Abdominal Pain in Students: Prevalence, Phenotypes and Associations

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Abstract

Objective: To study the prevalence and phenotypes of abdominal pain syndrome associated with eating habits and a personality profile for optimization of health saving technologies in youths.

Materials and Methods: An anonymous questionnaire survey was conducted for 3 634 university and college medical students using GSRS Inventory and WHO CINDI Program Questionnaire to assess nutrition and food preferences, and questionnaire Mini-Mult, a shortened version of MMPI (Minnesota Multiphasic Personality Inventory).

Results: Abdominal pain is prevalent among young people; has gender characteristics and frequently detected in university medical students; this pain is closely associated with diet, eating habits and a personality profile.

Keywords: Abdominal Pain; Risk Factors; Youths; Functional Gastrointestinal Disorders; Eating Habits; Personality Profile; Phenotype; Depression; Hypochondria; Psychasthenia

Introduction

Abdominal pain is a serious problem for healthcare specialists and one of the most common reasons for visit to a doctor [1-3]. They are reported on a high incidence of abdominal pain worldwide, but rates vary considerably amid countries from 10 to 46% in general population due to various social, cultural and religious aspects [2,3]. However, the true extent of the problem is unknown, since the data are based only on the review and analysis of medical records and not include patients with abdominal pain who do not seek medical care.

According to the Australian Institute of Health and Welfare the prevalence of abdominal pain in primary care in Australia is 2.1 per 100 visits; and etiology of pain syndrome cannot be detected in 30% of men and 50% of women [4]. In addition, only a third of patients with abdominal pain require hospitalization and etiotropic therapy, while a large number of cases needs only symptomatic treatment and recommendations for correcting lifestyle or diet [5]. The data make us suggest that the high incidence of functional disorders of the digestive tract among the population is frequently observed.

According to Rome-IV Criteria, abdominal pain is specific for functional gastrointestinal disorders (FGID), such as functional dyspepsia (FD), irritable bowel syndrome (IBS) and functional abdominal pain (FAP) [6,7]. These conditions can be combined with each other or with some organic diseases of the digestive tract in the same person developing overlap syndromes [8]. FGID mostly affect young people

of active working age and even having a relatively "benign" course lead to a significant decrease in working capacity and quality of life; and negatively effect on interpersonal relationships, social activity and emotional well-being [6-8].

Objective of the Study

To study the prevalence and phenotypes of abdominal pain syndrome associated with eating habits and a personality profile for optimization of health saving technologies in youths.

Materials and Methods

A cross-sectional study was carried out to achieve the objective. The Study Protocol was approved by the Ethics Committee of the Omsk State Medical University.

3 634 medical university and medical college students were included into the study. All participants were requested to fill in online forms of GSRS and WHO CINDI questionnaires, including Mini-Mult questionnaire. The survey was conducted anonymously upon obtaining the voluntary informed consent to participate in the study.

To assess the prevalence of gastrointestinal symptoms, abdominal pain, in particular, the Russian version of GSRS questionnaire (Gastrointestinal Symptom Rating Scale) was used. The questionnaire consists of 15 items which combine into 5 symptom clusters: abdominal pain (1 and 4 questions), reflux (2, 3, and 5 questions), diarrhea (11, 12, and 14 questions), dyspepsia (6, 7 8, and 9 questions), and constipation (10, 13, and 15 questions). The severity of symptoms in each question was scored from 1 to 7, where higher values correspond to more pronounced symptoms and a lower quality of life (1 point - no discomfort at all, 2 - minor discomfort, 3 - mild discomfort, 4 - moderate discomfort, 5 - moderately severe discomfort, 6 - severe discomfort, 7 - very severe discomfort).

Diet, eating habits and availability of various food products were evaluated by WHO CINDI Program Questionnaire recommended for conducting sociological studies of public health [9].

