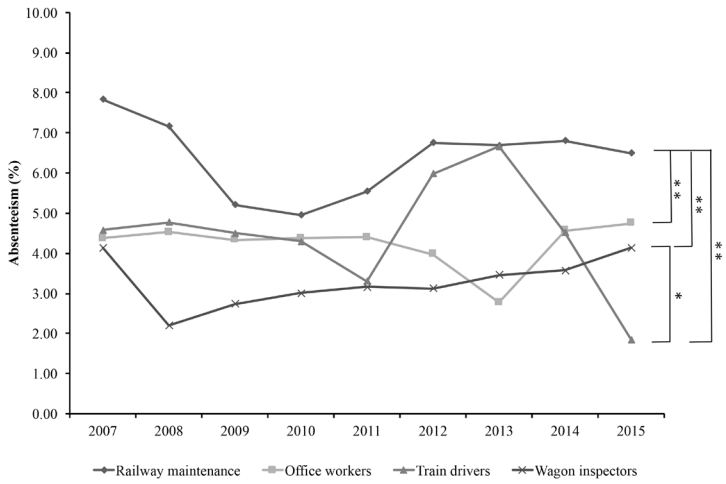

Figure 2: Graphically represented percent of absenteeism among the observed groups.
*** p < 0,050; ** p < 0,001**

Using one-way ANOVA we found significant differences between groups. Maintenance workers have the highest percent of absenteeism (6,38 % ± 0,95 %) which is significantly higher when compared to office workers (4,23 % ± 0,58 %; $p < 0{,}001$, $F = 2{,}152$), train drivers (4,49 % ± 1,39 %; $p < 0{,}001$, $F = 1{,}887$) and wagon inspectors (3,28 % ± 0,62 %; $p < 0{,}001$, $F = 3{,}102$). Significant difference was also found between train drivers and wagon inspectors ($p < 0{,}050$, $F = 1{,}214$).

Between other groups we didn't find significant differences. Figure 2 represents data graphically.

Using two-way ANOVA we first tested the interaction effect between the effect of the work schedule and the effect of the dynamic and the differences by each factor. Comparing by factor dynamic (sedentary vs. physically active) did not show significant differences ($p = 0{,}147$, $F = 2{,}208$). On the other hand, there were significant differences found when comparing by factor work schedule (regular vs. shift-work) ($p < 0{,}001$, $F = 20{,}217$). Also we found the significant interaction effect between both factors ($p < 0{,}001$, $F = 28{,}456$).

Discussion

We found the highest percent of absenteeism in the railway maintenance group (dynamic, heavy duty, regular schedule) and the lowest percent of absenteeism in the wagon inspectors group (dynamic, shift-work schedule). Train drivers (sitting, shift-work schedule) had lower percent of absenteeism compared with maintenance workers and higher percent compared with office workers (sitting, regular schedule). The data shows common percent of absenteeism (without nursing or attendance) and doesn't include causalities for the absenteeism. By the factor of dynamics (sedentary vs. physically active) we didn't find significant differences while differences were found by the factor work schedule (regular vs. shift-work), surprisingly showing lower rate of absenteeism in workers working in shifts. We have also found the significant interaction effect between both factors indicating that combination of shift work schedule and static work or combination of regular work schedule and heavy duty work can cause higher rate of absenteeism. Moreover, we can assume that heavy duty work has stronger impact on absenteeism than shift work.

We acquired information about causalities by National Institute of Public Health. Most often causalities for absenteeism in the Slovenian Railways Group between years 2007-2015 were musculoskeletal problems, nonworking infections and injuries, and mental and behavioral disturbances, followed by work-related injuries and respiratory diseases. The average number of work-related injuries in Slovenian Railways Group was 22 per 1000 employees, which is almost half of that what found Gauchard et al. (2003) in the large French railway company (~40 work-related injuries per 1000 employees). Gauchard et al. (2003) found that more than 15 % of injuries were due to falls. Falls were most freequent in train drivers, maintenance workers and production operators (Gauchard et al., 2003; Chau et al., 2004). Mental and behavioral disorders were often cause for absenteeism in Chinese executive railway workers (Zhang et al., 2016) and in contrast with our data, they were more comon than musculoskeletal diseases. Compared with our survey in which we observed all employees, Zhang et al. (2016) included just executive railway workers which could contribute to the observed differences. Mental and behavioral disorders are often related with increased workload and shift work, which can cause sleep disturbances and changes in circadian rhythm (Jeon et al., 2013). Furthermore,

