

## Comparing the distress of American and Israeli medical students studying in Israel during a period of terror

SUSY KOVATZ,<sup>1</sup> ILAN KUTZ,<sup>2</sup> GIL RUBIN,<sup>1</sup> RACHEL DEKEL<sup>3</sup> & LOUIS SHENKMAN<sup>1</sup>

**INTRODUCTION** Medical school is a very stressful environment with multiple sources of stress, including academic, social and other issues. International medical students are exposed to additional stressors such as homesickness and culture shock.

**METHODS** In order to assess the influence of cultural background on the level of perceived distress, we examined Israeli and American students studying at the same university during a period of terror.

**RESULTS** We found clear differences between the 2 groups of students, with Americans reporting a higher level of anxiety and a poorer level of social functioning than the Israelis. Although there was no significant difference between the 2 groups in terms of their sense of safety, the American students reported a higher level of fear and more change in their daily activities to a greater extent than did the Israelis.

**CONCLUSIONS** These findings underscore the effect of culture on students' responses to the same stressful stimuli and to a perceived dangerous environment. Faculty needs to be aware that cultural factors may affect students' adjustment to the medical school environment.

**KEYWORDS** humans; students, medical/ \*psychology; stress, psychological/ \*aetiology; United States; Israel; \*terrorism; comparative study; culture; education, medical, undergraduate; questionnaires.

<sup>1</sup>New York State/American Programme, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

<sup>2</sup>Liaison Psychiatry Unit, Meir Hospital, Kfar Saba, Israel

<sup>3</sup>School of Social Work, Bar Ilan University, Ramat Gan, Israel

*Correspondence:* Professor Louis Shenkman, Department of Medicine C, Meir Hospital, Kfar Saba 44281, Israel. Tel: 00 972 544 876600; Fax: 00 972 9 741 7007; E-mail: louish@clalit.org.il, lshenk@post.tau.ac.il

*Medical Education* 2006; **40**: 389–393  
doi:10.1111/j.1365-2929.2006.02409.x

### INTRODUCTION

Medical school can be a very stressful environment for students. A variety of sources of stress have been identified. These include, among others, the fear of failure and the stress caused by examinations, financial problems, stress arising from exposure to cadavers during dissections in the anatomy course, sexual aspects of the doctor–patient relationship, and perceived harassment by faculty staff. International students studying away from home are exposed to additional sources of stress, the most notable being culture shock and homesickness. Students who have difficulty adjusting to a new cultural environment also have difficulty in medical school.<sup>1</sup>

Studying in an environment that is perceived by students to be physically dangerous represents an additional and important potential source of stress. Israel has been subjected to attacks of terrorism over the past several years and students studying in Israel have had to contend with the fear and stress imposed by frequent terrorist acts. We have previously shown that cultural background can affect medical students' perception of harassment by faculty.<sup>2</sup> We reasoned that cultural factors may also influence students' responses to stressful stimuli. In an attempt to assess the influence of cultural background on the level of perceived distress, we examined Israeli and American students living and studying in Israel at the same university during a period of terror. We hypothesised that there would be clear cultural differences in the students' perceived level of distress and in the manner in which stress affected their daily lives. In addition, we hypothesised that the sense of national

## Overview

### What is already known on this subject

Medical school is a very stressful environment and international students are exposed to additional stressors.

### What this study adds

There was a clear difference between Israeli and American medical students studying in Israel during a period of terror, with Americans reporting a higher level of anxiety and a poorer level of social functioning. Faculty should be made aware that cultural factors may affect students' adjustment to medical school.

### Suggestions for further research

Do levels of perceived stress correlate with scholastic achievement?

belonging would be among the variables that differentiated between the 2 groups of students.

The sense of belonging within a community is a psychological concept related to the individual's feeling of being part of a collective.<sup>3</sup> The concept involves a sense of mutual concern, connection, community loyalty, and trust that one's personal needs will be fulfilled by means of commitment to the group as a whole.<sup>4</sup>

A state of traumatic stress challenges the sense of belonging. In civilian populations exposed to traumatic stress, it has been found that some residents want to leave the community and move to safer locations.<sup>5</sup> We assumed that Israeli medical students would have a higher sense of belonging than foreign students. Furthermore, we assumed that this sense of belonging would have a mitigating effect on the degree of distress experienced by the students.

## METHODS

We distributed a voluntary, anonymous questionnaire to both American and Israeli medical students at the

Sackler Faculty of Medicine, in Israel. At our school there are 2 separate programmes of study: the first comprises a 6-year programme of studies plus 1 year of rotating internship for Israeli students; the second is a 4-year programme patterned after US medical schools for American students studying abroad. Upon completion of their 4 years of training, all Americans return to the USA for their residency training and future medical careers. The same pre-clinical and clinical faculty members teach students on both programmes. The pre-clinical studies of both programmes are conducted in the same medical sciences building, and the same clinical facilities are utilised for clerkships and clinical electives for Israeli and American students. Data were collected during March 2003, close to the onset of the war between the USA and Iraq. A letter describing the aims of the study was distributed to students on both programmes, and students who were interested in participating collected the questionnaire from their respective students' affairs office. In total, 100 questionnaires were distributed to Israeli students and 68 to Americans.