A personality profile was designed based on Mini-Mult, a shortened version of MMPI, to determine personality structure, comprising 71 questions and 11 scales. The first three scales measure the sincerity of respondents, a degree of reliability of the test results, and the amount of correction introduced by excessive caution. The remaining 8 scales are basic scales and evaluate the properties of the individual. The method assesses the level of neuro-emotional stability, degree of integration of personal properties, and the level of individual adaptation to the social environment. Based on the results of survey, a personality profile was made up using the following scales: Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma). A personality profile was designed with respect to the value of three validity scales: Lie (L), the F scale (F) and the K scale (K). Upon making up a personality profile the scores over 70 were considered as high ones and below 40 were considered as low ones in all scales.

709 (19.51%) male and 2 925 (80.49%) female medical students aged 20.34 ± 3.68 years were included into the study. 623 (17.14%) of respondents were with a low body mass index (BMI); 2 474 (68.08%) of persons were with the normal parameters of BMI, and 537 (14.78%) of students were overweight and obese. 2 379 (65.47%) persons were medical university students and 1 255 (34.53%) respondents were medical college students.

The data obtained were processed by STATISTICA 6.1 programme and consolidated using Microsoft Excel package. The Shapiro-Wilk Test was used for testing the normality of data. Quantitative parameters (mean value (M), median (P50), 25th (P25) and 75th (P75) percentiles) were also assessed. Mann-Whitney Test (U), Kruskal-Wallis test (H), and Kullback Information Statistics (21) were used to compare

the independent groups. Standard errors for percent and calculation of confidence intervals were presented as (P +/- 1.96*m). In all stages of the statistical analysis the significance level p was equal to 0.05.

Respondents with abdominal pain were included into group 1, and the other students into group 2. For further analysis and identification of phenotypes of abdominal pain the main group was divided into 3 subgroups depending on the severity of the syndrome: students with the score from 1.5 to 2.5 were included into the subgroup with mild abdominal pain (subgroup 1a), from 3.0 to 5.5 into the subgroup with moderate abdominal pain (subgroup 1b), and from 6 to 7 into the subgroup with severe abdominal pain (subgroup 1c).

Results and Discussion

The analysis of the survey results, according to GSRS, demonstrated a high prevalence of gastrointestinal symptoms among medical university students (Figure 1). Abdominal pain was the second frequent syndrome in 2 300 (63.29%) persons and in 1 243 (54.0%) of them the symptoms were mild; and in 996 (43.3%) and in 61 (2.7%) students were moderate and severe respectively.
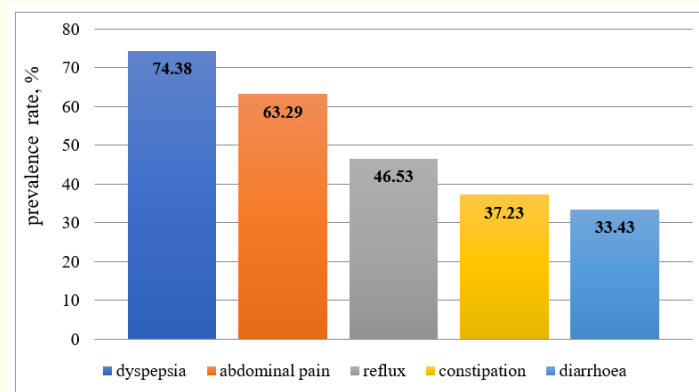
Figure 1: Prevalence of gastrointestinal symptoms among medical university students.

In majority cases the abdominal pain combined with other gastrointestinal syndromes: 2 095 (57.65%) students suffered from dyspepsia (gurgling stomach, feeling of bloating, satiety, gaseous eructation, distention), 1 408 (38.75%) persons complained on reflux disease (heartburn, sour/bitter eructation), 1 110 (30.54%) respondents had constipation, and diarrhea was noted in 1 032 (28.4%) students, and alternating constipation and diarrhea was marked in 742 (20.42%) respondents. Moreover, these data prove a high incidence of combined FGID in young people [6-8]. In addition, the prevalence of these disorders significantly grew up upon pain syndrome intensified and reached its maximum in subgroup 1c (Table 1).

Indicator	Subgroups 1a, 1b, 1c			Statistical Differences	
	P50	P50	P50	H	p
Dyspepsia	1.75	2.75	4.00	424.21	0.0000
Reflux Disease	1.33	1.67	3.33	297.04	0.0000
Diarrhoea	1.00	1.33	2.00	107.78	0.0000
Constipation	1.00	1.33	2.00	117.13	0.0000

Table 1: Statistical differences in the frequency of revealing associated gastrointestinal disorders depending on the severity of abdominal pain.