it can cause fatigue, which can lead to general dissatisfaction. Another stress factors specific for train drivers are accidents with road or railway vehicles and run overs, which often have fatal consequences. Following accidents posttraumatic stress disorder is often seen in train drivers (Doroga & Baban, 2013; Jeon et al., 2013), therefore we have consultants for the first psycho-social aid in the Slovenian Railway Group. It should be noted that physically active employees and those with healthy (settled) lifestyle are more successful in coping stress, PTSD and other risk factors.

The highest percent of absenteeism was found in railway infrastructure maintenance workers. We assume that the most probable cause for the absenteeism in this group were musculoskeletal diseases and work-related injuries. Furthermore, lower education and lower financial income are known to be related with unhealthy habits. In comparison, the office workers have higher incomes and also it is required at middle school education or higher for office position. The risk factors in office workers are prolonged sitting in forced position and stress thus we assume that causes for the absenteeism are musculoskeletal diseases due to static postures followed by mental and behavioral disorder due to work related stress. In support to this assumption is the fact that office workers are predominantly women and reports show that women are more often absent due to mental and behavioral disorders compared with male colleagues.

The second highest percent of absenteeism was found in train drivers. Train drivers work in shift-work schedule which has been shown to be a risk factor for sleep disorders, metabolic syndrome and heart diseases (Costa, 2010). Other important risk factors are prolonged sitting in restricted position, exposure to whole body vibrations, electromagnetic field and noise. Prolonged sitting and exposure to whole body vibrations can cause changes in neuromuscular functions of the trunk and increase the risk of low back pain (Vrašec, 2015). However, based on results of previous survey, the train drivers are familiar with guidelines for preventive action at work and in a leisure time (Vrašec, 2015). Furthermore prolonged exposure to noise can cause hear loss therefore train drivers are equipped with active silencers. Exposure to electromagnetic fields and engine exhaust were recognized as risk factor for cancer development. According to aforementioned risk factors and consequences, we assume that train drivers are mostly at risk for developing musculoskeletal disorders and metabolism related problems.

The lowest percent of absenteeism was found in wagon inspectors, who also work in shifts. Wagon inspectors are working outside, exposed to all weather conditions. During 12-hour shift they are mostly walking due to technical examination of the train, testing the break system of the train and other. The path by the track, where wagon inspector walk during work, must be well hardened and well-lighted in all weather conditions. Due to maintenance work or some other unpredictable factor there is a possibility of unpredicted obstacles on the path. During his work the wagon inspector does not watch the path but mostly the train and consequently it can cause slips or falls. Despite mentioned fac-

tors we found lowest percent of absenteeism in this group therefore we can assume that regular and moderate physical activity, even at work, can have an important role in health care. Unfortunately, the data on the causes of absenteeism were not available by separate groups, therefore we can only speculate on the predominant causes based on the knowledge of the working environment. However, more objective validation is necessary therefore we will perform additional surveys.

Conclusion

In order to assure better overview on causalities for absenteeism, the renewal of the human resources office information system will be suggested. Renewed system should enable evidence on absenteeism not only by duration but also by causes separately by different occupations. Based on these data we could prepare guidelines and recommendations for safer work and for the preventive action at work and leisure time. All employees, especially executive railway workers, are well informed about safety at work already before starting the career. Despite this their compliance with recommendations is questionable. In addition to renewal of the human recourses office information system a survey should be performed, in which employees could write their most often diseases or disorders. Based on the results of the survey recommendations and guidelines for the preventive action at work and in a leisure time could be suggested immediately. Based on the results of this study, we believe that railway infrastructure maintenance workers should be the first to be informed with guidelines for the preventive action. This will be implemented as a part of an occupational health promotion which is not just a legal obligation but provides long term benefit for the company and personnel. As Podjed,(2014) has been shown, we can expect a return of 2,4-4,8 euros for every 1 euro invested in health promotion and that absenteeism decreases 35 % in employees who visit occupational health promotion programs.

