

Behavioral Coping Strategies of First Year Students from the Romanian Medical Education System

D. NECHITA¹, D.O. ALEXANDRU², FLORINA NECHITA¹

¹Medical Education Center, University of Medicine and Pharmacy of Craiova

²Department of Medical Informatics and Biostatistics, University of Medicine and Pharmacy of Craiova

ABSTRACT: A number of 333 medical students from the faculties of General Medicine, Pharmacy and Medical Nursing took part in a study which aimed at ascertaining what behavioral coping strategies they use most frequently. By employing SACS (Strategic Approach to Coping Scale), it has been ascertained that the students at the Faculty of Medicine and Pharmacy from Craiova function in a relatively different way from the general population and that they preponderantly use coping strategies which tend to be active and pro-social, such as: cautious action, social relating, assertive action and search for social support.

KEY WORDS: coping strategies, medical students, behavioral coping, nursing, pharmacy, medicine

Introduction

It is already a well-known fact that the medical students record high levels of stress, as the medical education is considered difficult, demanding and very competitive [1]. Quite often, the stress and the used coping type are associated with chronic fatigue [2], a decrease of mental health [3], anxiety (prevalence of up to 65.5%), depression (prevalence of up to 66.5%) [4] and even with irritable bowel syndrome (prevalence of up to 15%) [5], thus affecting their academic performance [6].

Under these conditions, it is extremely important to fully comprehend the coping types and strategies the medical students employ, as well as ascertaining if they are adaptive and functional.

Although specialized papers offer data regarding the way the medical students handle stress is quite consistent, very little research has been carried out in the matter of ascertaining the ways of behavioral coping, while also considering the social aspect it involves, exactly because it manifests itself in a social context.

Aim of Study

One of the objectives of this study was to identify the most, but also the least used behavioral strategies for coping with stress, employed by the medical students.

We were also interested whether, comparatively, between students from the university's different departments, but also between genders, one can record significant differences between the employed coping strategies.

One direction we also took a special interest in was to ascertain whether the medical students

present certain particularities regarding the functioning of their coping mechanisms in relation with the general population, whose standard we hold.

Methods

Participants

This research involved, in the period March-April 2015, 333 students in the first year at the Faculties of General Medicine, Pharmacy and Medical Nursing, aged between 18 and 20 (with the average age of 19.4). Of these, 67 (20.12%) were male gender and 266 (79.88%) female gender. The Faculty of General Medicine contributed with 212 students-48 (22.64%) male and 164 (77.36%) female, Pharmacy with 56 students-10 (21.73%) male and 46 (78.27%) female and Medical Nursing with 64 students, of which 9 (13.84%) male and 56 (86.16%) female.

Procedure

The subjects filled in a set of questionnaires, one of which was SACS (Strategic Approach to Coping Scale). All the participants signed an agreement, before which they were briefed regarding the ample research they would participate to and the destination of its results. Before performing the study, the researchers were granted the approval by the Commission for Academic and Scientific Ethics and Deontology of the University of Medicine and Pharmacy of Craiova.

Method

For this research, the SACS (Strategic Approach to Coping Scale) questionnaire was used, the Romanian variant, a self-evaluating instrument with 52 items evaluated on a Likert scale in 5 points (1="not at all what I would do", 5="very much what I would do"). The SACS

internal consistency varies, according to the scale, between 0.52 and 0.79. The scale measures the behavioral category of the coping and the social aspects of the way the person handles stress [7]. SACS includes nine subscales (Assertive Action, Social Relating, Seek Social Support, Cautious Action, Instinctive Action, Avoidance, Indirect Action, Antisocial Action, Aggressive Action) and evaluates the coping strategies for the areas: active-passive, pro-social-antisocial, direct-indirect [7].

Prior to its use, the questionnaire had been adapted and standardized for the Romanian population, while for interpreting the scores, the T quotients were employed. These are used for the interpreting the subject's scores at any sub-

scale, by relating them with the results recorded by the persons from the representative population group the subject belongs to, while considering their gender [7]. The T quotients that record values over 60 are considered "high", those which fall between 40 and 60 inclusively are considered "medium", while those under 40 are considered "low" [7].

Results

Student

The T quotients, the standard deviations and the Student p results on each scale for the entire group (N=333), but also separated by gender are presented in Table 1.