Abdominal pain associated with changes in the pattern of bowl movements is a prerequisite for the diagnosis of IBS which is one of the most frequent among FGID [2,6,7]. Literature data indicate that the prevalence of IBS is the highest among medical university students 45%, where 27 - 82.6% IBS cases are combined with functional disorders (FD), and 15 - 38% cases with gastroesophageal reflux disease [10,11].

Girls complaining of abdominal pain appeared far more frequently than boys (2I = 33.96, p < 0,001), that correlate with the data of the international studies [12,13]. Gender-related differences in IBS are associated with the female sex hormones which are important in stress response modulation. Estrogens induce the corticotropin releasing factor in the hypothalamus and cortisol in the adrenal cortex. Furthermore, estrogens enhance intestinal motility, develop visceral hypersensitivity and increase permeability of the intestinal mucosal barrier, which are the main mechanisms for the development of abdominal pain in FGID [14]. On the contrary, androgens block stress-induced release of adrenocorticotropic hormone and cortisol, which reduces the incidence of chronic pain disorders in men [12]. Various responses to pain stimuli among men and women are explained by the structural and functional features of the brain. In females with IBS it has been registered the increased activity of the limbic system and prefrontal area involving in the emotional processing of pain sensation and forming a "pain matrix" [12,13]. However, gender did not impact on the severity of pain syndrome in our study. Moreover, no significant differences were detected in anthropometric parameters both in groups and subgroups.

It was found that abdominal pain was much often prevalent among medical university students (2I = 24.45, p < 0,001), than among medical college students. The presence of abdominal pain did not depend on the faculty or department, but statistically significant differences were obtained depending on the year of study (2I = 22.27, p < 0,001). Abdominal pain was most prevalent in the 2nd and 3rd year students, and less prevalent in 1st year students, indicating on the development of abdominal pain during the first year of study due to the changes in ordinary lifestyle formed during the school period. Upon dividing group 1 into subgroups it was determined that a year of study affected on the severity of abdominal pain (2I = 12.81, p < 0.05). Third-year medical university students 51.9 ± 9.6% were among respondents in subgroup 1c; this year is traditionally considered as one of the most difficult and stressful year of studying.

Assessing eating habits it was revealed that individuals with abdominal pain when choosing food products more likely focused on the family budget (U = 1454402.5, p = 0.000), and were less interested in quality (U = 1503088.5, p = 0.000) and the healthiness of foods (U = 1503619.0, p = 0.000) in comparison with the students without abdominal pain. Food commercials and expert advice did not influence on the choice of foodstuff by students of both groups, but the respondents with abdominal pain evidently more often paid attention to advertisement (U = 1505860.5, p = 0.000).

The students with abdominal pain spent a statistically significant part of an average monthly income on food (U = 1567554.0, p = 0.0362). Wherein analyzing the subgroups the differences elevated: 40% from a monthly income in subgroup 1a, 45% in subgroup 1b, and 50% in subgroup 1c (H = 7.46, p = 0.024). This pattern was most likely explained by different income levels both between groups and between subgroups. It is known that people with a mean and a high level income spend less than 15-20% on food [6,15]. Some studies show, a weekly cost for a well-balanced diet with a high consumption of fruit and vegetables is on average $29 US more expensive than costs for an irrational diet which creates the obstacles for a healthy lifestyle [16].

Replying the question "If you had extra money, what food would you buy" the students with abdominal pain more often chose the answers confectionery (U = 1532900.5, p = 0.0015) and cereals (U = 1560514.0, p = 0.0206), whereas persons without abdominal pain chose milk and dairy products (U = 1494552.0, p = 0.000), fish (U = 1518880.5, p = 0.0003), and meat (U = 1550642.5, p = 0.0087). Probably, the reason is that the individuals with abdominal pain were not aware enough of healthy diet principles, despite the fact that the survey was carried out among medical university students.

