

Stress, coping styles and personality tendencies of medical students of urban and rural origin

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Abstract

Introduction. The problem of high levels of stress among medical students is a real problem and its prevalence and mechanisms have not yet been fully explored. It was found that there are only a few publications concerning the influence of urban and rural settings of the medical students in relation to stress, coping styles and personality tendencies.

Aim. Analysis of the coping mechanisms and personality types of medical students of rural and urban origin based on the survey of the students of the Medical University in Lublin (MUL), south-east Poland.

Material and methods. The study was conducted with a group of 570 medical students from MUL, aged 19–35. Average medical student age: 22. Two questionnaires were used: CISS and SCID II for the evaluation of the coping styles and the personality tendency structures.

Results. The place of origin significantly influenced tendencies to the occurrence of specific personality types. The schizotypal, borderline and narcissistic personality tendencies mostly presented in big cities, less in small cities, and the least among students of rural origin. Dependent personality tendencies were significantly more common among females. The coping styles based on avoidance and on looking for the social contacts were significantly more common among females than males.

Conclusions. Medical students of urban and rural origin were differentiated in terms of personality structure tendencies, concerning personalities: schizotypal, narcissistic and borderline. The tendencies to the dependent personality were also significantly more common among females than males. Two types of coping styles, based on avoidance and looking for social contacts, were significantly more common among females than males.

Key words

Medical students, adaptation, psychological, psychological stress, rural population, urban population

INTRODUCTION

Publications from different university centres [1, 2, 3, 4] and our own experience as university teachers provided the data about the high level of stress among medical students. Among others, Ziemska and Marcinkowski [1] proved that all examined Polish medical students in a self-assessment inventory, confirmed severe burden of stress. As a coping style they reported their findings about alcohol, psychoactive substances and psychotropic medications. Reports from other authors also showed a high prevalence of self-assessed stress among medical students: Sohail et al [5] report a moderate level of stress in 71.67% of students in their survey, and in 20.83% a high level. Supe [2] reported that 73% of students experienced stress, and Abdulghani et al [6] report that 63% of students perceived stress, and among them 25% perceived severe stress.

Some authors studied the level of stress of medical students in different years of study: Basnet et al [7] in their study report that medical students in the first and third year of their study scored the level of stress in the self-assessment inventory as high. Supe [2] showed a high level of reported stress in second and third years medical students, whereas Abdulghani et al [6] reported that the level of stress was particularly high during the first three years of the study.

Chang et al [8] reported a high level of burnout in 55% of tested students in the first 3 years of medical school.

Concerning the gender of students in relation to the vulnerability to stress, the majority of publications emphasize that the prevalence of stress was higher amongst female medical students. A study conducted by Dyrbye et al [9] supported the notion that there was an increased prevalence of stress in female medical students than in male medical students. Backović DV et al [10] examined 755 medical students who were in their final year of study. The results showed a greater prevalence of stress in females than in males. However the results of a study conducted by Abdulghani et al [6], Nuallaong [11], and Supe [2] showed no difference in the prevalence of stress between female and male medical students.

Due to the varying results obtained from multiple research studies, it was particularly important to attempt in the presented study to establish factors that influence and create high stress levels in medical students. The following factors were used to assess a link to stress: permanent residence, personality, student coping styles and gender.

Objective: Analysis of the coping mechanisms, personality types, permanent residence and gender in stressful situations of rural and urban origin, based on a survey of students from the Medical University in Lublin, south-east Poland.

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MATERIALS AND METHOD

The study was conducted with a group of 570 medical students from Medical University in Lublin, aged 19–35, with an average age of 22. The place of origin of the examined students was differentiated as follows: 52% came from small cities, 44% from big cities and 3.3% confirmed their rural origin. 68% of the examined group were females, 32% males. 52.4% of the examined students attended the second year of the study, students of the third year constituted 21.8%, and students of the 6th year formed 19.4%. The rest of the students attended the 4th (1.8%) and 5th (0.6%) years of study. The group is homogenous in terms of the control of confounding variables. Due to this, the study was conducted using non-parametric tests to establish the significances between the studied variables.

Research method. Two questionnaires were used: the CISS and SCIDII for the evaluation of the coping styles and the personality tendency structures. Information regarding permanent residence was also used as a factor:

- 1) CISS questionnaire (Endler & Parker 1990) [12] in adaptation by Strelau et al. [13]. The self-report questionnaire is composed of 48 statements which describe various actions undertaken by people in stressful situations. It allows establishing three styles of coping: Task-Oriented Coping, Emotion-Oriented Coping Avoidance-Oriented Coping.
- 2) SCIDII it is semi-structured interview that enables an assessment of twelve personality disorders, which are classified in DSM IV in second axis and in appendix B of DSM IV. The questionnaire contains 119 questions which allow an assessment of the occurrence of the personality disorders in examined persons [14].

Statistical analysis. the SPSS/PC programme was used and the sufficient significance level was accepted at the value $p < 0.05$. The tests conducted were:

- Chi-square test;
- U Mann-Whitney test;
- Kruskal-Wallis test.

RESULTS

The examined group was homogeneous in terms of controlled variables (gender, mental illness in the family, crimes in the family).

Distribution of the dependent variables differed from normal in subgroups; therefore, non-parametric tests were used to determine the significance of the differences between the studied subgroups.

In order to verify significance of the differences of the tendencies to the personality disorders of the persons from three different places of residence (big city, small city, rural area) the Kruskal-Wallis test was used (Tab. 1).

There was a relationship between studied variables in terms of schizoid, narcissistic and borderline tendencies and the place of origin in the examined group; the place of origin significantly influenced tendencies to the occurrence of specific personality types in the examined group.

There were significant dependences between examined variables in terms of tendencies to the personality disorders: schizotypal, narcissistic and borderline and place of origin.

Table 1. The relationship between studied variables in terms of schizoid, narcissistic and borderline tendencies and the place of origin

	Chi-square	asymptotic significance bilateral
Avoidant	2.540	.281
Dependent	3.566	.168
Obsessive-compulsive	4.194	.123
Passive-aggressive	4.276	.118
Depressive	3.323	.190
Paranoid	5.570	.062
Schizotypal	6.945	.031
Schizoid	2.270	.321
histrionic	1.544	.462
narcissistic	6.861	.032
borderline	10.004	.007
antisocial	.507	.776

df=2

Table 2. Place of origin and tendencies to personality disorders

	Permanent residence							
	Big city		Small		Rural		Total	
	M	S	M	s	M	s	M	s
Intensity of tendencies (rescaled to interval 0–10)
Avoidant	3.51	3.24	2.89	3.37	4.11	4.00	3.22	3.34
Dependent	2.23	2.45	1.51	1.96	1.56	1.98	1.83	2.21
Obsessive-compulsive	4.37	2.61	3.55	2.33	4.44	1.68	3.97	2.46
Passive-aggressive	3.16	2.97	2.17	2.05	3.44	2.57	2.69	2.58
Depressive	3.08	2.80	2.31	2.64	2.81	2.73	2.68	2.73
Paranoid	3.21	2.76	2.38	2.56	1.61	1.39	2.74	2.65
Schizotypal	1.92	2.28	1.08	1.67	.45	.69	1.44	2.00
Schizoid	2.78	2.77	2.13	2.45	1.67	1.54	2.41	2.58
Histrionic	2.39	2.39	2.40	2.34	1.25	1.42	2.34	2.33
Narcissistic	2.37	2.29	1.79	2.04	.50	.86	2.00	2.16
Borderline	2.66	2.68	1.48	2.10	1.24	1.56	2.02	2.43
Antisocial	1.18	2.14	.64	1.28	.57	1.05	.88	1.72

(M – median; s – standard deviation)

Tendencies to the borderline personality features occur most commonly in the examined students from big cities ($M=2.66$), then from small cities ($M=1.48$), and less commonly from rural areas ($M=1.24$); significance (0.007). Tendencies to schizotypal personality occurred most commonly in the examined students from the big cities ($M=1.92$), then from small cities ($M=1.08$), and less commonly from rural areas ($M=0.45$); significance (0.031). Tendencies to the narcissistic personality features occurred most commonly in the examined students from big cities ($M=2.37$), then from small cities ($M=1.79$), and less commonly from rural areas ($M=0.50$); significance (0.032).

Non-parametrical tests (NPAR TEST) Mann-Whitney *U* test cross-studied the rural or urban origin, and tendencies to specific types of personalities (SCID).

There were significant differences between the examined students from big cities and small cities in the tendencies to the obsessive-compulsive personality, schizoid and borderline personalities. These personality tendencies were more common in the examined students from big cities than from small cities.

Table 3. Big city-small city

	Mann-Whitney U test	Z	asymptotic significance bilateral
Avoidant	2890.5	-1.433	.152
Dependent	2700.5	-1.856	.063
Obsessive-compulsive	2556.0	-1.965	.049
Passive-aggressive	2786.0	-1.800	.072
Depressive	2750.5	-1.809	.070
Paranoid	2684.5	-2.146	.032
Schizotypal	2661.5	-2.308	.021
Schizoid	2981.5	-1.406	.160
Histrionic	3285.5	-.111	.912
Narcissistic	2808.5	-1.577	.115
Borderline	2386.5	-3.071	.002
Antisocial	2918.0	-.600	.549

Table 4. Big city vs. rural

	Mann-Whitney U test	Z	asymptotic significance bilateral
Avoidant	281.0	-.414	.679
Dependent	253.5	-.741	.459
Obsessive-compulsive	299.5	-.069	.945
Passive-aggressive	286.0	-.447	.655
Depressive	296.0	-.243	.808
Paranoid	187.5	-1.425	.154
Schizotypal	205.5	-1.695	.090
Schizoid	259.5	-.855	.392
Histrionic	239.0	-1.165	.244
Narcissistic	130.0	-2.291	.022
Borderline	189.5	-1.357	.175
Antisocial	230.0	-.505	.614

There were significant differences between the examined students from big cities and of rural origin in the tendencies to the narcissistic personality. These personality tendencies were more common in examined students from big cities than of rural origin.

There were no significant differences between tendencies to the specific types of personality disorders among the students of small city and rural origin.

Results of non-parametrical tests (NPAR TEST) Mann-Whitney U test for students of rural and urban origin, and coping styles are shown in Table 5.

Table 5. Big city vs. small city

	Mann-Whitney U test	Z	asymptotic significance bilateral
CISS Task-Oriented Coping	18926.0	-1.941	.052
CISS Emotion-Oriented Coping	20150.0	-.932	.351
CISS Avoidance-Oriented Coping	19021.0	-1.863	.062
CISS Distraction	18890.5	-1.972	.049
CISS Social Diversion	19961.0	-1.090	.276

There were significant differences in the coping styles between the students from big cities and small cities. There were also significant differences in the style task oriented

coping and avoiding by engaging in a substitute task (distraction). The persons from big cities used this coping style on a larger scale than from small cities.

There were no differences in coping styles between students from big cities and of rural origin, nor between small cities and rural origin in the examined students.

Additionally, an attempt was made to establish eventual differences among male and females in terms of personality tendencies and coping styles. The results are presented in Tables 6 and 7.

Table 6. Gender and tendencies to personality disorders (Mann-Whitney U test)

Tendencies to personality disorders	Mann-Whitney U test	Z	asymptotic significance (bilateral)
Avoidant	2698.0	-1.625	.104
Dependent	2143.0	-3.519	.000
Obsessive-compulsive	2690.0	-1.128	.259
Passive-aggressive	2728.5	-1.615	.106
Depressive	3190.0	-.093	.926
Paranoid	3149.0	-.138	.890
Schizotypal	3243.5	-.005	.996
Schizoid	2819.5	-1.603	.109
Histrionic	2909.5	-1.125	.261
Narcissistic	2888.0	-1.013	.311
Borderline	2968.5	-.651	.515
Antisocial	2613.5	-1.401	.161

Table 7. Gender and tendencies to disorders of personality

	gender					
	M		F		Total	
	M	s	M	s	M	s
Intensity of tendencies (rescaled to interval 0–10)						
Avoidant	2.80	3.49	3.51	3.33	3.29	3.38
Dependent	.97	1.39	2.26	2.38	1.86	2.20
Obsessive-compulsive	3.59	2.35	4.12	2.49	3.96	2.45
Passive-aggressive	2.15	2.11	2.96	2.70	2.71	2.55
Depressive	2.75	2.67	2.74	2.83	2.74	2.77
Paranoid	2.66	2.50	2.79	2.74	2.75	2.66
Schizotypal	1.54	2.11	1.46	1.99	1.49	2.02
Schizoid	3.03	3.01	2.11	2.28	2.40	2.56
Histrionic	1.90	1.78	2.52	2.50	2.32	2.31
Narcissistic	2.10	1.89	1.92	2.23	1.97	2.12
Borderline	1.63	1.85	2.21	2.62	2.03	2.42
Antisocial	1.04	1.64	.85	1.79	.91	1.74

(M – median; s – standard deviation)

The gender differentiates the occurrence of the tendencies to the dependent personality which was significantly more prevalent in females (M=2.26) than males (M=0.97) (0.0000).

In the gender differentiates occurrence of specific coping styles in examined students (Mann-Whitney U test), females and males differ significantly in term of the coping style based on avoidance (SSE – significance 0.023) and searching for the social contacts (PKT – significance 0.001). These two

Table 8. Gender and coping styles

	Gender					
	M		F		Total	
	M	s	M	s	M	s
CISS Task-Oriented Coping	56.92	10.55	56.04	9.97	56.30	10.14
CISS Emotion-Oriented Coping	40.54	13.00	43.54	11.18	42.66	11.81
CISS Avoidance-Oriented Coping	43.65	9.99	46.01	10.08	45.32	10.10
CISS Distraction	19.24	6.88	20.06	6.31	19.82	6.49
CISS Social Diversion	15.98	3.85	17.33	4.33	16.93	4.24

(M – median; s – standard deviation)

coping styles were more prevalent in females than males. The examined female students in stressful situations expressed tendencies to avoid thinking and to avoid re-experiencing the situation. They are also sought social contacts more than males.