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Presence of professional stress in teaching staff at the Medical faculty in Foca

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Abstract

Introduction: In recent years, an increasing number of studies deal with the study of the psychosocial aspects of the working-age population. The aim of the research was to examine the level of professional stress in the teaching staff at the Medical Faculty in Foca.
Methodology: The study was designed as a cross-sectional study with 47 workers. The survey included faculty members from the Medical Faculty in Foca. We used a sociodemographic questionnaire, a questionnaire to assess health status and Maslach burnout inventory. Statistical analysis was performed with the use of SPSS statistical software package. *Results:* Most respondents (83%) are under stress, and 42.6% of the respondents identified symptoms of work related burnout. Physical and mental component of quality of life was assessed as "bad" by 2.1 % respondents; their physical and mental health was rated as "well" by 23.4%, and by 74.5%respondents was rated as excellent. Conclusion: Those respondents that rated the presence of burnout symptoms rated also their quality of mental health as lower.
Keywords: quality of life, professional stress, health.

At the present time the concept of stress is widely used, both in science and in everyday life. There are many definitions of stress dealing with aspects of stress, which are important for the scientific discipline from where they came from, and that immediately indicates the width and importance of this problem. Stress is present in different spheres of human life; there are different patterns and individual consequences (Tennat, 2001). Numerous empirical studies show that the sources of stress on work are many, and that the stress related to work frequently occurs. The most common causes of workplace stress are: lack of control, poor working conditions, too much re-

DOI: HTTPS://DOI.ORG/10.26493/978-961-7023-32-9.227-235

sponsibility, disturbed interpersonal relationships, type of work, tasks that are performed in shifts and those jobs that require extended working hours. The frequency of impacts of negative stress on health and physical disorders goes from 50-70% of the total number of pathogens. There is virtually no area of human activity that is not related to stress and stressful situations. A number of medical experts (Nyssen, et al., 2003) stated that stress plays a major role in the causation of various degenerative diseases such as high blood pressure, heart disease, metabolic disorder and decline in immune capacity of the body. It is very important to develop strategies to control stress, which help to cope with stressful situations and to recognize the situation that the individual cannot influence on (Jackson, 1999).The objective of the research was to examine the level of professional stress of the teaching staff at the Medical Faculty in Foca.

Methods

The study was designed as a cross-sectional study with 47 respondents, of which 14.9% men and 85.1% women, aged 43.14 ± 9.46 years. The survey included the teaching staff from the Medical Faculty in Foca during the period from February to June 2016. The criteria for inclusion in the study were: respondents who work and are directly involved in the care and treatment of patients. Criteria for exclusion from the study were: respondents who are not involved in the care and treatment of patients and subjects who did not respond to five or more questions or have marked the same answers to all the questions. The study included the following instruments: sociodemographic questionnaire, the questionnaire for the assessment of the state of health (Short Form 36 Health Survey-SF-36) (Ware, 1993) and Maslach Burnout Inventory (MBI) (Maslach et al., 1996). The sociodemographic questionnaire was created for the purpose of this research and contains 10 questions related to the characteristics of the respondents (gender, age, marital status, place of residence, family income, degree of education of respondents).

Maslach Burnout Inventory - The MBI has three structural units and measures the following dimensions: a feeling of emotional exhaustion and overwork, depersonalization, or a sense of discomfort caused by effort and a sense of competence and job satisfaction. The test consists of 22 claims that are scored in seven categories from 0 to 6 (0 - never, 1 - several times a year or less, 2 - once a month or less, 3 - several times a month, 4 - once a week, 5 - several times a week, 6 - every day).The Subscale of Emotional Exhaustion (EE) consists of 9 items, the Subscale of Depersonalization (DP) consists of 5, and 8 items make the subscale of personal fulfilment with job (PA). If the value on test 51 for EE is greater than 26, there is a high risk of burnout syndrome, and / or if the value for the DP test is higher than 9, there is also a high risk of burnout syndrome. A value of less or equal to 18 on the subscale EE represent a small burnout risk, and a value from 19 to 26 is a medium burnout risk. As for the PA subscale, the low burnout risk is greater or equal than 40, the mid risk is from 39 to 34, and the high burnout risk is less or equal to 33, but the general conclu-

sion about the presence of burnout syndrome can`t be obtained by observing the PA subscale like isolated case. The subscale PA is relevant only if it is confirmed with an EE or DP scale. The total score is possible in the range 0 -132. MBI has three structural units and measures the following dimensions: a feeling of emotional exhaustion and pretensioning job, depersonalization or discomfort caused by exertion and a sense of competition and job satisfaction.

Statistical analysis was performed using SPSS 24.0 statistical software package. Of the non-parametric statistical tests we used $\chi 2$- square test. The correlation is performed using the Pearson correlation coefficient. As the level of statistical significance of differences, its been used a common value of $p < 0.05$. For displaying the average values we used the arithmetic mean and standard-deviation. The data are presented in tables and charts.

Results

In shifts works 46.8% of respondents and majority (83%) is exposed to stress at work. Professional burnout syndrome was observed in 42.6% of workers, middle and high level of emotional exhaustion was observed in 57.5%, depersonalization was observed in 44.7%, while the low and middle level of personal achievements are observed in 61.7% of the respondents. Using the SF-36 questionnaire that evaluates a common component of physical health, it has been observed that the high level of the Physical Component Summary (PCS)is present in 74.5 %, of respondents middle level in 23.5%, whereas the low level is observed in only 2.1% Between groups of respondents with different level of PCS highly statistically significant difference was observed ($\chi 2 = 20{,}228$; $p = 0.001$) comparing to level of emotional exhaustion. Statistically significant number of respondents with high level of PCS (36.2%) was observed comparing to respondents with low level of PCS (0%) (table 1).

In 74.4% of respondents registered a high level of common mental health components, 23.4% showed a medium level, while only one respondent showed low levels of MCS. Between groups of subjects with different levels of MCS there was a high significant difference compared to the level of emotional exhaustion ($\chi 2 = 15.276$; $p = 0.004$) and a statistically significant difference compared to the level of depersonalization ($\chi 2 = 11{,}358$; $p = 0.023$), wherein 40.4% of subjects who have a high level of MCS and shows no signs of emotional exhaustion, while 55.3% of patients with a high level of MCS and shows no signs of depersonalization. Table 2 shows the differences in the average values of the domains of the SF-36 questionnaire for the presence of a professional burnout syndrome. A statistically highly significant difference was observed with respect to domain limitations due to emotional problems ($t = -3.563$, $p = 0.002$), where the average value of this domain in respondents with present burnout syndromes is significantly lower ($66{,}60 \pm 41{,}92$), compared to the scoring state levels of patients where it is not detected burning syndrome (100.00 ± 0.001). Social functioning is at statistically significantly higher level ($t = -2.019$, $p = 0.050$) in the patients without the present syndrome (87.03 ± 13.19) compared

to those with the present burnout syndrome (78.65 ± 15.21) while differences in relation to domains of physical functioning, vitality, mental health, general health, body pains and limitations due to physical health were not found.

Table 1: Emotional exhaustion, depersonalization, personal success and a total score of MBI in regard to the levels of physical health (PCS).

Subject	*Level of Burnout*	*PCS (%)*			*Total Number (%)*	*χ2*	*p*
		Low level	*Middle level*	*High level*			
Emotional exhaustion (Depressive anxious syndrome)	Low level	0 (0)	3 (6.4)	17 (36.2)	20 (42.6)	20.228	0.001
	Middle level	0 (0)	6 (12.8)	18 (38.3)	24 (51.1)		
	High level	1 (1.2)	2 (4.3)	0 (0)	3 (64)		
Depersonalization (Lack of empathy)	Low level	0 (0)	7 (14,9)	19 (40,4)	26 (55,3)	9,419	0,051
	Middle level	1 (2.1)	0 (0)	12 (25,5)	13 (27,7)		
	High level	0 (0)	4 (8,5)	4 (8,5)	8 (17,0)		
Personal success (Achievement)	Low level	1 (2,1)	7 (14,9)	17 (36,2)	25 (53,2)	1,790	0,774
	Middle level	0 (0)	1 (2,1)	3 (6,4)	4 (8,5)		
	High level	0 (0)	3 (6,4)	15 (31,9)	18 (38,3)		
Burn-out syndrome measured using MBI scales	With burnout syndrome	1 (2,1)	5 (10,6)	14 (29,8)	20 (42,6)	1,481	0,477
	Without burnout syndrome	0 (0)	6 (12,8)	21 (44,7)	27 (57,4)		

Tabel 2: The arithmetic means and standard deviation of the domains of the SF-36 questionnaire according to the presence of burnout syndrome.

