PERCEIVED STRESS AND GASTROINTESTINAL HABITS IN COLLEGE STUDENTS

I.M. Balmus¹, M. Robea², A. Ciobica^{1,*}, D. Timofte³

Alexandru Ioan Cuza University - ¹Department of Research, ²Department of Biology - Faculty of Biology, ³“Gr. T. Popa” University of Medicine and Pharmacy - Department of Surgery, Iasi, Romania

Abstract

Context. Many negative effects of stress regarding cognitive performances and gastrointestinal habits were previously reported in both animal models and human participants.

Objective. We aimed to compare perceived stress levels with declared gastrointestinal habits changes in a small cohort of college students during academic acquisition and evaluation periods.

Design. College students were recruited and divided into two groups: the control group evaluated during the acquisition period of the academic year and the stressed group evaluated during the examination period.

Subject and Methods. The students' psychological and gastrointestinal status was evaluated using a common stress questionnaire and a gastrointestinal habits survey.

Results. Our results showed increased perceived stress in college students during stressful conditions, as compared to lesser demanding periods. Similarly, more than 40% of the participants declared that gastrointestinal habits changes occurred during stressful periods. We observed significant correlations between the perceived stress levels and gastrointestinal habits changes.

Conclusion. This small-sized survey study showed that the occurrence of the stressful event in young adults recorded higher perceived stress scores and frequent functional gastrointestinal symptoms, as compared to the lower stressful periods. Also, we showed that functional gastrointestinal symptoms are rather common and could be regarded as a negative response to stress.

Key words: functional gastrointestinal symptoms, cognitive performances, occupational perceived stress, irritable bowel syndrome, ROME IV, young age.

INTRODUCTION

The impact of occupational stress in demanding jobs and occupations is extensively supported by several worldwide research efforts. Leveque *et al.* (1) showed that half of PhD students experienced

symptoms of psychological distress, while one third have a great risk to develop anxiety and/or depression (2). Also, there is a high prevalence of psychiatric disorders in medical sciences students (3) and almost 40% of the young people between 15 and 24 years old are currently enrolled in higher education programs and have at least one recognizable psychological disorder (4). Also, Benbir *et al.* (5) suggested that working in excess may be considered a psychiatric addiction similar to substance abuse. We aimed to study the correlation between occupational stress and functional gastrointestinal disturbances in students during examination period *versus* academic activity period.

MATERIAL AND METHODS

Study participants were recruited voluntarily from the students after a plenary survey on study aims and scopes, disregarding sex, but aged between 19 and 26 years. Therefore, 25 of the students who completed the current survey during academic acquisition period were assigned to the control group, while the other 25 who completed the survey during the academic evaluation period were assigned to the stress group. The stress scores were obtained using the stress questionnaire derived from The Holmes and Rahe Stress Scale. Gastrointestinal habits survey consisted in 5 “yes/no” answer items, based on Rome IV Diagnostic Criteria for IBS.

RESULTS

No statistically significant differences were observed regarding general parameters (e.g. diet type, sleep hours in 24 h). Regarding the occupational perceived stress as resulting from questionnaire interpretation, the control group participants reported mild perceived stress levels, while the stress group

*Correspondence to: Alin Ciobica MD, “Alexandru Ioan Cuza” University - Department of Research - Faculty of Biology, Iasi, Romania, E-mail: alin.ciobica@uaic.ro

participants reported moderate perceived stress levels, with statistically significant differences based on stress factor occurrence ($P < 0.001$). Based on the same comparison factor, we observed that stress-exposed participants reported significantly higher occurrence of gastrointestinal symptoms as compared to control period ($P < 0.001$). While analysing the correlations between occupational perceived stress and gastrointestinal symptoms score as function of sex, we observed that higher scores means were obtained for female participants for both measured parameters. Regarding participants age correlations, the results suggested that the perceived stress levels increased and the severity of gastrointestinal symptoms decreased with age. Regarding the correlations which can be observed between the presence of several functional gastrointestinal symptoms and the occupational perceived stress levels, significant differences were observed in occupational perceived stress levels *versus* abdominal pain [$F(1, 23) = 11.43$; $P = 0.003$] and abdominal discomfort occurrence [$F(1, 23) = 14.93$; $P = 0.001$].

DISCUSSION

In this study, we preliminarily reported that some correlations between the exposure to stressful conditions and gastrointestinal symptoms which are described as irritable bowel syndrome symptoms according to ROME IV functional gastrointestinal diagnostic criteria could be significant.

We observed that stressful conditions relevant to occupational specific activities could be correlated to some reversible functional gastrointestinal symptoms. Similarly, we observed that in stressful conditions the perceived stress level increased with age. We also observed significant differences in gastrointestinal habits during stressful conditions and that changes in stool consistency, abdominal pain, and abdominal discomfort could be correlated to stress stimuli occurrence.

Conflict of interest

The authors declare that they have no conflict of interest, except from I.M. Balmus and A. Ciobica which are currently supported by a research grant for Young Teams offered by UEFISCDI Romania, no. PN-III-P1-1.1-TE-2016-1210.

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