DISCUSSION

The percentage of examined students from big cities was 44.40%, from small cities – 52.00% and of rural origin – 3.30%; for comparison, according to the GUS, the population of big cities in Poland in 2010 was 21.1%, cities with up to 200,000 citizens – 41.1%, and rural population – 37.8% (2011 – 39.8%). In comparing those statistics, it can be stated that the greatest disproportion takes place in case of the population of rural areas (40%), and the number of medical students of rural origin (3.3%). This tendency is also noted in other countries, e.g., Canada, USA, Norway and Japan [15, 16, 17]. There are plans to overcome the shortage of doctors willing to work in rural area and it is noticed that the medical students of the rural origin decide to return to work in the rural area more often than the other students. Therefore, there are plans in some countries to increase the financial support for medical students from rural areas with the obligation to work for some years as doctors in rural areas. For instance, in Japan there have been established some medical faculties for those medical students who decide to work in these areas. Comparative studies of medical students of urban and rural origin showed a higher prevalence of financial stress among the medical students of rural origin. Because of this, there is need for financial support of medical students of rural origin. This does not seem to be a local problem, as confirmed by the result of surveys conducted in Canada and Australia [16, 17]. The decision by students of rural origin to study medicine is more autonomous in comparison with the students of urban origin [17], and although they begin their medical studies with lower scoring than medical students of urban origin, they graduate with equal scoring [15]

The studies show that the rural origin students experience significantly more stress than students of urban origin [17].

There is much evidence that the personality structure influences stress [18] and the coping styles [19]. According to the results of the presented study, the prevalence of tendencies to borderline, narcissistic and schizotypal personality disorders is influenced significantly by the rural or urban origin of the medical students. All mentioned tendencies of personalities were significantly more common in medical students of big city origin. The least prevalent tendencies to this types of personality disorders were shown in examined

rural students, which additionally supports the need for increasing the number of medical students of rural origin.

The female gender in the presented study was significantly greater associated with the tendencies to dependent personality than the male gender, which is congruent with other publications [20]. However, the warning by Bornstein [21] should be borne in mind, that gender differences in dependent personality disorder prevalence rates can be a consequence of the failure to report symptoms of this personality disorder by males, because of unwillingness to acknowledge dependent features on self-report surveys because of cultural expectations.

In the gender differentiates occurrence of specific coping styles in examined students, the females and males differed significantly in terms of coping style based on avoidance and searching for social contacts. These two coping styles were more prevalent in females than males. The results are in agreement with the results of a survey conducted on a general adult population in Spain [22], where the preferred coping styles of the females were emotional and avoidance. The examined female students, after experiencing stressful situations, expressed tendencies to avoid thinking and re-experiencing the situation. They also sought social contacts more than males.

What should also be stressed is that there is a link between personality and coping. According to Connor and Flachsbart [23], personality may directly facilitate or constrain coping; they quote also the opinion of Vollrath opinion, in which coping ought to be redefined as a personality process.

To diminish the stress of medical students, we have to bear in mind the stressful situations, personality and coping styles, the gender of the students, and also the place of origin. Some efforts have already been made to help medical students to reduce stress, among them, changing the grades to pass/fail (which seems to be effective) [24, 25], mindfulness techniques [25], encouraging students to become more involved in sport; this, however, is still unsatisfactory and incomplete. What should be postulated are the creation and introduction of programmes that can take into account the academic stressful situations, and all the above-mentioned factors.

CONCLUSIONS

1. Medical students of urban and rural origin are differentiated in terms of personality structure tendencies, which concern the following personalities: schizotypal, narcissistic and borderline, all of which are more prevalent among medical students of big cities origin.
2. Two types of coping styles, based on avoidance and seeking social contacts, were significantly more common among examined female students than the male students.
3. The dependent personality tendencies were significantly more prevalent among examined female students than the male students.
4. There is a need for creating and introducing programmes for reducing the stress among medical students that can take into account the academic stressful situations, personality and coping styles, the gender of students, and also their place of origin.