Domains of the SF-36 questionnaire	*MBI Mean (SD)*		*t*	*p*
	With burnout syndrome	*Without burnout syndrome*		
Physical functioning	87,75 (13,71)	83,51 (18,23)	0,871	0,389
Limitations due to physical health	78,75 (34,67)	91,66 (16,98)	-1,535	0,137
Limitations due to emotional problems	66,60 (41,92)	100,00 (0,001)	-3,563	0,002
Vitality	60,75 (12,59)	65,18 (9,75)	-1,361	0,180
Mental health	50,65 (9,46)	47,70 (5,53)	1,340	0,187
Social functioning	78,65 (12,21)	87,03 (13,19)	-2,019	0,050
Physical pains	42,25 (9,52)	46,14 (8,16)	-1,507	0,139
General health	68,25 (14,44)	69,07 (16,67)	-0,192	0,849
MCS	64,04 (12,65)	74,05 (5,63)	-3,660	0,003
PCS	69,11 (12,52)	73,46 (8,47)	-1,420	0,162

Pearson correlation coefficient show that there is a statistically highly significant positive correlation (r = 0.391; p = 0.007) between the professional burnout syndrome and age, where older persons are more exposed to a professional burnout syndrome. The elderly are also significantly more exposed to depersonalization (r = -0.321; p = 0.028), while younger people are in positive correlation with personal achievement and satisfaction (r = -0.454; p = 0.001). Younger people have a higher quality of mental and physical health, but this positive correlation is not statistically significant. Statistically significant positive correlation was observed regarding the relation of years of service and MBI score (r = 0.377; p = 0.009), where the subjects with higher values of years of service, have a higher value of MBI. High significant negative correlation was observed between the years of service and personal satisfaction (r = -0.395; p = 0.006), while those with lower the years of service have higher levels of personal satisfaction. In terms of shift work there were not found statistically significant correlation compared to other socio-demographic characteristics, professional burnout or quality of life. There is a strong negative high statistical correlation

between the professional burnout and mental quality of life of components (r = -0.479; p <0.001), while subjects with diagnosed higher level of professional burnout have a significantly lower quality of mental health.

Discussion

The largest number of respondents (83%) is exposed to stress at work in our research and professional burnout syndrome was observed in 42.6% of workers. In more than half of the respondents is registered a high level of common mental components of health, and social functioning is also significantly higher in patients without the presence of the syndrome while differences from the domain of physical functioning, vitality, mental health, general health, body pains and limitations due to physical health were not found. According to the World Health Organization (1996), every person has the right to a safe workplace and a healthy environment that allow for a normal social and productive life. Therefore, the external and internal factors have a significant role in explaining the quality of life which has been confirmed by numerous studies. Quality of life is a psychological construct, which does not arise automatically from satisfying basic needs, but from the whole psychological structure of the individual interacting with the physical and social environment in which he lives (Taillefer, 2003). Felce and Perry (1995) define quality of life as an overall general well-being, which includes objective factors and subjective evaluation of physical, material, social and emotional well-being, including personal development and meaningful activity (Felce and Perry, 1995). According to members of the International Well Being Group's quality of life is multidimensional term, which is made of: standard of living, health, productivity, the possibility of achieving close contact, security, belonging to the community and a sense of security in the future (World Health Organisation, 1996). Many studies have shown that the psychological state of anxiety and depression in particular, appear as mediators of health outcomes and subjective quality of life in situations of illness (Costa and McCrae, 1980).