### The questionnaires

The GHQ-28 questionnaire was utilised to measure current psychological distress.<sup>6</sup> Subjects answered questions on a 4-point scale ranging from 'more than usual' to 'not at all.' The '0 and 1' scoring method was used, in which the first 2 response choices (0 and 1) are scored as '0' and the second 2 choices (2 and 3) are scored as '1.' A summary score > 5 indicates that the person is likely to suffer from psychological stress<sup>6</sup> and a higher score indicates higher levels of stress and poorer functioning. The questionnaire was translated into Hebrew for the Israeli students.

#### *Sense of safety*

The students' sense of safety was examined according to Solomon's questionnaire.<sup>7</sup> Participants were asked to evaluate the extent to which they felt that their own lives, their family's lives and the State of Israel were in danger on a scale ranging from 0 (not at all) to 3 (very high). One score was derived on the basis of the mean of the responses to the above 3 questions: the higher the score, the greater the perceived level of danger. Cronbach's alpha for the current measure was 0.83.

#### *Changes in daily activities*

The students were asked 4 questions regarding whether they avoided certain daily routines (such as

going out, shopping, taking a bus) due to the threat of terrorist attack. Respondents were asked to rate their level of avoidance from 0 (not at all) to 4 (very much).

#### *Sense of fear*

The students' sense of fear was evaluated on the basis of Gal's questionnaire.<sup>8</sup> Participants were asked to rate their levels of fear in the current situation on a scale ranging from 0 (not at all) to 10 (to a great extent).

#### *Sense of community belonging*

The students' sense of belonging within a community was measured on the scale developed by Bavelly<sup>9</sup> and previously applied by Itzhaky.<sup>10</sup> The scale contains 9 items about belonging to Israeli society and Israel as a country (e.g. pride in living there), and the respondent's intended future in the community (e.g. intention to remain living there). Cronbach's alpha in this study was 0.65.

## RESULTS

### The sample

A total of 40 Israeli students, in Years 3–6 of their studies, and 26 Americans, in Years 1–4 of their studies, completed the questionnaires. The response rate in both groups was moderate, with only 40% of the Israelis and 38% of the Americans responding. The Israeli sample included 21 women and 19 men; the American sample comprised 13 women and 13 men. There was no significant difference in age or gender between the 2 groups. The groups differed in their religious beliefs, as 80% of the Israelis defined themselves as secular, while only 25% of the Americans defined themselves as such ( $\chi^2 = 18.81$ , d.f. = 1,  $P < 0.001$ ). The rest of the Americans defined themselves as 'traditional' (58%) or 'religious' (17%). A total of 94% of all students reported their physical condition as being good and none reported taking any tranquillisers. Approximately 7% of both groups reported that they had been in psychotherapy in the past year, and the same number reported currently being in therapy. The mean number of exposures to stressful life events did not differ between the Israeli and the American students (2.37 and 1.69, respectively). None of the students had been directly exposed to a terror attack, but 7 Israeli students and 5 Americans had been

indirectly exposed (were aware of a friend or relative who had been directly exposed).

In order to compare the level of distress between the 2 groups of students, we conducted a MANOVA that included the 4 GHQ factors (somatic complaints, anxiety symptoms, social functioning and depression) as dependent variables and the groups as independent variables.

Table 1 presents the means, standard deviations and univariate results of the components of the GHQ. As can be seen, significant differences were found between the 2 groups in 2 scales: the level of anxiety and social functioning, with American students displaying a higher degree of anxiety and a poorer level of social functioning. Table 1 also shows that although there was no significant difference in the 2 groups' sense of safety, there was a major difference in the degree to which the American students changed their daily activities in response to the perceived terror threat, compared with the Israeli students. As expected, the level of sense of belonging to the country was higher among the Israelis than the Americans.

Next, we wanted to examine whether the sense of belonging to the country moderated the sense and level of distress. Because of the small sample size, we conducted 4 univariate analyses, in which each of the GHQ subscales was the dependent variable, and the students' nationalities and sense of belonging were the independent variables.

In 2 of these analyses the interactions between nationality and sense of belonging were significant: with somatic symptoms ( $F(1.66) = 4.32$ ,  $P < 0.05$ )

Table 1 Means, standard deviations and univariate results of the components of the GHQ

	Israeli students		American students		
	Mean	SD	Mean	F	SD
Somatic	0.7500	1.66	1.192	1.939	0.979
Anxiety	0.450	0.959	1.03	1.37	4.21*
Social functioning	0.400	1.007	1/153	1.255	7.26†
Depression	0.300	0.686	0.384	1.235	0.128
Sense of safety	1.19	0.6516	1.26	0.691	0.15
Change in daily activities	1.27	0.775	2.37	1.10	22.77‡
Level of fear	2.69	2.50	4.27	2.64	2.43*
Sense of belonging	2.857	0.922	2.37	0.682	3.182*

\*  $P < 0.05$

†  $P < 0.01$

‡  $P < 0.001$

and with depression symptoms ( $F(1.66) = 8.14$ ,  $P < 0.01$ ).