REFERENCES

- Ziemska B, Marcinkowski JT. Badania nad stresem psychicznym związanym ze studiami medycznymi. *Nowiny Lek.* 2008; 77 (2): 120–125 (in Polish).
- Supe AN. A study of stress in medical students at Seth G.S. Medical College. *J Postgrad Med.* 1998; 44 (1): 1–6.
- Compton MT, Carrera J, Frank E. Stress and depressive symptoms/dysphoria among US medical students: results from a large, nationally representative survey. *J Nerv Ment Dis.* 2008; 196: 891–897.
- Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. *Med Educ.* 2005; 39: 594–604.
- Sohail N. Stress and academic performance among medical students. *J Coll Physicians Surg Pak.* 2013; 23(1): 67–71.
- Abdulghani HM, AlKanhall AA, Mahmoud ES, Ponnampereuma GG, Alfari EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *J Health Popul Nutr.* 2011; 29(5): 516–22.
- Basnet B, Jaiswal M, Adhikari B, Shyangwa PM. Depression among under-graduate medical students. *Kathmandu Univ Med J (KUMJ).* 2012; 10(39): 56–90.
- Chang E, Eddins-Folensbee F, Coverdale J. Survey of the prevalence of burnout, stress, depression, and the use of supports by medical students at one school. *Acad Psychiatry.* 2012; 36(3): 177–182.
- Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med.* 2006; 81(4): 354–373.
- Backović DV, Zivojinović JI, Maksimović J, Maksimović M. Gender differences in academic stress and burnout among medical students in final years of education. *Psychiatr Danub.* 2012; 24(2): 175–181.
- Nuallaong W. Correlation between stressors and academic performance in second year medical students. *J Med Assoc Thai.* 2011; 94: 81–5.
- Endler NS, Parker J DA. *Coping Inventory for Stressful Situations (CISS). Manual:* Toronto: Multi-Health Systems. Inc. 1990.
- Strelau J, Jaworowska A, Wrześniewski K, Szczepaniak P. *Kwestionariusz Radzenia Sobie w Sytuacjach Stresowych CISS. Podręcznik. Pracownia Testów Psychologicznych PTP, Warszawa 2005.*
- First MD, Gibbon M, Spitzer RL, Williams J BW, Smith Benjamin L. *Podręcznik klinicysty. Ustrukturalizowany wywiad kliniczny do badania zaburzeń osobowości z osi II DSM-IV. SCID-II. Pracownia Testów Psychologicznych PTP, Warszawa 2010 (in Polish).*
- Matsumoto M, Inoue K, Kajii E. Characteristics of medical students with rural origin: implications for selective admission policies. *Health Policy* 2008; 87(2): 194–202.
- Kwong JC, Dhalla IA, Streiner DL, Baddour RE, Waddell AE, Johnson IL. A comparison of Canadian medical students from rural and non-rural backgrounds. *Can J Rural Med.* 2005; 10(1): 36–42.
- Durkin SR, Bascomb A, Turnbull D, Marley J. Rural origin medical students: how do they cope with the medical school environment? *J Rural Health.* 2003; 11(2): 89–95.
- Park J, Chung S, An H, Park S, Lee C, Kim SY, Lee JD, Kim KS. A structural model of stress, motivation, and academic performance in medical students. *Psychiatry Investig.* 2012; 9(2): 143–9.
- Williams L, Wingate A. Type D personality, physical symptoms and subjective stress: the mediating effects of coping and social support. *Psychol Health.* 2012; 27(9): 1075–1085.
- Grant BF, Hasin DS, Stinson FS, Dawson DA, Chou SP, Ruan WJ, Pickering RP.
- Prevalence, correlates, and disability of personality disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. *The Journal of Clinical Psychiatry.* 2004; 65(7): 948–958.
- Bornstein RF. Sex Differences in Dependent Personality Disorder Prevalence Rates. *Clinical Psychology: Science and Practice* 1996. 3(1): 1–12.
- Matud MP. Gender differences in stress and coping styles. *Personality and Individual Differences.* 2004; 37: 1401–1415.
- Connor-Smith JK, Flachsbart C. Relations between personality and coping: a meta-analysis. *J Pers Soc Psychol.* 2007; 93(6): 1080–107.
- Reed DA, Shanafelt TD, Satele DW, Power DV, Eacker A, Harper W, Moutier C, Durning S, Massie FS Jr, Thomas MR, Sloan JA, Dyrbye LN. Relationship of pass/fail grading and curriculum structure with well-being among preclinical medical students: a multi-institutional study. *Acad Med.* 2011; 86(11): 1367–1373.
- Shiralkar MT, Harris TB, Eddins-Folensbee FF, Coverdale JH. A systematic review of stress-management programs for medical students. *Acad Psychiatry.* 2013.