The connection between personality traits and resistance to stress

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Abstract

The presented paper deals with a wide-scale problem of stress, and studies the prerequisites for coping with it. The mental state affects the whole human life, and the style of thinking is reflected in human behaviour and manners. Wrong lifestyle can cause psychosomatic disorders which embitter the life itself. The text also describes individual personal traits that help predict how stress affects mental immunity. The investigated sample group was represented by female students of a nursing school and grammar school.

Key words: man, stress, resilience, adolescent, coping

1. Introduction

Psychological aspect affects our entire life and the way we think is reflected in our behavior. Psychological condition of an individual decides whether we feel happy and successful in life, and it has a great impact on a physical aspects of each of us. Emotions, as a part of the psychological aspect, can become a significant factor affecting the health status of an individual.

A founder of the stress research Hans Selye said that each emotion uses some strengths. Experience and feelings of negative emotions make us tired, depressed, they stimulate the centers of resentment, while experience of positive feelings causes the eustress (good stress) and produces feelings of strength, health, vitality and joy of life.
Dr. Hans Selye emphasizes that love, as an effective source of social support, has an irreplaceable influence on relieving stress. He says that unless we somehow eliminate innate selfishness, we will induce fear and hostility in relationships with other people, which does not make a suitable living environment. Conversely, the more we moderate this focus on ourselves, the more we allow people to love us, and consequently we become to feel safer and we endure less stress.

In this paper, we focus on identifying the particular personality traits by which we can predict psychological resilience or maladaptibility in difficult situations of an individual, depending on the effect of stress. The issue of stress is interesting not only because it is up-to-date topic, but also for a direct connection between psyche and somatic aspect of an individual, where a change for the better in one of these two components causes proportional improvements of the other as well. We conducted research through a questionnaire SPIDO on adolescents of a nursing school and a grammar school, where the grammar school students were the control group.

Our research sample is represented by two graduation classes – the nursing school students form an experimental group and the grammar school students form a control group. What makes the adolescent age interesting is the fact that the personality is in the process of development. Moreover, the issue of psychological load and stress is for the future nurses important not only as a part of their education, but also as an effective tool in dealing with difficult situations that inevitably arise in connection with taking care of patients.

The issue of stress is dealt with at nursing school daily as the students get in contact with patients. We can say that the assumption of greater psychological resilience in this field of study is necessary.

The aim of this study was to determine the difference of personality traits by which we can infer psychological resilience of students of two different high schools.

2. Stress

Stress, or to be more precise distress, like a burnout can be classified as a negative emotional experience (Křivohlavý, 2012, p.69). Even though there are many definitions of stress in the literature, they are not uniformed. Some authors, such as Smolík, say that the term is clearly used excessively. Stress was first described in 1949 by Hans Selye. Selye’s original definition of stress, which is the most used in the world, states: "Stress is a non-specific (i.e. occurring after various pressures stereotypically) physiological response of the organism to any demand that is placed upon him" (Schreiber, 1992, p.11). According to Selye’s definition, Vodáčková considers stress as "a non-specific response of the individual to any demand that is placed upon him and which is the result of interaction between a particular force applied to the individual and his ability to resist this pressure" (Vodáčková, 2000, p.359).

In 1929, American physiologist Cannon described the complex reaction that occurs in the body after a sudden strong initiative. It is an alarm reaction. Neural and endocrinial patterns in the body create a state of emergency for the fight-or-flight response. Every driver knows that shortly after the accident (or if he could avoid it) he can feel palpitations, he is sweating and his hands are shaking. This is caused by the sympathetic nervous system which is activated, and there is an increased production of the hormones epinephrine (adrenaline) and norepinephrine (noradrenalin) from the adrenal medulla. Both reactions occur almost simultaneously, and therefore it is called the sympathoadrenal system (Schreiber, 1992, p.19). The essence of the alarm reaction is the creation of substances (liver releases blood sugar as fuel for muscle activity, the fat components released from adipose tissue have the same purpose), which are consumed in the fight-or-flight response and contribute to physical performance.