Table 1. T quotients, p Student, standard deviation for the studied group

SACS Scale	Total	F	M	p Student
Assertive Action, T quotient	49.83 ± 9.37	50.00 ± 9.17	49.15 ± 10.14	0.509
Social Relating, T quotient	49.50 ± 10.50	49.40 ± 10.25	49.92 ± 11.50	0.713
Seek. Social Support, T quotient	51.63 ± 8.51	51.52 ± 8.19	52.07 ± 9.74	0.634
Cautious Action T quotient	51.24 ± 10.01	50.83 ± 9.82	52.85 ± 10.67	0.140
Instinctive Action, T quotient	48.78 ± 9.67	48.70 ± 9.77	49.08 ± 9.32	0.774
Avoidance, T quotient	48.78 ± 9.27	48.47 ± 9.35	50.04 ± 8.89	0.213
Indirect Action, T quotient	48.73 ± 9.05	48.05 ± 8.79	51.41 ± 9.63	0.006
Antisocial Action, T quotient	47.94 ± 9.40	47.69 ± 9.36	48.92 ± 9.57	0.341
Aggressive Action, T quotient	45.61 ± 9.24	45.23 ± 9.00	47.12 ± 10.08	0.134

By comparing the average values of the SACS scales between the representatives of the two genders, male and female, we identified only for the Indirect Action scale a statistically significant difference ($p \text{ Student}=0.006<0.05$). One can draw the conclusion that, as Table 2 shows, as far as the studied group is concerned, the men tend to use indirect action more than

women. The graphic representation can be seen in Fig.1.

Table 2. Indirect Action Scale

SACS-Indirect Action	F	M
No. cases	266	67
Average	48.05	51.41
Standard Deviation	8.79	9.63
p test Student	0.006	- S

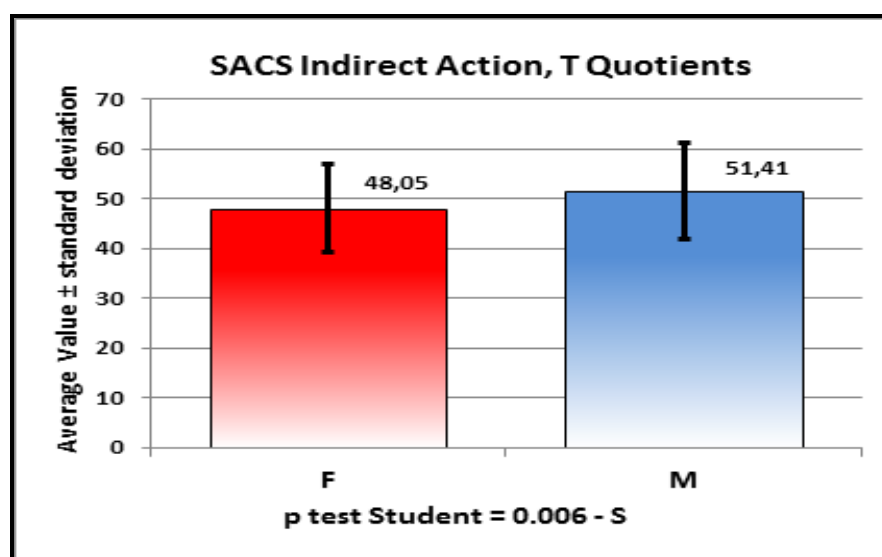


Fig.1. Graphic representation of Indirect Action Scale results

By performing the analysis according to genders, for each faculty, we noticed that for medical nursing there are no significant differences between men and women as far as indirect action is concerned ($p_{\text{Student}}=0.065$), as men even recorded equal values with those of women, while for pharmacy and medicine there are significant differences, as men record an

average of the T quotients for the Indirect Action which is significantly higher than that of women ($p_{\text{Student}}=0.022$ for pharmacy, respectively $p=0.003$ for medicine). Table 3 shows the number of subjects, the average, the standard deviation and p_{Student} for each faculty separately, while the graphic representation is available in Fig.2.

Table 3. The results of the Indirect Action Scale for all faculties, by gender

	Medical Nursing		Pharmacy		Medicine	
SACS Indirect Action	F	M	F	M	F	M
No. Subjects	56	9	46	10	164	48
Average	49.94	44.17	47.40	55.58	47.59	51.90
Standard Deviation	8.31	10.15	10.01	9.46	8.55	9.03
C.V. (%)	16.63%	22.97%	21.11%	17.03%	17.97%	17.40%
Result	$p_{\text{Student}}=0.065$		$p_{\text{Student}}=0.022$		$p_{\text{Student}}=0.003$	

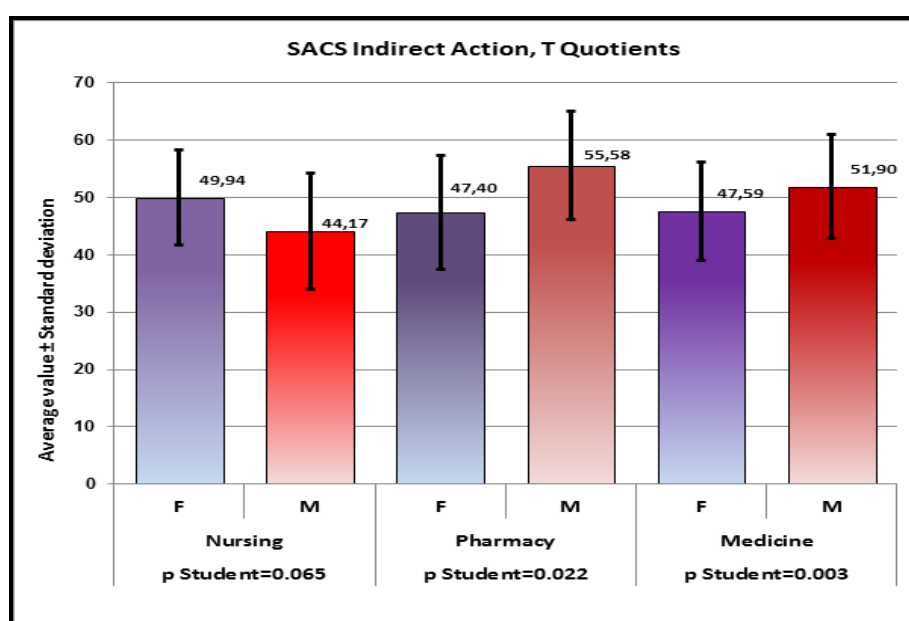


Fig.2. The graphic representation of results for the Indirect Action scale, by gender and faculties

ANOVA

By comparing the average values of the T quotients for the scales within the SACS, we have not identified any statistically significant differences between the students of any of the

faculties for any of the 9 investigated scales, not even for the Indirect Action scale. Table 4 highlights this aspect by means of the ANOVA p values.

Table 4. p ANOVA for all scales and faculties

Scala SACS, T Scores	Total	Med. Nursing	Pharmacy	Gen. Med	p ANOVA
Assertive Action	49.83 ± 9.37	48.91 ± 9.52	49.36 ± 10.39	50.24 ± 9.05	0.557
Social Relating	49.50 ± 10.50	49.14 ± 11.96	50.16 ± 9.09	49.44 ± 10.41	0.859
Seek Soc. Sup.	51.63 ± 8.51	52.49 ± 8.73	52.82 ± 7.38	51.05 ± 8.70	0.251
Cautious Action	51.24 ± 10.01	50.59 ± 10.11	51.98 ± 9.71	51.24 ± 10.10	0.747
Instinctive Action	48.78 ± 9.67	48.50 ± 9.28	49.91 ± 11.10	48.56 ± 9.41	0.634
Avoidance	48.78 ± 9.27	49.96 ± 8.99	48.60 ± 9.20	48.47 ± 9.38	0.521
Indirect Action	48.73 ± 9.05	49.14 ± 8.73	48.86 ± 10.32	48.56 ± 8.83	0.898
Antisocial Action	47.94 ± 9.40	48.07 ± 10.47	49.38 ± 10.78	47.52 ± 8.65	0.419
Aggressive Action	45.61 ± 9.24	45.33 ± 9.95	45.63 ± 9.94	45.69 ± 8.86	0.964

But when we compare the values for the Indirect Action SACS scale separated by genders for the three faculties, we can notice that, for men, there are significant differences. The students from the Medical Nursing have

significantly lower T quotients than those from Medicine and, especially, those from Pharmacy, while there are no significant differences for women. These values are presented graphically in Fig.3.

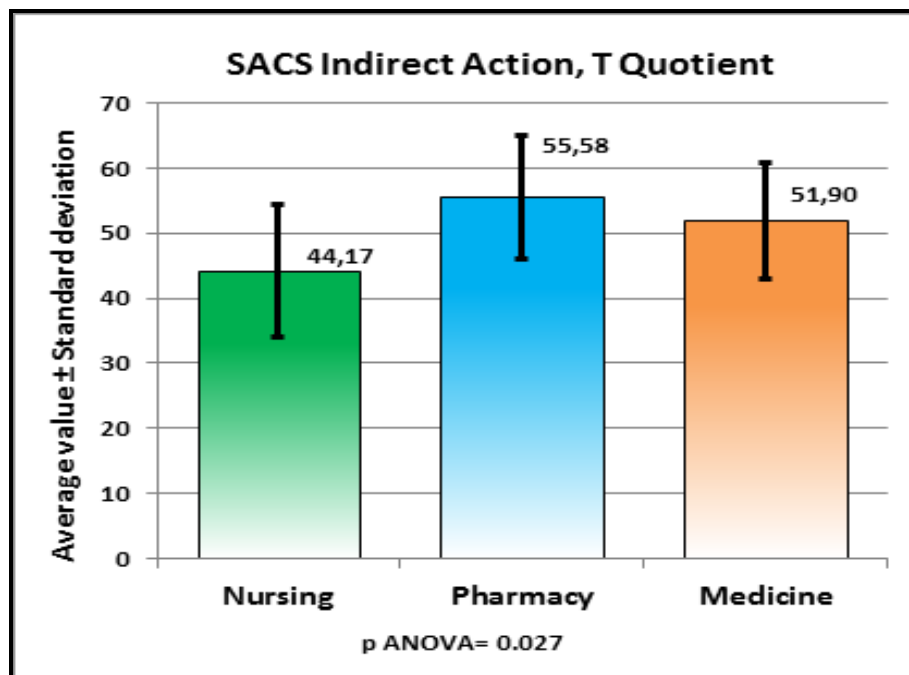


Fig.3. Results on the Indirect Action scale, for men, by faculty

We consider important to point out that, as we compared the average values of the Avoidance scale for the three faculties, only for

men, we obtained a value of p ANOVA (Fig. 4) close to the statistical significance threshold, but still higher than it ($p=0.061 > 0.05$).

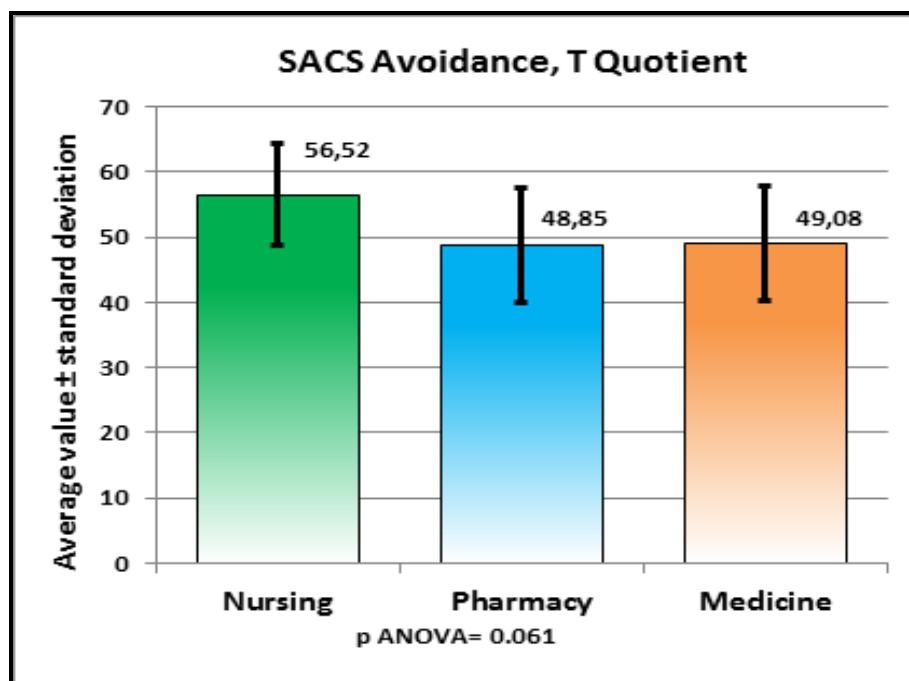


Fig.4. p ANOVA for the Faculty of Medical Nursing, men

Chi square

By analyzing the Indirect Action scale from the perspective of its distribution of use by the students from the three faculties, we noticed that there is a statistically significant difference between the students from Pharmacy and those from Medical Nursing and Medicine (p Chi square=0.027<0.05), which does not result from the analyses of the T quotient average values (Table 5, Fig.5). This way, one can notice that the pharmacy students record values of the T quotient lower than 40 or higher than 60 in a noticeably higher proportion than the students from the other two faculties, extreme values which cancel each other, thus resulting an

insignificant difference of the T quotient averages.

Table 5. p Chi square results, Indirect Action scale

SACS Indirect Action				
Faculty (N=)	<40	40-60	>60	Total
Nursing	8	52	5	65
Pharmacy	11	32	13	56
Medicine	31	159	22	212
Total	50	243	40	333
Faculty (%)	<40	40-60	>60	Total
Nursing	12.31%	80.00%	7.69%	100%
Pharmacy	19.64%	57.14%	23.21%	100%
Medicine	14.62%	75.00%	10.38%	100%
Total	15.02%	72.97%	12.01%	100%

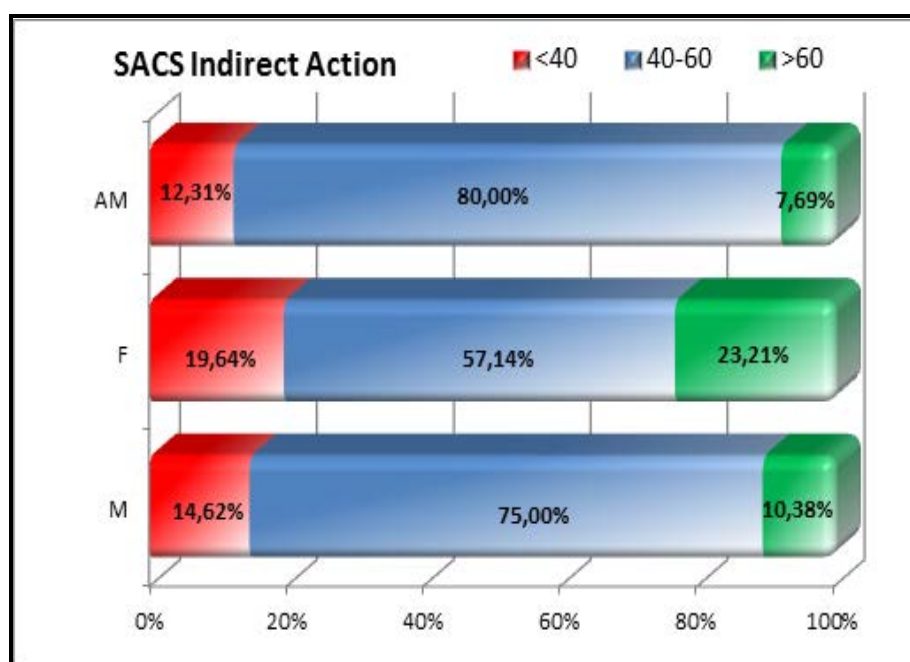


Fig.5. Graphic representation of the differences between the maximum and minimum scores recorded by men, Indirect Action scale

We have identified a statistically significant difference regarding the distribution by classes of value of the T quotient, for the SACS Anti-social Action (p Chi square=0.036<0.5). The students from Medicine have a lower percentage of quotients>60 on this scale, but the difference is not that high as to be noticed by comparing the T quotients of the three faculties (Table6, Fig.6).

Table 6. p Chi square results, Antisocial Action scale

SACS Anti-Social Action				
Faculty (N=)	<40	40-60	>60	Total
Nursing	16	38	11	65
Pharmacy	10	36	10	56
Medicine	41	156	15	212
Total	67	230	36	333
Faculty (%)	<40	40-60	>60	Total
Nursing	24.62%	58.46%	16.92%	100%
Pharmacy	17.86%	64.29%	17.86%	100%
Medicine	19.34%	73.58%	7.08%	100%
Total	20.12%	69.07%	10.81%	100%

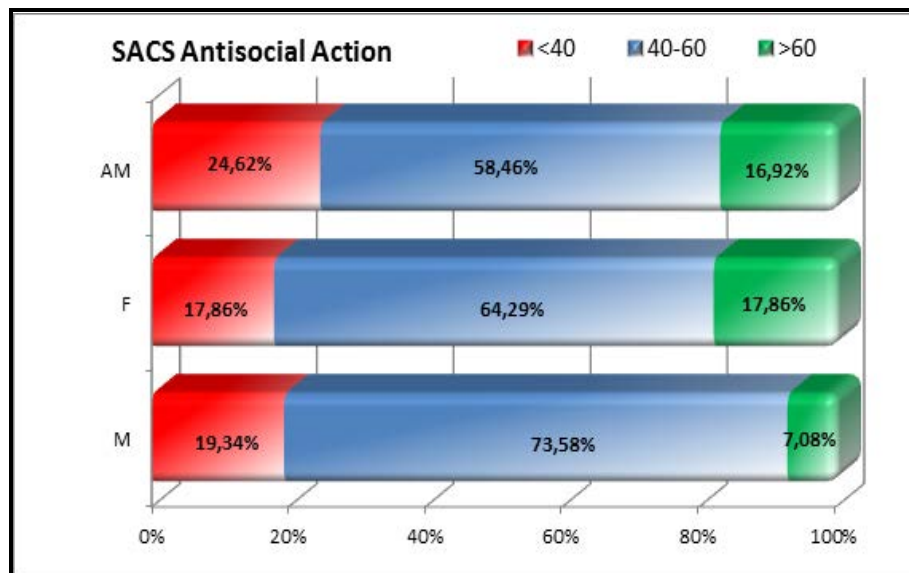


Fig.6. Graphic representation of the differences between the maximum and minimum scores recorded by men, Antisocial Action scale

Other measurements

Considering the T scores over 60 mean that the individual employs the concerned strategy more often, by studying the choices our students made, we can ascertain what percentage of the whole number of medical students, and on which scales, they record high scores. The Cautious Action is the scale which records above average score the most often, as 21.32% of the total number of students employs this coping modality the most often. It is followed, in order, by Social Relating (18.32%) and Assertive Action (15.32%). Among the last coping strategies revealed by research as being often used, one can mention the less adaptive ones, namely: Antisocial Action (11.11%),

Avoidance (10.21%) and Aggressive Action (10.21%) (Table 7, Fig.7).

Table 7. The most used scales by medical students

Scale	No. subjects T score>60	Percentage T score>60
Cautious Action	71	21.32%
Social Relating	61	18.32%
Assertive Action	51	15.32%
Soc. Support Srch.	44	13.21%
Instinctive Action	41	12.31%
Indirect Action	39	11.71%
Antisocial Action	37	11.11%
Avoidance	34	10.21%
Aggressive Action	34	10.21%

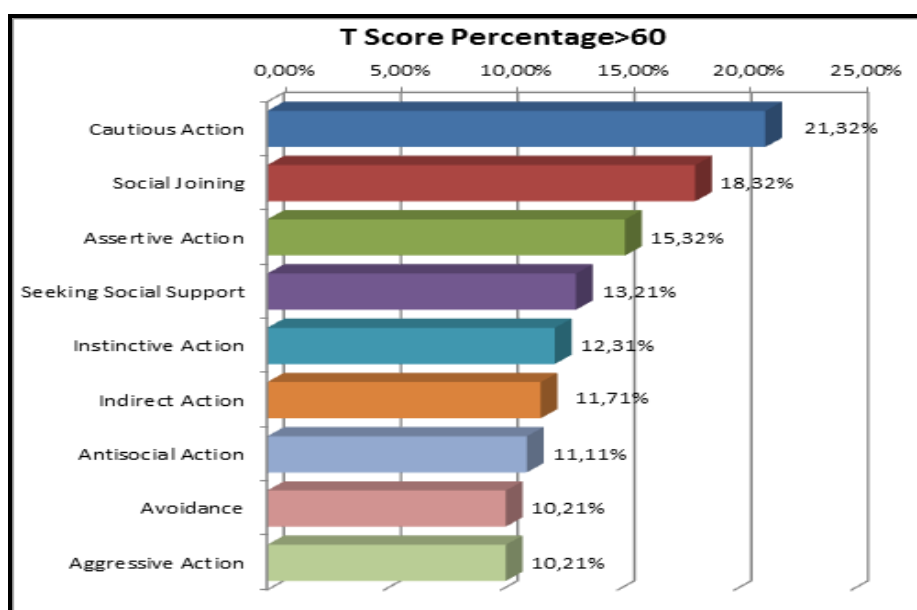


Fig.7. Coping strategies hierarchy of choices

Discussion

While comparing the average values of scales obtained by men and women, we noticed that only on the Indirect Action scale there is a statistically significant difference, meaning that men tend to use the indirect action more than women. The indirect action is a behavioral coping strategy according to which the individual prefers a non-transparent approach of an issue, behind closed doors, manipulating or modifying the environment, the context, the persons-by considering or not the needs of others-aiming at diminishing the problem or stress it causes [7]. Recording a higher score for men at Indirect Action is in accordance with the data obtained within other research [8]. What we find extremely interesting is that there are no significant differences on other scales. For example, previous research revealed that, usually, women record higher scores at the pro-social coping strategies (so they employ them more)-Seek Social Support and Social Relating, while men record and use more than women the antisocial and aggressive strategies [8-11]. It seems that one can identify a certain particularity of the medical students in comparison with the general population, namely that both men and women are equally inclined to be pro-and antisocial, aggressive, assertive, cautious, instinctive or avoidant. In other words, the men and women who join the University of Medicine and Pharmacy in Craiova use, on average, and almost in the same proportion, all the coping strategies, regardless of gender.

Still, when we analyze the gender differences for each faculty taken separately, we can notice that the men from the Medical Nursing obtained a lower score (although statistically insignificant) than women, as far as the Indirect Action scale is concerned. We can explain this aspect through the extremely low group of men (13.84%) from this faculty. Whether there are other particularities of men, in terms of personality, does not fall within the purpose of this study, but a study conducted by Lemkau [12] suggests that who chooses preponderantly feminine occupations do this as part of a general pattern of low adherence to traditional gender roles.

For the other two faculties, Medicine and Pharmacy, there are significant differences between the two genders, in favor of men, for the Indirect Action scale, as prior studies have us expect.