In similar studies results of our study were significantly better than the results of a study conducted in Chile (Andrades and Valenyuela, 2007), but lower compared to the results of a study conducted in Turkey (Cinnamon, 2003). By analysing the questionnaire, SF-36 the presence of burnout syndrome is found among the respondents, particularly with regard to domain limitations due to emotional problems, social functioning and physical functioning. As for the common components of physical and mental health, the difference compared to the PCS was not observed, while the difference between the groups of patients for the presence of syndrome professional burnout highly statistically significant, and mental health of the respondents is at a significantly higher level in the group without the presence of the syndrome. Experiencing positive emotions at work is considered an important part of nursing professional life, and has a significant impact on patient safety, quality of service, commitment and stay in the organization and the profession. Numerous studies point

out those experiencing positive emotions is an important part of nursing professional life, and has a significant impact on the quality of services provided. Positive emotions at work are associated with better health, a higher degree of job satisfaction, responsible behaviour at work, higher work performance and quality of work, greater resistance to stress and burnout, rarely changes of jobs, better relations with other people, desirable behaviour and thoughts and lower incidence of divorce (Golubic and Mustajbegović, 2011). The results of longitudinal Next study from 11 European countries showed that in all countries there is a significant degree of psychological exhaustion of nursing staff, particularly in Slovakia and Germany where they registered the highest scores of negative effects (Stourdeur et al., 2003).

The disease is undoubtedly one of the external factors that negatively affect the quality of life of the individual. It can be said that the impact of disease on quality of life is multidimensional. The disease not only affects in terms of physical symptoms and thereby interferes with the function, but also there are present indirect effects such as changes in work capacity, decrease in the quality health care, potential isolation, increasing dependence on others, bad habits and so on (Hasselkorm, 2005).

Our research has shown that older people are more exposed to work related burnout and depersonalization; younger people have a higher quality of mental and physical health, while those with higher values of years of service have a greater value on the MBI scale. Strong negative high statistically significant correlation was found between professional burnout and mental components of quality of life. Higher levels of professional burnout have subjects who have a significantly lower quality of mental health. Professional burnout syndrome is more than stress conditioned by professional activities; he indicates a state of complete physical and emotional exhaustion caused by excessive and futile efforts at work. Studies conducted in Finland and Sweden show that the burnout syndrome is more expressed with women older than 50 years and that work in none productive sectors. Job satisfaction is considered to be relatively persistent phenomenon that involves affective orientation factors of the working environment. Job satisfaction is an important factor of success at work. Unsatisfied people transferred their dissatisfaction with the team members and to service users, and in the case of health care workers, to patients. With a decrease in job satisfaction it's also reduced a sense of personal success (achievement). Dimension perception of reduced personal success involves reducing the feelings of competence and achievement at work (Thiruchelvi and Supriya, 2012).

Conclusions

In our study, more than half of respondents (83%) are exposed to stress at work, while the professional burnout syndrome was detected in 42.6% of respondents. Between professional stress and work experience and MBI result, there

is a significant correlation. Respondents who have professional burnout syndrome have a lower level of quality of life.

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Thanks to our Conference Sponsors

Scientific and Organising Committee would like to thank all the sponsors whose sponsorship helps to support our conference.

Zdravje delovno aktivne populacije / Health of the Working-Age Population
Znanstvena monografija / Proceedings

Uredili / Edited by Ana Petelin, Nejc Šarabon and Boštjan Žvanut

Recenzenti / Reviewers ▪ Katarina Babnik, Urška Bogataj, Ana Petelin, Tamara Poklar Vatovec, Mirko Prosen, Patrik Pucer, Nejc Šarabon, Matej Voglar, Boštjan Žvanut

Lektorica/Proofreading ▪ Majda Šavle (angleški jezik/english)
Oblikovanje in prelom / Design and Typesetting ▪ Jonatan Vinkler

Izdajatelj / Published by ▪ University of Primorska Press
Titov trg 4, SI-6000 Koper,
Koper 2017
Glavni urednik/Editor-in-Chief ▪ Jonatan Vinkler
Vodja založbe/Managing Editor ▪ Alen Ježovnik

ISBN 978-961-7023-32-9 (www.hippocampus.si/ISBN/978-961-7023-32-9.pdf)
ISBN 978-961-7023-33-6 (www.hippocampus.si/ISBN/978-961-7023-33-6/index.html)

DOI: https://doi.org/10.26493/978-961-7023-32-9

Kataložni zapis o publikaciji (CIP) pripravili v Narodni in univerzitetni knjižnici v Ljubljani
COBISS.SI-ID=291501824
ISBN 978-961-7023-32-9 (pdf)
ISBN 978-961-7023-33-6 (html)