Drinking too much coffee and tea was typical for the respondents of the main group (U = 1544300.5, p = 0.0048 and U = 1538526.0, p = 0.0027, respectively). In previous studies a similar relationship was explained by a frequent combination of abdominal pain with reflux syndrome. It was supposed that caffeine causes spontaneous relaxation of the lower esophageal sphincter the backward flow of stomach contents into the esophagus [17]. It was detected that the students in group 1 often drank instant coffee, whereas the students without abdominal pain preferred ground coffee (U = 601645.5, p = 0.0004). A number of coffee cups was statistically different between subgroups 1a and 1b (U = 25044, p = 0.021), as well as between subgroups 1a and 1c (U = 624030, p = 0.039), when the differences between subgroups 1b and 1c (U = 33895.5, p = 0.055) were not registered. In subgroup 1c 13.4 ± 3.2% of respondents drank at least 4 cups of coffee a day, while in subgroups 1a and 1b there were 2.5 ± 0.5% and 2.9 ± 0.5% persons, respectively. It was registered that the students with severe abdominal pain consumed significantly more sugar (2I = 19.94, p < 0.05). Thus, 16.7 ± 4.8% of students in subgroup 1c put 3 pieces or teaspoons of sugar in a cup of tea or coffee; other 13.4 ± 4.1% of students - 4 pieces or teaspoons or more. In comparison, in subgroup 1a those who put 4 or more pieces or teaspoons of sugar to hot beverages were only 3.9 ± 0.5%; and 4.2 ± 0.5% in subgroup 1b.

Additionally, the students in group 1 more frequently added milk to tea or coffee (2I = 11.36, p < 0.001). Herewith, overall volume of consumed milk and dairy products dropped down as the severity of abdominal pain increased (2I = 16.55, p < 0.05). It was supposed to be associated with lactose intolerance in respondents, which could provoke the development of pain syndrome. Thus, 63.3 ± 6.2% of persons in subgroup 1c did not consume milk and dairy products at all. It was noteworthy that the respondents with severe abdominal pain in the same subgroup who kept lactose containing products in their diet more often preferred low fat milk and dairy products (2I = 20.34, p < 0.01). However, low fat or fat free dairy products have left the category of healthy food long ago. Whereas, separation leads to deterioration of taste and organoleptic properties of the dairy products, so manufactures are forced to add various preservatives, flavors, taste intensifiers, which are triggers for the development of gastrointestinal symptoms [5,7,18].

Abdominal pain was statistically significantly associated with low consumption of fruit and vegetables (U = 1323404.0, p = 0.000 and U = 1479562.0, p = 0.000, respectively). Group 1 consumed an average of 71.4 [35.7; 178.6] g vegetables and 142.9 [53.6; 300.0] g fruit per day, but WHO recommends 500 g of daily intake of fresh vegetables and fruit [3]. Upon increasing the severity of abdominal pain the intake of fresh vegetables (H = 30.22, p = 0.000), fruit (H = 11.61, p = 0.003) and both fruit and vegetables (H = 16.37, p = 0.003) decreased. An average intake of fresh fruit and vegetables in students with abdominal pain depending on its severity is presented in table 2. Lack of fruit and vegetables leads to a deficiency of dietary fiber which is important for the physiological processes in the body. Fiber adding extra volume to food reduces the food energy value, regulates the motility, and keeps blood cholesterol and glucose level [3]. Fiber is not digested by human digestive enzymes but it is used by colon bacteria to synthesize metabolically active short-chain fatty acids stimulating the reparative processes in gastrointestinal mucosa and reducing visceral hypersensitivity, which is a crucial mechanism for the development of abdominal pain in FGID [6,7,17,18].