This defense mechanism is biologically designed for physical effort. If the physical effort can not be conducted, it is clear that there is a repeated increase in blood sugar level, as well as adipose substances, which leads to worsening of diabetes or it may cause arteriosclerosis.

Therefore, it has been shown that movement, physical exercise, fast walking (which is most accessible to us) are considered to be the most effective anti-stress protection.

After the alarm stage, resistance stage begins. It comes with repeated and prolonged stress. Schreiber describes this phase by increased activity of the adrenal cortex, which specifically contributes to increased
production of adrenocortical hormone (ACTH), which is produced by the pituitary gland. Its creation (ACTH) is dependent on the brain hormone corticotropin releasing hormone (CRH - corticotropin regulative hormone). The increased activity of the adrenal cortex causes the production of hormones of lipid nature, the most important being cortisol. Therefore, during the resistance phase the CRH - ACTH - cortisol system develops and there is a weight gain of adrenal gland and secretion of cortisol. Cortisol decomposes tissue proteins (therefore there is a weight loss after a prolonged stress) and fat tissue; from all these sources blood sugar will be eventually made. It is also interesting that effect of cortisol prefers two organs that are the most important for life - the brain and the heart. The main region where cortisol operates are lymph glands and other organs of the immune system. (Schreiber, 1992, p. 21). If there is a complete exhaustion of the reserves of the organism, a stage of exhaustion begins. It is caused by excessive stress intensity accompanied by impaired adaptive response (lack of response of the system CRH - ACTH - cortisol).

Apart from the biological-physiological stress definitions, stress can be considered from another points of view. For instance, Lazarus' modified definition of stress is as follows: Stress is demand on an individual which is beyond his ability to deal with (Schreiber, 1992, p. 19). Stress is a set of reactions of the organism to internal or external changes that disturb the normal "calm" functions of the organism or even threaten its existence. These influences are referred to as load, stressors, or just as stress (Schreiber, 1985, p. 13).

Křivohlavý concluded that stress is usually defined as "the inner state of a person who is either directly threatened by something, or he is expecting such threat and yet he believes that his defense against adverse influence is not strong enough." (Křivohlavý, 2001, p. 24).

We have mentioned stress which is a psychological burden for the individual. However, Birkenbihlová talks the joy of stress. She mentions the fact that one of the criteria of human maturity is the ability to cope with the obligations responsibly and joyfully. (Birkenbihlová, 1996, p. 13). There is not only distress, there is also eustress. If a person can handle this kind of stress, he goes through a certain catharsis which ends with the subsequent feeling of satisfaction, even joy. Nowadays, there are many sports in which, mostly young people experience the positive stress, e.g. bungee jumping, rafting, sailing, etc. In these sports, if a person "wins" over the surrounding element, he can experience a sense of victory, strength, which is finally very healing. Eventually, this positive stress makes us stronger, encourages us, and it is actually vital for our life.

3. Research, selection and methods

Stress is a complex issue given by a lot of multiple factors intervening in a stressful situation. Moreover, its complexity is conditioned by the potentially altered personality traits which can be noticeable during a long-lasting stress.

It is well-known that stress has negative effect not only on the behavior and actions of an individual, but its overall destructiveness subjugates the individual and subsequently it deprives the person gradually of his sensitivity, interests, empathy, etc.

On the other hand, people can bind themselves to things or people that they like, they are enchanted by them and through them they can get rid of tense negative feelings. Students may be influenced by their teachers this way. This study compares the psychological resilience to stress of two groups of young people – the nursing school students and the grammar school students. In addition, their personal traits depending on the stress factors are characterized in this study.

The stage of adolescence is the time of continuous formation of personality and every positive incentive or advice can move a student to better, more meaningful and less stressful situations.

However, the main reason for our decision was more frequent "interference" of stress in the areas close to us - the nursing and educational sphere together.

We believe that we can agree with the statement that the nursing school students are much more exposed to stressful situations than their peers from the grammar school. Therefore we can assume that nursing school students have greater psychological resilience. We expect that the nursing school students have more personality traits that may show higher levels of psychological resilience than the grammar school students. In our study we
also assumed that the grammar school students have a higher cognitive component and ambition, however it has not been confirmed. Nevertheless, greater adaptability, flexibility of the grammar school students has been confirmed.

