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Drinking alcohol as a way of coping with stress in students of medical faculties

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Summary

Aim. The relationship between stress coping style and motivation to alcohol consumption was studied in the context of alcohol dependence risk in medical students.

Methods. Study group included 268 med students. Authors used the Alcohol Use Dependency Identification Test (AUDIT), Coping Inventory for Stressful Situations (CISS) as well as self-designed questionnaire to collect demographic data and examine motivation and usual situations related to alcohol consumption in students.

Results. 94% of students reported alcohol consumption during past year. Risky or harmful alcohol use was found in 16% of med students and 22% of dentistry students, high risk of alcohol dependency was diagnosed in 2% of cases. More than 50% of students reported drinking for coping motives. Data on coping styles do not show statistically significant differences in terms of the main stress coping style: task-, emotion-, and avoidance-oriented. Medicine students used avoidance-oriented coping (social diversion subtype) more often than dentistry students. There was no correlation between stress coping styles, drinking motives and alcohol dependence risk in the studied group.

Conclusions. Lack of correlations may indicate that the studied group used coping strategies other than alcohol drinking. It is essential to create environment for medical students that would enhance healthy stress coping strategies and promote early prevention.

Key words: alcohol abuse, coping skills, medical students

1. Introduction

Numerous research results [1] confirm an increased level of stress in medical students. The environment which is characterized by a high level of requirements, time pressure and achievements promotes development of rivalry among students.

The high level of external and internal (personal) requirements persists not only during undergraduate education, but accompanies doctors at every subsequent stage of education and career [2]. Gaguła [3] states that the doctor is required to have adequate skills to cope with changing and often highly stressful conditions, making quick and extremely responsible decisions. Health professionals must demonstrate resourcefulness and composure in crisis situations. At the same time, they are expected to be sensitive and responsive to the emotional needs of patients. Exposure to human suffering and death is another significant mental burden that future doctors learn to cope with. Therefore, shaping effective ways of coping with stress seems to be an extremely important element of the personal development of doctors. At the same time, it is also important to develop skills in dealing with difficult emotions because if available ways of coping with stress are ineffective or insufficient, then functioning in chronic psychophysical overload can lead to somatic diseases, mood disorders or burnout. The problem seems to be especially significant for it affects over 1/3 of medical professional staff [4].

In the study, the authors adopted the definition of coping with stress based on transactional theory of stress by Lazarus and Folkman [5]. According to the authors' concept, coping with stress is "a constantly changing cognitive and behavioral effort directed to specific external and/or internal requirements that are assessed as aggravating or exceeding human capabilities". Authors [6] name two ways of coping with stress: focused on the task or solving the problem, and focused on reducing emotional tension.

People use different stress coping styles, which can be defined as characteristic repertoire of strategies in stressful situations [7]. Endler and Parker [8] proposed a division of styles of coping with stress into three types: task-oriented, focused on emotions and focused on avoidance. Their idea was based on the interactive stress model of Lazarus and Folkman [9]. According to Endler and Parker, people who cope with stressful situation using task-oriented approach, after the initial emotional reaction, undertake activities aimed at solving the problem or changing the existing stressful situation with the help of cognitive efforts and planning. The second style of coping with stress, focused on emotions, characterizes people who, when solving a stressful situation, concentrate on their own emotions (e.g., anger, guilt, tension, etc) in order to reduce the emotional tension of an accompanying stressful situation. Such people, in order to reduce tension, fantasize and manifest a tendency to wishful thinking, often at the expense of effective and rational action aimed at removing or minimizing the stressor. Avoidance-oriented style characterizes people who, when confronted with a stressor, make every effort to avoid thinking or experiencing a stressful situation and

do not get involved in active solving, avoid emotional experience and learning about a stressful situation. The style focused on avoidance can take two forms: engaging in substitute activities (e.g., escape into alcohol, drugs, illness, binge eating, sleep, shopping, etc.) or seeking social contacts.

Students in difficult situations cope with stress in a variety of ways. Mostly, proactive behavioral coping strategies (time management, problem solving, information seeking) [10], or emotional and cognitive coping strategies (positive reassessment of difficult experiences) [11] are mentioned, as well as less adaptive strategies, e.g., alcohol consumption, smoking and use of psychoactive substances. Any form of alcohol abuse can lead to addiction, although not all people who drink heavily in their youth will be addicted to alcohol in the future. About 30% of people who abuse alcohol in their youth develop addiction. Other people after the period of binge drinking reduce the amount of consumed alcohol or binge sporadically [12].

There are several motives for using alcohol, one of which is the reduction of stress. If alcohol consumption becomes the main way to relieve tension, there is a risk of developing addiction. Therefore, it was decided to examine the correlation between the stress coping style and motivation for alcohol consumption in the context of the risk of alcohol addiction in students of medical faculties of Poznan University of Medical Sciences. Specialists dealing with addictions name several types of motivation to consume alcohol, which can be put into four categories: coping (to forget about problems), conformism (to adapt to the group), social considerations (to improve the quality of meetings), and enhancing good mood (to have fun). The first two categories refer to negative motivation, which means that drinking alcohol is supposed to reduce stress or improve endangered relationships with the group. The last two categories concern reinforcing motivation. One can also classify this motivation as external motivation (second and third group) and internal motivation (first and fourth group) [13, 14].

2. Material and methods

The study group consisted of 268 students of three programs: medical faculty (73 students – 32% of the sixth year students), dentistry (118 student – 67% of the third and fourth year students) and dietetics (77 students – 59% of the second and third year students). The comparative group consisted of residents (22 physicians). 75% of respondents were women, 25% were men. The group of medicine students consisted of 47 women and 26 men aged 24–33 years (mean age was 25). Among students of dentistry there were 91 women and 27 men aged 20–31 years (mean age was 22). The group of dietetics students consisted of 64 women and 13 men aged 19–44 (mean age was 24). The comparative group of residents consisted of 14 women and 8 men aged 24–27 (mean age was 25). The research was voluntary and anonymous.

To assess stress coping styles, the Questionnaire of Coping in Stress Situations in the adaptation of Strelau, Jaworowska, Wrześniewski, and Szczepaniak was used. This

tool consists of 48 statements about the behaviors adopted by the subjects in stressful situations. The questionnaire consists of three scales in accordance with Endler and Parker's typology [8]: Task-oriented coping (P), Emotion-oriented coping (A), Avoidance-oriented coping divided into two subcategories: Avoidant-distracted coping (E) and Avoidant-social coping (I). Each scale contains 16 statements.

The second applied research tool was the Alcohol Use Disorders Identification Test (AUDIT), a screening tool recommended by the WHO. The questionnaire consists of 10 questions about the frequency of alcohol consumption and the emotional or social consequences experienced due to drinking. The scoring of the test determines the severity of alcohol use problems. The score up to 7 points is defined as low risk drinking, 8–15 points – risky alcohol consumption, 16–19 points – harmful drinking, 20 points and higher indicates suspicion of alcohol addiction.

In addition, a self-designed questionnaire was used. Its first part examined variables such as: sex, age, field of study. The second part of the questionnaire concerned questions related to the existence of an alcohol problem in the closest family, three most common occasions in which the person drinks alcohol and three most common motivating factors for alcohol consumption. The drinking occasions were analyzed, and classified into the following categories: "socially" – in the situation of social or family gatherings, "leisure time" – when spending free time, "occasionally" – on celebrations such as birthdays, weddings, etc. "Individually" – spending time alone, e.g., while watching a movie. Motivational factors reported by the respondents were collected and divided into categories. Analysis of arisen categories showed convergence to motivational model of M. Cox and E. Klinger [14], except for a new category that emerged: the taste of alcohol. Therefore, motivational factors reported by the respondents were assigned to the following 5 categories:

- "coping with stress" – alcohol served as an aid in lowering tension, relaxing or 'forgetting' about the problem;
- "conformity" – when the person consumed alcohol to fit the group;
- "social motives" – when the motivating factor for drinking was the improvement of functioning in the group, e.g., greater ease of making contacts, etc.;
- "enhancement motives" – when drinking alcohol was associated with better fun, relaxation in the company;
- "taste" – when drinking alcohol was motivated by a good taste of alcohol.

The statistical analysis was based on STATISTICA 10.0 (StatSoft) software. Part of the analyzed data were in ordinal scale. The Mann-Whitney test was used to compare two groups. The Kruskal-Wallis test was used to compare more than two groups. χ^2 test was used for nominal data. The tests were statistical significant at $p < 0.05$.

3. Results

The first tool used in the study was the Questionnaire of Coping in Stress Situations (CISS). In all study groups, average scores were obtained in all subscales (5–6 sten).

The Kruskal-Wallis test was used to verify the relationship between the study groups and the CISS results. Significant differences in Avoidance-oriented coping, including Avoidant-social coping between dentistry students and medical students were observed. Medical students more often than the students of dentistry used Avoidance-oriented coping, including Avoidant-social coping as a way to implement this style of coping with stress. The results of this analysis are presented in the following Table 1.

Table1. **Relationship between the studied groups and results in Avoidance-oriented coping, including Avoidant-social coping**

Variable : Avoidance-oriented coping	p for multiple comparison – Kruskal-Wallis Test: H (3, N = 290) = 9.098949, p = 0.0280			
	Medicine students R:162.49	Dentistry students R:128.56	Dietetics students R:150.90	Residents R:161.09
Medicine students		0.039471	1.000000	1.000000
Dentistry students	0.039471		0.414228	0.568958
Dietetics students	1.000000	0.414228		1.000000
Residents	1.000000	0.568958	1.000000	
Variable: Avoidant-social coping	p for multiple comparison – Kruskal-Wallis Test: H (3, N = 290) =10.12956, p = 0.0175			
	Medicine students R:170.33	Dentistry students R:131.21	Dietetics students R:145.68	Residents R:139.14
Medicine students		0.010398	0.431512	0.757076
Dentistry students	0.010398		1.000000	1.000000
Dietetics students	0.431512	1.000000		1.000000
Residents	0.757076	1.000000	1.000000	

Another tool used in the study was the AUDIT – a screening tool to identify persons with risky and harmful patterns of alcohol consumption. Information on the existence of disorders in the area of alcohol consumption in the studied groups was obtained. In the group of dentistry students, alcohol addiction can be suspected in 2% of people, while 20% reported risky and harmful alcohol consumption. In the group of students of dietetics, risky and harmful alcohol consumption was found in 18% of people. In the group of medicine students, 16% of people reported risky alcohol consumption, while in the comparative group of residents the percentage of respondents showing such behavior was 9. The quantitative and percentage data of the variable are presented in the following Table 2.

Table 2. **AUDIT results in the studied groups**

Studied group	Low risk drinking style (number and %)	Risky drinking style (number and %)	Harmful drinking style (number and %)	Possible dependence (number and %)
Medicine students	61 (84%)	12 (16%)	0	0
Dentistry students	92 (78%)	20 (17%)	4 (3%)	2 (2%)
Dietetics students	63 (82%)	13 (17%)	1 (1%)	0
Residents	20 (91%)	2 (9%)	0	0

The results of the comparison test between variables in the AUDIT showed a significant difference between dentistry students, students of dietetics and students of medical faculty. The highest results in the AUDIT were obtained by students of dentistry, then by students of dietetics and students of medical faculty. Therefore, the highest percentage of people who drink more alcohol than the norm is in the group of dentistry students. The comparison of values obtained by the examined students is presented in Table 3.

Table 3. **Comparison of AUDIT results in the studied groups**

AUDIT	p for multiple comparison – Kruskal-Wallis Test: H (3, N = 290) = 14.25728, p = 0.0026			
	Medicine students R:144.93	Dentistry students R:164.83	Dietetics students R:126.59	Residents R:109.91
Medicine students		0.666695	1.000000	0.515737
Dentistry students	0.666695		0.011139	0.028819
Dietetics students	1.000000	0.011139		1.000000
Residents	0.515737	0.028819	1.000000	

In all studied groups, 95 people (33%) confirmed the presence of an alcohol problem in the close family. In the group of students of medical faculty, the presence of an alcohol problem in the close family was confirmed by 29%, in the group of dentistry students by 26%, in the group of dietetics students by 45%, in the comparative group of residents by 36%. In the studied groups there was no significant relationship between the alcohol problem in the family and the results of the AUDIT (Pearson's $\chi^2 = 1.132078$, df = 1, p = 0.28733).

Another research goal was to analyze the circumstances related to alcohol consumption. Table 4 shows that the subjects most often used alcohol in the social context, during meetings with friends and family (75–90% of respondents). This answer was usually given by medicine students (Pearson's $\chi^2 = 9.02751$, df = 3, p = 0.02893). It should also be added that among respondents the leisure time was statistically the most frequent cause of alcohol consumption in the group of residents (Pearson's $\chi^2 = 8.251545$, df = 3, p = 0.04109).

Table 4. **Situations in which alcohol is consumed in the individual groups**

	Studied group			
Type of situation usually related to drinking	Medicine students	Dentistry students	Dietetics students	Residents
Leisure time	11 (15%)	15 (13%)	16 (21%)	8 (36%)
Social meetings	66 (90%)	105 (89%)	58 (75%)	19 (86%)
Celebrations	30 (41%)	44 (37%)	33 (43%)	8 (36%)
When alone	23 (32%)	29 (25%)	18 (23%)	7 (32%)

The last research goal was to analyze the motivation of the subjects to consume alcohol. In terms of the motivation for drinking alcohol, the most prevalent answer in the studied groups (over 50%) was coping with stress – i.e., reaching for alcohol in order to reduce tension, relax or forget about problems. A new motivational category in relation to the divisions existing in the literature has become the taste of alcohol – "because I like it's taste, because it tastes good" – 10–42% of respondents reported this motivation. Statistical analysis has shown that taste of alcohol as a motivating factor was more often indicated by the students of medical faculty and residents in the comparative group than in the other groups. (Pearson's $\chi^2 = 21.99731$, df = 3, p = 0.00007).

The frequency distribution in terms of motivation for alcohol consumption in the studied groups is presented in Table 5.

Table 5. **Types of motivation for alcohol consumption in the studied groups**

	Studied group			
Type of motivation	Medicine students	Dentistry students	Dietetics students	Residents
Stres scopnig	38 (52%)	69 (58%)	40 (52%)	7 (32%)
Conformity	22 (30%)	46 (39%)	26 (34%)	10 (45%)
Social motives	15 (21%)	20 (17%)	6 (8%)	1 (5%)
Enhancement motives	28 (38%)	40 (34%)	24 (31%)	4 (18%)
Taste of alcohol	31 (42%)	30 (25%)	8 (10%)	9 (41%)

The main goal of the study was to examine the relationship between the preferred style of coping with stress and the motivation to drink alcohol in medical students. The study did not show a significant relationship between the style of coping with stress in the studied groups and the results of the AUDIT (in all compared groups $p > 0.05000$), there was no significant correlation between the "coping with stress" motivation to drink alcohol and the results of the AUDIT in the studied groups (Pearson's $\chi^2 = 1.857358$, df = 1, p = 0.17293).

5. Discussion

The results of the set of following methods were used in the study: AUDIT, Questionnaire of Coping in Stress Situations (CISS) and the author's questionnaire examining not only the demographic data but also motivation to drink alcohol and situations in which the respondents reach for alcohol.

There is a lively discussion in the literature about behaviors of adolescents and young adults which are risky for their health and life. Jessor's problem behavior theory [15] stresses that problematic behaviors are part of the normative development of the adolescent and have an important role in the process of transition to adulthood. Baumrind [16], however, distinguishes between potentially developmentally adaptive behaviors and those that are 'pathogenic' thus dangerous. Reaching for alcohol is one of the ways to deal with stress. The use of psychoactive substances is a way of regulating emotions, decreasing tension and avoiding confrontation by engaging in substitute activities while being in difficult situations. The academic education period is a special time during which young people more often reach for alcohol and intoxicants. It is estimated that about 60% of medical students use drugs and alcohol for recreation [17]. Alcohol, however, is the most widespread psychoactive substance. In studies conducted among students of medical faculties [18], the percentage of alcohol users was over 99% of all respondents. As a rule, after graduation, the level of alcohol consumption decreases, however, some people develop addiction. According to the results of the research [19], addicted doctors undergoing therapy have abused alcohol already during their studies, and in some of them it was possible to diagnose addiction even at the stage of undergraduate education.

The research shows that people drinking alcohol in a risky and harmful way were diagnosed in each of the fields of study. The results of this study show that 9–17% of people fulfill criteria of risky drinking, 1–3% of people drink alcohol in a harmful way, and in 2% of the subjects alcohol dependence is suspected. The results of the conducted research can be compared with the results obtained in the general population of Poles in the research conducted by Kiejna et al. [20]. Alcohol dependency was found in 2.2% of adult Poles, and at least once-in-a-lifetime period of alcohol abuse – in 10.9% of the studied group.

Excessive alcohol consumption is still one of the most difficult problems in the student community. This result is in line with other reports, e.g., research carried out in 2000, which covered a representative sample of 9,446 students from the eight largest academic centers in Poland [21]. Disturbing phenomena related to alcohol abuse by students were found – harmful alcohol abuse over the last month was reported by 42% of male students and 37% of female students. Some researchers [22] believe that in environments with high socio-economic status harmful and risky alcohol consumption occur more often than alcohol dependence. Other studies [23] indicate that alcohol dependence in the medical community occurs with the same frequency as in other professional groups, although some doctors use alcohol in a way that indicates addic-

tion. The data seem to be inconsistent. However, data from addiction therapists [24] report that the percentage of addicts who are freelancers is 3–4 times higher than in the general population. Fengler [25] claims that people who professionally help others are particularly burdened with addictions. In Poland, the number of addicted doctors is estimated at around 12,000 [26]. In a study conducted at Poznan University of Medical Sciences [27], 17.40% of surveyed employees reported alcohol consumption, in addition, a two-thirds higher percentage of alcohol drinkers was reported in the group of doctors than among all other employees. In research conducted by Chmielowiec [28], it was shown that doctors are more aware of the problem of alcohol dependence in the medical community than in other surveyed professional groups (e.g., teachers, policemen). However, it is puzzling that none of the people who took part in the study admitted to being acquainted with an addict.

Among students of medical faculties, about 60% of respondents use recreational drugs and drink alcohol [24]. Risky alcohol consumption is described in the literature among more than 15% of surveyed students of medical studies [29]. It is interesting to see a large discrepancy in the results between the aforementioned studies of doctors and students of medical faculties and the results obtained in this study. One should consider the methodological difficulties associated with the construction of the study and the results based on declarative data. It should be noted that alcohol abuse in the medical community is still a taboo issue, which is reflected in the lack of a sufficient number of studies on the consumption of alcohol among doctors at various stages of career development.

In this study, the presence of an alcohol problem in the close family was reported by 33% of respondents, which is a large part of the examined group. However, in the studied groups no significant relationship was found between the alcohol problem in the family and the AUDIT results. The obtained data can be considered positive because they do not indicate the fixation of pathological patterns of drinking from the generational family in the group of subjects.

The data on the style of coping with stress obtained in the study do not show statistically significant differences in the main style of coping with stress. The only differences that were obtained concerned the results in Avoidance-oriented coping, including Avoidant-social coping subscale – medicine students more often than dentistry students used Avoidance-oriented coping, including Avoidant-social coping. It can be assumed that students of medical faculties flexibly adapt the coping style in difficult situations (depending on the situation, control possibilities, resources), adapt quickly and react adequately, which is undoubtedly an important resource. Lazarus [6], presenting conclusions referring to the course of coping, writes that in every stress confrontation people choose from variety of coping strategies, using the majority of their main types. When comparing some stressful situations and behaviors presented to cope with stress, it turns out that some strategies show greater stability than others. Referring the above conclusions to the results of the study, it can be stated that the respondents answered inventory questions in the broader context of stressful situations,

taking into account different situations with the multiplicity of reactions represented in response to emerging stressors. Use of different styles of coping with stress by the respondents may indicate a high flexibility of reactions to emerging stressors and adaptation to changing conditions. According to Makowska and Poprawa [30], the most important thing about the coping style is to be used flexibly because then one can talk about its effectiveness.

The respondents indicated situations in which they reach for alcohol as well as their motivation to drink alcohol. The subjects most often used alcohol for social reasons (75–90%), to celebrate special occasions (36–43%), in their free time (13–36%), or when spending time alone (23–32%). Medical students drank alcohol for social reasons most frequently, while drinking in free time was most common in the comparative group. The respondents indicated that they use alcohol to cope with stress (32–58%), under the influence of other people (30–45%), due to the taste of alcohol (10–42%), which created a new motivational category in relation to the divisions existing in the literature. It was also indicated for social reasons (5–21%) and to improve mood (18–38%). Excessive and frequent consumption of alcohol is popular among young adults because it is a way to strengthen group bonds [30]. Ford and Arrastia [31] indicate that the use of psychoactive substances increases during adolescence and reaches the highest level in the age group 18–24, which is related to the student's lifestyle, lack of parental control and broadening the borders. Many medical professionals point out that the problem begins already during studies, where alcohol and other substances become an assistant to young people, and later young doctors or people performing other medical professions, in coping with stress they experience on a daily basis [32].

The use and abuse of psychoactive substances has a special place among the ways of coping with stress. It mainly serves the function of regulating the emotional state and is included in escape-avoidance strategies [33]. Effective coping with stress is not always based on realistic perception of reality and undertaking instrumental actions aimed at solving the problem. Sometimes coping with stress serves to relieve the strength of negative emotions and unpleasant tension [34] and then people use a style of coping focused on emotions and avoidance. Czernikiewicz [35] proves that tension resulting from responsibility, poor organization of work, unsatisfactory gratification as well as conflicts in personal life has the significant impact on the occurrence of mental illness and addictions among doctors. In the face of emerging problems, psychoactive substances become aid, more easily available, if already tried early.

The study did not show a significant relationship between the style of coping with stress and the results of the AUDIT, and there was no significant correlation between motivation for drinking such as coping with stress and the results of the AUDIT in the studied groups. The obtained results may indicate that the respondents use other substitution activities than alcohol in coping with stress. The fact that the surveyed students of medical faculties do not declare the use of stimulants as a way of dealing with stress could be positive because the risk of both psychological and physical dependence is greater if the chemicals are used to fight stress [36]. At the same time,

it should be remembered that the clinical course of addiction in doctors is the same as in other patients. An attitude is formed in which taking substances dominates over other behaviors and the loss of ability to control behavior is progressing, which has negative impact not only on health but also occupational and social aspects. Alcohol perceived as a factor reducing anxiety explains motivation to drinking. It is known, however, that alcohol does not diminish the state of anxiety but only suppresses it [37]. In connection with the above, it seems necessary to conduct further detailed studies that would allow to determine the moment when motivation of young doctors to drink as a way to cope with stress gains significant importance and contributes clearly to risky and harmful alcohol consumption.

6. Conclusions

Risky and harmful alcohol consumption was found in the study group. Considering that medical students will undertake difficult and psychologically straining work in medical professions in the short future, it can be assumed that exposure to stress factors will not only continue, but also intensify. It seems important to create conditions that would enhance development of coping strategies in medical students. Modeling adaptive stress coping strategies will reduce risk of developing addiction as a result of applying avoidant-distracted coping styles and alcohol consumption.

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