Index	Subgroup 1a	Subgroup 1b	Subgroup 1c
Vegetables	89.3 [40.0; 225.0]	71.4 [35.7; 178.6]	66.7 [26.7; 142.9]
Fruit	150.0 [63.8; 300.0]	107.1 [53.6; 300.0]	75.0 [35.7; 178.6]
Vegetables + fruit	278.6 [127.1; 539.3]	214.3 [107.1; 498.8]	185.7 [84.9; 446.4]

Table 2: Daily intake of fresh fruit and vegetables among the respondents depending on the severity of abdominal pain, P50 [P25; P75] g/day

Group 1 students were dominantly addictive to some food stuff, such as bakery and pastry (2I = 13.47, p < 0.001), fatty food (2I = 6.92, p < 0.001), salty (2I = 41.09, p < 0.001) or sweet food (2I = 25.35, p < 0.001). Most of persons with abdominal pain always added more salt to cooked dishes not even tasting them (2I = 18.85, p < 0.001). The prevalence of the habit increased in subgroups as pain severity raised from 2.7 ± 0.4% in subgroup 1a to 4.3 ± 0.6% and 11.5 ± 4.1% in subgroups 1b and 1c, respectively (2I = 27.05, p < 0.001).

Apart from, abdominal pain was associated with spicy food intake (2I = 7.76, p < 0.001). It was detected that this relationship was induced by the impact of capsaicin alkaloid contained in red pepper on TRPV1 vanilloid receptors located along the digestive tract [19]. However, addiction to spicy food did not determine the severity of abdominal pain in the respondents.

The number of meals did not impact on the presence of abdominal pain (U = 1588756.5, p = 0.2845), but stipulated the intensity of pain syndrome (2I = 50.76, p<0.001). Students with mild and moderate abdominal pain usually took 3 meals daily 44.2 ± 1.4% and 43.2 ± 1.6%, respectively. In the subgroup with severe abdominal pain a great number of students (38.3 ± 6.3%) had a meal twice a day, while 15.5 ± 4.6% of students had a meal 3 times a day.

Group 1 respondents significantly more likely reported about a lack of time for a proper meal (2I = 11.93, p < 0.001), frequent overeating (2I = 57.77, p < 0.001), and inability to have a meal at the same time (2I = 57.77, p < 0.001). Students with abdominal pain ordinarily had a meal on the run during a day, but not in the University canteen (2I = 42.82, p < 0.001). Having a lack of time for a normal meal was reported 40.3 ± 1.4% of students in subgroup 1a, 50.4 ± 1.6% in subgroup 1b, and 62.3 ± 6.2% in subgroup 1c (2I = 14.29, p < 0.001). Overeating was registered in 31.3 ± 1.3% of respondents in subgroup 1a, 40.6 ± 1.6% in subgroup 1b, and 50.8 ± 6.4% in subgroup 1c (2I = 27.05, p < 0.001).

Group 1 students were often dissatisfied with the amount of daily food intake (U = 1366838.5, p = 0.0000) and with the variety of their diet (U = 1324235.5, p = 0.0000), in comparison with the students without any complaints of abdominal pain. A similar tendency was identified while comparing the parameters in other subgroups. Thus, among the respondents in subgroup 1a 7.9 ± 0.7% considered that they consumed an insufficient amount of food, including 15.5 ± 1.1% of students in subgroup 1b and 24.6 ± 5.5% in subgroup 1c (2I = 44.33, p < 0.001). 30.5 ± 1.3% of individuals in subgroup 1a, 42.9 ± 1.5% in subgroup 1b and 54.1 ± 6.4% in subgroup 1c considered their diet to be dreary (2I = 13.90, p < 0.001).

Students with abdominal pain much more frequently tried to change their habits towards a healthy lifestyle: consume more vegetables (2I = 4.35, p < 0.05), reduce the amount of sugar (2I = 4.58, p < 0.05), keep following a diet to lose weight (2I = 17.49, p < 0.001). It should be specified that 57.4 ± 1.4% of students from the group 1 were informed concerning "rational nutrition" from the mass media, and the respondents with severe abdominal pain more frequently asked their relatives for advice (2I = 7.87, p < 0.05).