The questionnaire SPIDO was chosen for the research. This multidimensional questionnaire is the work of the Research Institute of Psychiatry in Prague. A broader study of personality was an initial impulse for SPIDO preparation and today it serves as a tool for detection of subjective assumptions of stress resilience in terms of dynamic features of personality. The questionnaire SPIDO is designed to detect the structure of personality variables on which the quality of the interaction behavior of individuals in precarious living conditions and situations depends, the nature and dynamics of coping with the dynamics of the new situational variables.

The questionnaire SPIDO consists of 200 items and covers fourteen dimensions. It examines the personality through the following fourteen indicators:

**KO - cognitive variability** is related to cognitive functions, perceiving and processing complex of situational variables. High variability is characterized by the tendency to search for a change, high quantity and variability of intensive external stimulation in their perception and cognitive processing. The invariability is the trend to interact with the stable and poor cognitive environment, it indicates a low cognitive capacity of perceiving and processing situational variables.

**EM - emotional variability** is related to the experiencing of emotions during interactions with the environment and situational variables. The dynamics of emotions and their consequences in cognitive and conative areas (mainly in terms of emotional and rational relation) in the interaction of the individual and the environment are considered here. On the positive pole there is high emotional excitability, tendency to experience tension and situational stress, anxiety, etc., on the negative pole there is emotional stability and lowered emotivity.

**RE - regulative variability** is related to regulation of conational modality (behavior), ambition, target-oriented behavior. Invariability (high stability) is characteristic for the regulated behavior, and the high variability is characteristic for the lower self-regulative barriers and situationally targeted behavior.

**AD - adaptive variability** is related to tendency of the individual to adapt into the circumstances of life and events. High variability is characterized by a tendency to respond by adaptive behavior. The opposite pole (stability) is referred to as adaptive rigidity, the individual adapts with great difficulties, he has a tendency to persist in his behavioral schematics and maladaptive behavior develops easier in his case.

**OV - general level of excitability**, scoring on the positive pole represents a tendency to incline to dynamic interactions with intensive excitement and high situational excitability.

**MH – motor skill and its regulation.** Positive values show that the individual is in the search for change, negative values indicate the search for peace.

**KR - cognitive regulative variability**, shows a sort of antipole of risky and cautious behavior. Values on the positive pole indicate high curiositiy, love of dynamism, excitement and change without sufficient ambition, negative values represent cognitive rigidity with many regulative barriers which suggest "restrained" behavior (style of the interaction with the environment).

**ER - emotional regulative variability**, which can be combined with the general concept of impulsive behavior driven by emotional tensions. Positive values indicate uncontrolled, emotionally impulsive behavior (neurotic, restless even choleric behavior), negative values suggest emotional resistance and self-control.

**KA - cognitive adaptive variability.** High cognitive adaptability is reflected in higher self-consciousness, self-assertion, self-importance, high ambitions, aspirations. A low score indicates the opposite values which can be summarized as a tendency to conventional, unobtrusive behavior associated with suppressed "self".
EA - emotional adaptive variability, which refers to "empathy" with respect to situational variables. Negative values indicate situational sensitivity, low self-confidence, pessimism with symptoms of melancholy and depressive behavior. On the other hand, positive values suggest situational optimism, enthusiasm, well-being, self-confidence and optimism.

RA - regulative adaptive variability can be seen as a certain indicator of motivated and frustrated behavior. On the positive pole we can talk about purposeful, motivated adaptation to life situations, negative pole values indicate more impulsive, situationally frustrated diagrams of interaction with situational variables, which have resulted in unstable, situationally malleable and unregulated schemes of "adaptive" behavior.

FM – femininity - masculinity, as an indicator of the access to interaction with situational variables. The positive pole shows the problem-solving approach (masculine), while the negative pole suggests the approach based on experiencing (feminine).