By comparing the average values obtained by all students (men and women) from all the three faculties and on all the nine scales, one can notice that there are no significant differences. It somehow seems that, from the employed coping strategies point of view, the medical students are structurally the same. Still, one can notice a certain difference when one calculates, separately for each gender, the scores for the same Indirect Action scale. We can see that students from Medical Nursing employ indirect action less frequently than their colleagues from Medicine and far less frequently than their colleagues from Pharmacy. Not only do they use the strategy less often than their male colleagues, but they also use it less frequently than their female colleagues from the same faculty. As previous research has shown [8,10,11] men usually use the indirect action more than women, so this result is unexpected. We do not hold research data about what caused this phenomenon to appear, but we can still speculate that there is, at least as one cause, the possibility that the much lower percentage (13.84% medical nursing men, 22.64% medicine men, 21.73% pharmacy men) of medical nursing men that those of pharmacy and medicine ones to be the factor than influences the result.

Although not statistically significant, but with a quite high recorded difference (p ANOVA=0.061>0.05), one can notice that the Medical Nursing male group uses avoidance in a more frequent way than the men from Pharmacy or Medicine. One explanation can be found in the previous research which examines stress and coping at the first year Medical Nursing students [13], which found that there is a negative correlation between the level of stress and the direct coping methods aimed at solving problems. So, the more stressed the individuals are, the more often they will choose avoidance as a way to handle stress. By avoidance we mean that behavioral coping strategy according to which the subject engages in totally different activities for the very reason of not having to confront the stressor, by abandoning the pursuit for achieving the objective or removing the situation which causes the stress or by waiting for the situation to be solved by itself [7]. Another possible explanation for this result can be, again, the reduced male group of medical nursing students. Still, by correlating this information (high avoidance score) with the one regarding the low score recorded on the Indirect Action scale, it seems that male student from Medical Nursing have, at least as far the

functioning of the two coping strategies is concerned, a special profile, different from the ones of the male students from the other two faculties, but also different from the Romanian population within which, according to the research [10], men use indirect action more than women. However, considering the Indirect Action is a problem solving strategy, even if an indirect one, and knowing that coping strategies based on problem solving are used more often by less stressed students [14], one can conclude the high score recorded on the Avoidance scale and the low score on the Indirect Action provides us with the premises to believe that the male students from Medical Nursing are more stressed than their male colleagues from the other two faculties.

A statistically significant difference was recorded regarding the use of Indirect Action scale for male Pharmacy students, comparative with the other two faculties (p Chi square=0.027<0.05). This translates through the fact that they recorded T quotient scores lower than 40 and higher than 60 in a more increased proportion. In other words, some of the Pharmacy students use the Indirect Action scale very often, while the others use it very rarely. The discussion remains open regarding the reason why this happens, but we already ascertained from the facts presented above that, of all male subject groups, the one from Pharmacy uses the Indirect Action the most often (statistically insignificant) - Fig.3. We also see in Fig.2 that Pharmacy women use it more rarely than other coping ways, so we can conclude that, very probably the women score more often T quotients under 40, while the men score T quotients over 60, which is congruent with other research [8,10,11].

Also, an important difference (p Chi square=0.036<0.05) was ascertained for SACS Antisocial Action. The medical students, men and women, record in lower proportion T quotients higher than 60, which means that, of all the students from the University of Medicine and Pharmacy from Craiova, those from the General Medicine specialization, use the most rarely this way of coping. The Antisocial Action recorded, however, high scores, so it is more frequently used, only by 11.11% of students-a relatively low score anyway, but as far as future doctors are concerned, it is even lower (7.08%). This can only be explained by the fact that they choose their job with the wish, generally formulated, to help others, as medical nurses could have the same deep desire. It cannot be

explained by the size of the groups, as the percentages of men and women from Pharmacy and Medicine are similar. We can only speculate that, generally, the pro-social coping, compared to the antisocial one, leads to a less intense expression of fury and, thus, to a better interpersonal relating, which the very stressed people can benefit from, as they earn and keep the social support when the stressing situations precipitate [15]. The antisocial action refers to that behavioral coping strategy within which the individual approaches the problems and situations by mainly following their own interests, even when these actions bear negative consequences on others [7].

By analyzing the choices made by our students, we can notice that behavioral coping ways most used over the average of the general population are, in order, Cautious Action, Social Relating and Assertive Action. The person who often uses Cautious Action as a behavioral coping strategy carefully evaluates their options, takes all precaution measures and can study thoroughly the others' need and feelings before acting [7]. Social relating refers to a way of acting according to which the subject joins other people to solve the problem and to face the stressing situation together with others (while also considering their needs) [7]. The Assertive Action scale designates a manner of anti-stress behavior according to which the individual approaches the stressing factor firmly, honestly and directly, by expressing openly what they feel and acting in accordance with their own plans and desires [7]. Only 11.11%, 10.21% and, respectively 10.21% of the students use antisocial, avoidant or aggressive coping ways more than frequently than the average of the general population. The aggressive action involves a way of action through which a person approaches the stressing problems decisively, rapidly, in order to take the other by surprise, aiming at taking over, at all costs, the control, the domination and the disarming of others [7]. Thus, we can speculate that, in terms of very frequently used coping strategies, the medical student is rather active and pro-social.