Mini-Mult data analysis demonstrated that medical university students had some psychological manifestations increasing in persons with abdominal pain. Statistically significant differences between group 1 and group 2 were observed in almost all basic scales: Hypochondriasis (U = 1172229.0, p = 0.000), Depression (U = 1195186.5, p = 0.000), Hysteria (U = 1229875.0, p = 0.000), Paranoia (U = 1323303.0, p = 0.000), Psychasthenia (U = 1347344.5, p = 0.000), Schizophrenia (U = 1441153.5, p = 0.000) and Hypomania (U = 1249213.5, p = 0.000). The scale of Psychopathic Deviate was the only exception where no reliable intergroup discrepancies were registered (U = 1623675.5, p = 0.737). In the previous studies it has been detected that individuals with abdominal pain in IBS were characterized by the manifestations of anxiety and depression [5-7,10], where the relationship between a psychoemotional profile and gastrointestinal symptoms was bidirectional. Biopsychosocial Model of IBS development, the basics of which were firstly proposed by an American psychiatrist George ENGEL in 1977, suggests that along with genetics, environmental factors and gastrointestinal disorders the psychological factors play a key role in IBS development [20]. Nowadays, the relationship between a psychological stress and FGID onset or recurrence is beyond any doubt [6,7,10]. Medical university students were much more affected by stress than students of the other universities due to the specific nature of the studying process, strenuous medical programmes, and emotional distress [10,21]. On the other hand, a personality profile could effect on the development and severity of gastrointestinal symptoms and determine a patient's behavior. As a rule, patients with FGID complain a lot and extremely concerned about their health; frequent visits to a doctor were a typical feature of such patients [5,7,8]. Anxiety in respect to gastrointestinal signs observed in IBS patients led to hypervigilance when the normal feelings from the digestive

tract were perceived as unpleasant ones followed by a feeling of abdominal pain. Patients with severe abdominal pain began to demonstrate pessimism, catastrophizing, feeling of helplessness and the worst outcome. Furthermore, chronic and persistent FGID course led to the development of emotional distress enhancing the consolidation and progression of symptoms via the feedback mechanism [5,6].

Upon worsening of abdominal pain the frequency of psychological 'findings' was growing up (Figure 2). Thus, a number of people without psychological phenomena was 81.8 ± 0.74% in subgroup 1a, 22.0 ± 1.31% in subgroup 1b, and only 8.1 ± 3.46% in subgroup 1c (2I = 1234.4, p < 0.001).
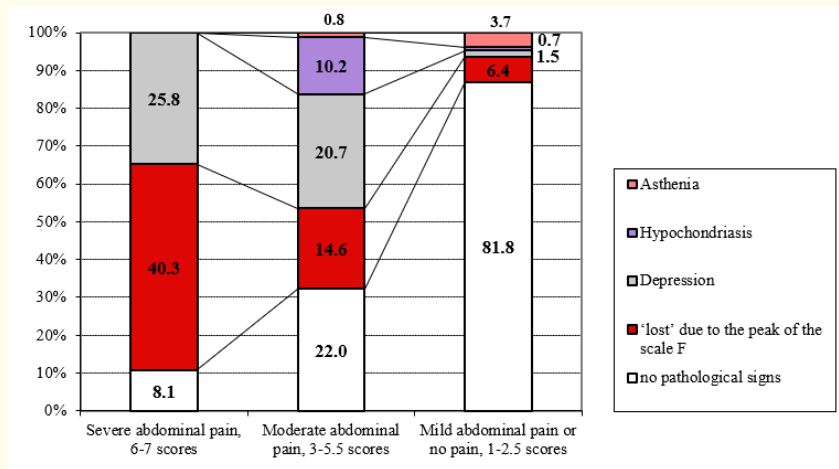

Figure 2: *Frequency of psychological phenomena in the students with abdominal pain depending on the level of severity.*

The severity of abdominal pain impacted on the overall number of respondents with psychological 'findings' (depression, hypochondriasis, and asthenia): 5.9 ± 0.45% in subgroup 1a, and 31.7 ± 1.47% and 25.8 ± 5.56% in subgroups 1b and 1c, respectively. Moreover, with intensifying of pain syndrome a number of students with depression was raising from 1.5 ± 0.23% in subgroup 1a to 25.8 ± 5.56% in subgroup 1c. Hypochondriasis was specified for individuals with moderate abdominal pain (10.2 ± 0.96%). Psychasthenia was registered both in students with mild abdominal pain and healthy persons; apparently, this condition was associated with the studying process in a medical university but not with the presence of gastrointestinal symptoms.

Based on the data obtained, typical phenotypes of patients were made up depending upon the severity of abdominal pain.