In order to understand the source of these interactions, we computed the correlation between sense of belonging and somatic and depression symptoms for each nationality group separately. Regarding somatic symptoms, we found that while the association between these symptoms and belonging was highly negative among the Israeli students ( $r = -0.44$ ,  $P < 0.01$ ), it did not reach significance among the Americans ( $r = 0.14$ ).

Regarding depressive symptoms, we found that while the association between depressive symptoms and belonging was negative among the Israeli students ( $r = -0.52$ ,  $P < 0.001$ ), the association for American students was not significant ( $r = 0.26$ ). In other words, sense of belonging was associated with feelings of distress only among the Israeli students.

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## DISCUSSION

Sources of stress in medical schools may emanate from academic and non-academic issues, and many students report feeling stressed during some part of their studies. In fact, some investigators have stated that over 50% of medical students report that they are under stress.<sup>11-13</sup> Understanding and addressing the nature of students' sense of stress is important, not only because of the personal suffering involved, but also because of the correlation between reported stress and poor academic performance.<sup>14-16</sup> Academic issues are the most common and important sources of stress for medical students studying in their local environment,<sup>13,17</sup> but for international students studying away from home, other important sources of stress include homesickness and the cultural shock of coping with a new environment.<sup>1,18</sup> In this study we examined an additional source of stress arising from living and studying in a country where terrorist acts are endemic, that is, they are an unavoidable part of societal life. This has been the situation in Israel for the past several years, where the entire population, including medical students, has been exposed to the psychological and social impact of suicide bombings and other acts of terror. At the time the questionnaire was distributed to students in March 2003, many places, particularly public ones, were considered unsafe and a pervasive sense of apprehension and vigilance marked the feelings and behaviours of many citizens.

At the Sackler Faculty of Medicine, Tel Aviv University, we had the unique opportunity to examine 2

culturally diverse groups of medical students, Israelis and Americans, both studying on the same campus and in the same clinical facilities. This allowed us to assess the effects of culture and of being away from one's homeland on student perceptions of various aspects of the medical school environment. Utilising this model, we previously reported that the 2 groups of students reported different degrees of perceived harassment by faculty.<sup>2</sup> In this survey we extended our cultural comparisons and measured whether student perceptions of threat and expressions of stress differed between the Israeli and American groups.

Our results show a clear difference between the 2 groups, with American students reporting a higher level of anxiety and a poorer level of social functioning than Israeli students. Although there was no significant difference in the 2 groups' sense of safety, the American students reported a higher level of fear and a greater degree of change in their daily activities in response to the perceived threat of terror, compared with the Israeli students. Finally, as might be expected, the American students had less sense of belonging to the country than did the Israeli students. This sense of belonging may explain the greater resilience of the Israeli students compared with their American counterparts. While the Israeli group of students was by no means homogeneous, certain national and cultural variables were shared by most members of this cohort. All were local residents with families and support systems. All spoke the local language and were familiar with local customs, and most had served in the military. All had grown up in and were familiar with continuous security threats. The Americans, on the other hand, did not share these variables. Most were in Israel without their nuclear families, and few had been exposed to terrorist attacks before coming to Israel.

While these findings are not surprising, they do underscore the effect of culture on students' response to stressful stimuli and to a perceived dangerous environment. Our results emphasise the need for faculty members to be aware that cultural factors may affect students' adjustment to the medical school environment, and that certain subgroups of the student body may require special attention in fulfilling their emotional needs.

One drawback of our study is that we did not correlate the students' levels of perceived stress with their scholastic performance, but the anonymous nature of the questionnaire precluded this analysis. Another limitation of the study is the moderate

response rate of the students. In part, this may have been due to the USA/Iraq war itself and the increased number of terror attacks occurring during the period of the study. Many American students chose to leave Israel during this time and some Israeli students were drafted into reserve military duty. It may well be that if the absentee American students who chose to leave because of a greater sense of fear and insecurity had participated in the study, the differences among the 2 cohorts would have been even more robust. Nonetheless, we feel that these findings should inform medical school faculty and administration that particular heed should be paid to the special needs of students from diverse cultural backgrounds studying abroad.

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*Contributors:* SK, IK, RD and LS contributed to the conception and design of the study, analysis and interpretation of data, and drafting the article. IK contributed to the acquisition of data, and analysis and interpretation of results. GR contributed to the design of the study, analysis of data and interpretation of results. LS revised the paper. All authors gave final approval of the manuscript.

*Acknowledgements:* none.

*Funding:* none.

*Conflicts of interest:* none.

*Ethical approval:* ethical approval for this study was granted by the Helsinki Committee, Tel Aviv University.

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*Received 24 March 2005; editorial comments to authors 16 June 2005; accepted for publication 18 August 2005*

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