This study has some limitations. One of them is related to the fact that the study cannot be considered representative for the entire population of medical students from the country, as other Romanian medicine universities did not participate to it. Another limitation is related to the fact that the research using this instrument and directed towards these goals are, according to our documentation, inexistent, so comparing

the results with similar ones becomes impossible. Last, but not least, we mention that the group who participated at the study totaled a percentage of 70% of the first year students from all the three faculties, which could have us think that a higher participation percentage, would have likely led to different results.

Conclusions

To conclude, one can ascertain a different profile of the medical student in terms of how they fight against stress. This means that, contrary to expectations recorded by other research, there are no significant differences between the functioning of the coping mechanisms in men and women - only as far as indirect action is concerned. Similarly, there are no differences regarding the pro-social or antisocial side of the coping mechanisms used by both genders.

Overall, when fighting stress, medical students, regardless of gender and specialization, do it in a rather active and pro-social manner.

References

1. Pereira MAD, Barbosa MA. Teaching strategies for coping with stress-the perceptions of medical students. *BMC Medical Education*, 2013, 13(50), doi: 10.1186/1472-6920-13-50
2. Tanaka M, Fukuda S, Mizuno K, et al. Stress and Coping Styles are Associated with Severe Fatigue in Medical Students. *Behavioral Medicine*, 2009, 35(3), 87-92, doi: 10.1080/08964280903231979
3. Aktekin M, Karaman T, Senol YY, et al. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Medical Education*, 2001, 35(1), 12-17, doi: 10.1111/j.1365-2923.2001.00726.x
4. Hope V, Henderson M. Medical student depression, anxiety and distress outside North America: a systematic review. *Medical Education*, 2014, 48(10), 963-979, doi: 10.1111/medu.12512
5. Okami Y, Kato T, Nin G, et al. Lifestyle and psychological factors related to irritable bowel syndrom in nursing and medical school students. *Journal of Gastroenterology*, 2011, 46(12), 1403-1410, doi: 10.1007/s00535-011-0454-2
6. Yeh YC, Yen CF, Lai CS, et al. Correlations between academic achievement and anxiety and depression in medical students experiencing integrated curriculum reform. *The Kaohsiung Journal of Medical Sciences*, 2007, 23(8), 379-386, doi: 10.1016/S0257-5655(07)70001-9
7. Budău O, Albu M. SACS: The Scale for the Coping Strategic Approach. ASCR Publishing House, 2010
8. Monnier J, Hobfoll SE, Dunahoo CL, et al. There's more than rugged individualism in coping. Part 2: Construct validity and further model testing. *Anxiety, Stress & Coping: An International Journal*, 1998, 11(3), 247-72, doi: 10.1080/10615809808248314
9. Hobfoll SE, Dunahoo CL, Ben-Portah Y, et al. Gender and coping: The dual-axis model of coping. *American Journal of Community Psychology*, 1994, 22(1), 49-82, doi: 10.1007/BF02506817
10. Budău O, Ciucă A, Miclea M, et al. The adaptation and validation process of the romanian version of the strategic approach to coping scale (SACS). *Cognition, Brain, Behavior. An Interdisciplinary Journal*, 2011, 15(1), 131-141
11. Dunahoo CL, Hobfoll SE, Monnier J, et al. There's more than rugged individualism in coping. Part 1: Even the lone ranger had tonto. *Anxiety, Stress & Coping: An International Journal*, 1998, 11(2), 137-165, doi: 10.1080/10615809808248309
12. Lemkau J. Men in female-dominated professions. Distinguishing personality and background features. *Journal of Vocational Behavior*, 1984, 24(1), 110-122, doi: 10.1016/0001-8791(84)90070-8
13. Jones MC, Johnston DW. Distress, stress and coping in first-year student nurses. *Journal of Advanced Nursing*, 1997, 26(3), 475-482, doi: 10.1046/j.1365-2648.1997.t01-5-00999.x
14. Vitaliano PP, Maiuro RD, Russo J, et al. A Biopsychosocial Model of Medical Student Distress. *Journal of Behavioral Medicine*, 1988, 11(4), 311-331, doi: 10.1007/BF00844933
15. Monnier J, Cameron RP, Hobfoll SE, et al. Direct and crossover effects of prosocial and antisocial coping behaviors. *Journal of Family Psychology*, 2000, 14(4), 570-584, doi: 10.1037//0893-3200.14.4.570

*Corresponding Author: Dan Nechita, Medical Education Center,
University of Medicine and Pharmacy of Craiova, Petru Rares St. No.2, Craiova 200349, Romania;
e-mail: nechita.dan@gmail.com*