The phenotype of a patient with severe abdominal pain

Have irregular meal (1 - 2 times a day), often say about a lack of time for a meal and impossibility to have meals at the same time; consider their diet to be dreary and lean; buy food products taking into account the family budget; drink a lot of coffee (at least 4 cups a day), prefer instant coffee; put a great amount of sugar to tea and coffee (over 3 pieces or teaspoons), and consume an excessive amount of salt. They are lactose intolerant and often refuse from milk and dairy products; consume less fresh fruit and vegetables (an average of 270g per day); prefer salty, sweet and fatty food.

Students in this subgroup tend to aggravate their own problems and are extremely self-critical with the tendency to exaggerate their problems, to dramatize the situation and to emphasize some disadvantages of their personality. The signs of a lack of harmony and psy-

chological comfort are registered. Low working capacity due to overfatigue or an ailment are also detected; depressed mood (peak on the D scale) as an evidence of an ailment and a hypothymic type of personality: such kind of people can be sensitive and inclined to anxiety. They are timid, shy, dissatisfied with themselves and their abilities. They are diligent, conscientious, highly moral and obligatory, but they are not able to make any decisions on their own without hesitation and uncertainty; quickly tired of any activity; incapable of any longtime conation and fall into despair at any slightest difficulties. Others think of them as pessimistic, reserved, unwilling to speak, shy and extremely serious.

The phenotype of a patient with moderate abdominal pain

Food intake is irregular as well as in patients with severe abdominal pain, however, in most cases, the frequency of meals is 2 - 3 times per day. Buying food products they focus on not only the family budget but also on the quality of food. They drink a lot of instant coffee (3 - 4 cups a day on average); more rarely refuse from milk and dairy products, on average take 1 - 2 portions per day (200 - 400 ml). Consume insufficient quantity of fresh fruit and vegetables (about 230g a day). Food preferences are the same as in the respondents with severe abdominal pain.

The personality profile is hypochondriac (peak on the Hs scale) with the tendency to the asthenoneurotic personality. The persons in this subgroup exaggerating their complaints (14.6%) and hypothymics (20.7%) are rare specified compared to the subgroup with severe abdominal pain. They are excessively concerned about their own health; these concerns are dominant in the system of personal values. They are prone to social inactivity and subordinance. Slow adaptation to the professional activity and needs, climate factors and new staff members. Poor adaptation abilities to any changes in life and surroundings.

The phenotype of a patient with mild abdominal pain

The diet is close to rational nutrition, most students eat 3 times a day. Choosing foodstuffs focus on the quality and healthy products not on the family budget. An average amount of coffee is 2 cups a day, milk and dairy - 2 - 3 portions a day (400 - 600 ml). Average intake of fresh fruit and vegetables are far away from the recommended amount (370g daily). Food preferences are similar to the respondents with severe and moderate abdominal pain, but less emphasized.

Individuals in this subgroup are not inclined to exacerbate existing complaints (only 6.4% with a peak on the F Scale). No pronounced psychological features were found, however, 3.9% of respondents were revealed the psychasthenic symptoms indicating the predominance of a passive-suffering position, a lack of self-confidence and uncertainty of situation. Persons in this subgroup are characterized by hypersensitivity, dependence on environmental conditions and a strong sense of danger. Prevail the motivation to avoid failures and dependence on the opinion of the majority.

Conclusion

1. Abdominal pain is widespread among medical university students and is more prevalent in female students.
2. Abdominal pain is closely related with a daily diet and eating habits. The irregular diet, a lack of fresh vegetables and fruit, a large consumption of instant coffee, adding sugar and salt, intolerance to dairy products are characterized for the respondents with abdominal pain. Most students are not satisfied with the amount of consumed food and diet variety due to a limited family budget.
3. Respondents with abdominal pain tend to exaggerate existing problems, overdramatize the situation, emphasize some drawbacks of their nature, a lack of harmony and psychological comfort, and reduced working capacity due to overwork or illness. The personality traits in respondents depending on the severity of pain are the following: dysthymic personality with the signs of depression is typical for the students with severe abdominal pain; hypochondriac personality is usual for the respondents with moderate abdominal pain; and psychasthenia is characteristic for the persons with mild abdominal pain.

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