US – range of "settled life", or respectability and conservatism in a broader sense. At high score we can talk about the high conservatism, reserved, caring and cautious approach, while low score indicates exuberance, bohemian and carefree lifestyle.

EX – inventory of extreme responses which serves either as a "lie-score" or as an indicator of the extremity of an individual (the high score indicates absolutely timid, passive, ill-prepared individuals for adequate interaction with the environment).

After giving the instructions for the correct completion of the questionnaire, the individuals of both research groups recorded their responses ("I agree" or "I disagree") to the record sheets. The obtained responses were evaluated by using templates with the relevant numerical code for each dimension. The valid point was given only when there was a consensus between the marked answer and the number on the template. The sum of the gross values was entered into the top of two lines, designed specifically for evaluating the fourteen dimensions. The achieved gross values were eventually completed by the values "staniny" taken from the standard tables (for age and sex) in the range from 0 to 10. The average score is represented by the values of 4, 5, 6, the values of 7, 8, 9, 10 indicate a high score and the values of 3, 2, 1, 0 express a low score. The high score is referred to as a positive/plus value, low value score as a negative value.

3.1 Characteristics of the research sample

The research was carried out with two groups. The first group was the experimental group which consisted of the nursing school students. The second group, the control group, was represented by the grammar school students.

The whole research group consisted of 40 individuals - 20 girls were from the nursing school and the same number of the girls study at the grammar school. The experimental group consisted of the girls who study at the nursing school in Pardubice, aged 17 – 19. The average age in this group reached 18. It was not difficult to get the desired number of the students for the research since we dealt only with the girls’ class, thus for obtaining 20 questionnaires we simply attended one graduation class.

The students were instructed how to fill in the questionnaire correctly as well as they were said that there are instructions on how to complete it at the beginning of each questionnaire.

The second group, the control group, was represented by the grammar school students from Pardubice as well. The average age was slightly lower, it reached the age of 17,5. Our aim was to have corresponding age in both groups. Since classes at grammar school are mixed, it was necessary to involve more than one class. We decided for the final-year students because we anticipated that older high school students have more mature personality since they are in the adolescent stage of development. The female students were instructed that the questionnaire consists of 200 items which can be answered "I agree" or "I disagree "and the answer has to be marked with a cross in the answer sheet. Moreover, the girls were told that in some cases it will be difficult to make a decision and therefore they
should choose the most acceptable alternative, respond intuitively without a long-term thinking. It was emphasized that there are no right or wrong answers in the questionnaire and that they should answer honestly, according to their personal opinion and not to be influenced by the public opinion or by the views of somebody else.

4. Results

The obtained values "staniny" from fourteen different dimensions along with the appropriate initials were recorded in the tables. The procedures in both tables are the same.

In Table 1, the initials of the nursing school students are listed vertically and each dimension is listed horizontally. The values of the grammar school students are shown in Table 2.

The last horizontal line in both tables contains the calculated average values for the particular dimensions which will be verbally compared.

The comparison of significant values for both groups can be seen in the final table, Table 3.

As it was mentioned before, the values 4, 5, 6 represent the average. Therefore, based on the obtained results, it can be said that the group of the nursing school students reached six average values out of fourteen observed dimensions. The group of the grammar school students obtained four average values. There is one value in a positive pole for the group of the nursing school students in the dimension EX. The grammar school students obtained three positive values. The other values were negative, there were seven negative values found for both groups.

Table 1: The resulting values of each dimension for the group of the nursing school students

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The table shows that the average value of the dimension KO - dimension of cognitive variability, has reached the value of 2.2. We can see that seven individuals even reached the values of 1, which is certainly surprising. If we take the average values 4,5,6, into consideration, we come to the realization that none of the nursing school students reached the average score in this dimension. This resulting value indicates a low cognitive capacity when perceiving and processing of situational variables.

Table 2: The resulting values of each dimension for the group of the grammar school students

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The table shows that in the dimension KO – dimension of cognitive variability, the group of the grammar school students has reaches the final value of 2. It is a negative value, which is accompanied by the low cognitive capacity of perceiving and processing situational variables, which is a certainly surprising result for the high school group. From the particular values it can be seen that eight students obtained the value of 1 and one student even scored zero value.

Discussion

We assumed that the group of the nursing school students would demonstrate more personality traits which may also show higher levels of psychological resilience in comparison to the grammar school students.

When verifying this assumption, we rely on the resulting values of the following dimensions EM - emotional variability, KO - cognitive variability, RE - regulative variability, MH - motor skill, ER - emotional regulative variability, RA - regulative adaptive variability and OV - the general level of excitability.

The resulting values of these dimensions are reported in the Table 1 and Table 2.

The assumption implies a greater stability - invariability in the seven measured dimensions in the group of the nursing school students.

The results, which are recorded in the tables, clearly indicate that our assumption has been confirmed.

In Table 1 we can see the results of the EM dimension, which indicate lower emotional excitability with lower intensity of experiencing tensions, stress and anxiety, which are the factors that contribute to greater psychological resilience.

In Table 2 we can see the results of the KO dimension, which indicate lower cognitive capacity of the grammar school group. We must say that this result is indeed surprising and it belongs to further discussions in order to verify another assumption in which we assume that grammar school students have higher cognitive component and ambition.

In the second assumption we expect higher cognitive component and ambition in the group of the grammar school students.

In order to verify this hypothesis, we rely on the resulting values of these dimensions: KO - cognitive variability, RE - regulative variability, KR - cognitive regulative variability, KA - cognitive adaptive variability.

The resulting values of the observed four dimensions are shown in Table 1 and Table 2.

In the second assumption, we expected that the group of the grammar school students would get higher values in the dimension KO, lower values in the dimensions of RE, KR and higher values in the dimension KA.

The results show that this assumption has not been confirmed. We consider the result in the dimension KO really interesting, because we expected at least average values in the group of the grammar school students, since at grammar schools there should be a higher level of cognitive capacity than in any other high schools.

In the third assumption H3 we assume higher flexibility in the group of the grammar school students in comparison to the nursing school students.

In order to verify this hypothesis, we rely on the results from the following dimensions AD - adaptive variability, RA - regulative adaptive variability and MH - motor skill.

The resulting values of the observed dimensions are recorded in Table 1 and Table 2.
In this hypothesis we assumed the achievement of higher values in the dimensions AD and RA and lower values in the dimension MH in the group of the grammar school students.

The results show that this assumption has not been confirmed.

5. Conclusion

Overall, the group of the grammar school students exceeded the group of the nursing school students in terms of excitability, excitement and dynamism, while the nursing school students proved greater stability, as well as there is more regulative restraint and self-control in their behavior.

This "rigidity" in case of the nursing school students even resulted in lower empathy, situational sensitivity, and lower self-confidence. We can say that in terms of empathy it is a surprising result, because the mission of nurses requires a certain amount of empathy. On the other hand, these results are understandable because the students are still in the process of a "personality formation" and they will mature later at work and gain experience which will make them able to deal with challenging situations.

It is understandable that people who are involved in the education of future generations, should know about stress as much as possible, not only because of the theoretical knowledge about eliminating stress, but mainly because they could create such situations where stress does not appear at all or only minimally. The results which are provided in the form of various questionnaires serve not only for the information about certain personality traits of students, but as an effective tool of an approach to a student, helping to solve problems individually, taking into account his specific features and the ability to predict stress.

It is understood that especially at nursing schools, future nurses should not only be familiar with the term "stress", but should know much more, they should be equipped with the skills to cope with difficult situations with patients so they can give hope to the sick, because they know how powerful may a kind word be. If a person has to give a part of himself, he has to draw strength somewhere and this opportunity should be given sufficiently already at schools. It is hard to imagine modern education process at nursing schools without a psychologist or a psychoterapist. After implementing all precautions related to information and special aid, the upcoming situations can be solved from a complex perspective and a person as a bio-psycho-social-spiritual individual will no longer be brought to his knees by stress, on the contrary, stress will become a challenge for him which will eventually strengthen him.

References: