

# Psychiatric disorders among adolescent Jordanian returnees from Kuwait during the 1991 Gulf War

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الاضطرابات النفسية بين المراهقين الأردنيين العائدين من الكويت في عام 1991 إثر حرب الخليج  
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**الخلاصة:** كان من المتوقع أن يعاني المراهقون الأردنيون العائدون من الكويت عام 1991 إثر حرب الخليج من اضطرابات نفسية، لذا فقد تم فحص الحالة النفسية لديهم. وقد أجرينا تقييماً لـ 1376 من التلاميذ الذين انتسبوا حديثاً لجامعتين من القطاع العام شمال الأردن باستخدام ترجمة عربية لاستمارة الصحة العامة تستكمل ذاتياً. وقد كان المعدل العام للاضطرابات النفسية بين أفراد العينة المدروسة 23.3% فيما كان المعدل بين المراهقين العائدين 30.8% وهو أكثر بشكل واضح مما لدى المراهقين الآخرين 22.4%. فعلى الرغم من شيوع الاضطرابات النفسية بين المراهقين الأردنيين فإن تعرض الأطفال الأردنيين في الكويت لحرب الخليج لا يزال يمثل عاملاً أساسياً يؤثر في صحتهم النفسية.

**ABSTRACT** Adolescent Jordanian returnees from Kuwait during the 1991 Gulf War were expected to have elevated rates of psychiatric disorders, therefore their mental health status was examined. We evaluated 1376 newly enrolled students in two public universities in northern Jordan using an Arabic translation of the self-administered General Health Questionnaire. The overall rate of psychiatric disorders among the study sample was 23.3%; the rate among adolescent returnees (30.8%) was significantly higher than among other adolescents (22.4%). Although psychiatric disorders were generally common among Jordanian adolescents, the exposure of Jordanian children in Kuwait to the Gulf War was still detrimental to their mental health status as adolescents.

## Troubles psychiatriques chez des adolescents jordaniens revenant du Koweït durant la guerre du Golfe de 1991

**RESUME** On s'attendait à ce que les adolescents jordaniens revenant du Koweït pendant la guerre du Golfe de 1991 aient un taux élevé de troubles psychiatriques ; leur état de santé mental a donc été examiné. Nous avons évalué 1376 étudiants nouvellement inscrits dans deux universités publiques de Jordanie septentrionale en utilisant une traduction arabe du questionnaire général sur la santé à remplir soi-même. Le taux global de troubles psychiatriques dans l'échantillon de l'étude était de 23,3 % ; le taux chez les adolescents revenant du Koweït (30,8 %) était significativement supérieur à celui chez les autres adolescents (22,4 %). Même si les troubles psychiatriques étaient généralement courants chez les adolescents jordaniens, l'exposition des enfants jordaniens au Koweït pendant la guerre du Golfe affectait toujours leur état de santé mentale en tant qu'adolescents.

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## Introduction

As a result of the 1991 Gulf War, approximately 300 000 Jordanian nationals who had been working in the Gulf countries along with their families fled back to Jordan within a short period of time [1]. Jordanian returnees account for approximately 9% of the total population, with the vast majority of them coming from Kuwait.

Returnees were exposed to a wide range of acute undesirable stressful conditions. They suffered job loss, loss of their homes and disruption of their social systems and lifestyles in the countries where they used to work. In Jordan they found themselves forced to secure accommodation in every possible way with friends or relatives, in small houses, or in remodelled stores and garages. This created a state of overcrowding within communities and households, schools and health care facilities, and placed extra stress on drinking water systems, transportation systems and other civil facilities. Moreover, returnees had to adapt themselves to social norms, values and lifestyle behaviours that were considerably different from what they were used to, thus creating another dimension of stress. Children of returnees witnessed and lived through all the social and economic disruptions and the concomitant stresses that their families had been through. Children exposed to such stressful events are expected to suffer more psychological distress in their future life than do children who have not faced such events.

Psychiatric disorders in adolescence are a major public health concern, and can result in serious consequences, including suicide [2-4], poor academic performance [5], impaired social function [5,6] and substance abuse [7,8]. Such complications could be prevented by early detection and

treatment of these disorders [9]. Research has indicated that 32% of all psychiatric cases could be attributed to stressful life events [10] and that the risk of depression of childhood onset continuing into adulthood is 60%–70% [9]. Longitudinal and cohort studies have been conducted to explore the relationship between childhood exposure to stressful life events and future psychological health problems in adolescence and adulthood. Results from those studies showed a positive association between stressful life events in childhood such as parental divorce [10,11], family relationship instability and overcrowding [12], parental abuse [10], poor family economic status [13] and the future development of psychiatric disorders in adolescence and adulthood. Nonetheless, there is a paucity of research relating the uprooting of children from their social and physical environment to the future development of psychiatric disorders in adolescence. This study estimated the prevalence of such disorders and their associated factors, such as gender, perceived health status, perceived life satisfaction and family income, among adolescents, and tested the hypothesis that disruption of social and physical environment in childhood is positively associated with psychiatric disorders in adolescence.

## Methods

This study was conducted at the beginning of the academic year 2001–2002 on the campuses of the two public universities in Irbid province in northern Jordan, namely Yarmouk University (YU) and Jordan University of Science and Technology (JUST). All newly enrolled Jordanian students in those universities comprised the population from which the study sample was drawn. During a predetermined six-day period, the

students were required to report to their respective universities for completion of certain registration forms, to pay tuition fees, to have physical examinations and to get their identity cards (ID). For reasons of convenience, we opted to include in our study sample all students who reported to JUST during the first two days of registration and all students who reported to YU during the next two days of registration. These students accounted for approximately one-third of all new enrollees in the two universities. All students who reported on those days were approached by members of the study team and invited to participate in the study. At JUST, the students were approached while waiting to have their physical examination and at Yarmouk, since no physical examination is required, they were approached while waiting to have their IDs made. All except 13 students consented and responded to the self-administered structured questionnaire handed to them by trained interviewers, who answered students' questions and checked for thoroughness of responses on all the items.

The first part of the questionnaire collected demographic and social information (ID number, age, sex, country of birth, monthly family income and whether the individual had some years of schooling outside Jordan). Those Jordanians who were born in, or had some years of schooling in, Kuwait and whose families had left Kuwait were asked to indicate when their families left and the main reason for their leaving. A student was defined as a Jordanian returnee if the family left Kuwait to return to Jordan because of the 1991 Gulf War.

The second part of the instrument included an Arabic version of the 28-item General Health Questionnaire [14], which has been validated and reliability checked in previous research [15]. The scale cut-off

point score was set at 5 (this value had been arrived at by the developer of the original questionnaire after factor analysing the instrument and checking validity and reliability). All subjects with scores of 5 and above were considered psychologically disturbed, while those with scores of less than 5 were considered psychologically healthy. The last part of the instrument included one item that measured overall satisfaction with life and another item that measured overall health status. Each item was a 4-point Likert-type scale that ranged from 1 (excellent) to 4 (poor).

## Results

Of the 1403 eligible students invited to participate in the study, 13 declined and 14 were eliminated because their responses on the questionnaires were incomplete. A total of 1376 students participated in the study, with a response rate of 98%. Just over half the sample were female (56%; students in the nursing school were almost exclusively female). The average age of the sample was 18.1 years (SD = 0.45). The majority perceived their physical health status to be excellent or good (78.7%). Median monthly family income was US\$ 450 (range US\$ 100–7500). The 146 students who had returned from Kuwait during the Gulf War accounted for 10.7% of the total study sample.

The prevalence of psychiatric disorders among the study sample as a whole was 23.3% with a significantly higher prevalence rate (30.8%,  $P$ -value = 0.03) in adolescent returnees than in non-returnees (22.4%) (Table 1). Prevalence of psychiatric disorders was significantly higher ( $P$ -value = 0.01) among females (25.5%) than males (20.5%) and significantly higher ( $P$ -value < 0.01) among those in the lowest in-

**Table 1 Prevalence of psychiatric disorders by sex, perceived health status, perceived satisfaction with life, income and return from Kuwait**

Variable	Psychiatric disorders				P-value
	No		Yes		
	No.	%	No.	%	
<i>Sex</i>					
Male	482	79.5	124	20.5	
Female	574	74.5	196	25.5	
Total	1056	76.7	320	23.3	0.01
<i>Return from Kuwait</i>					
No	955	77.6	275	22.4	
Yes	101	69.2	45	30.8	
Total	1056	76.7	320	23.3	0.03
<i>Perceived health status</i>					
Excellent or good	1010	78.7	274	21.3	
Fair or poor	30	46.2	35	53.8	
Total	1040	77.1	309	22.9	< 0.01
<i>Perceived satisfaction with life</i>					
Excellent or good	966	79.5	249	20.5	
Fair or poor	74	55.2	60	44.8	
Total	1026	77.1	309	22.9	< 0.01
<i>Monthly family income (US\$)</i>					
0-300	334	69.6	146	30.4	
301-600	356	78.2	99	21.8	
601-900	366	83.0	75	17.0	
Total	1056	76.7	320	23.3	< 0.01

come category (30.4%) than those in the middle (21.8%) and highest (17.0%) income categories. The rate was significantly higher ( $P$ -value < 0.01) among those who perceived their overall health status to be fair or poor (53.8%) than those who reported having good or excellent physical health status (21.3%) (Table 1). It was also significantly higher ( $P$ -value < 0.01) among those who reported having fair or poor satisfaction with their lives (44.8%) than others (20.5%).

Logistic regression analysis was performed to examine the independent effect of the following factors: returning from Kuwait, gender, perceived health status and income on prevalence of psychiatric disorders (after controlling for the possible confounding effect of the others). The likelihood of a female developing a psychiatric disorder increased by 20% compared to males and for returnee adolescents this increased by 40% compared to other adolescents (Table 2). These differences in

**Table 2 Adjusted odds ratios<sup>a</sup>, their level of significance and 95% confidence intervals (CI) of prevalence of psychiatric disorders by study variables**

Variable	Odds ratio	95% CI	P-value
<b>Sex</b>			
Male	1.0	-	-
Female	1.2	1.1-1.3	0.01
<b>Return from Kuwait</b>			
No	1.0	-	-
Yes	1.4	1.2-1.6	<0.001
<b>Perceived health status</b>			
Excellent or good	1.0	-	-
Fair or poor	2.0	1.8-2.3	<0.001
<b>Monthly family income (US\$)</b>			
0-300	1.6	1.4-1.8	<0.001
301-600	0.95	0.8-1.1	0.6
601+	1.0	-	-

<sup>a</sup>Controlling for the other variables included in the regression model.

prevalence of psychiatric disorders by gender ( $P = 0.01$ ) and by returnee status were statistically significant ( $P < 0.001$ ). The risk of developing psychiatric disorders for those who reported fair or poor health status was 2 times as high as for those reporting good or excellent health status ( $P < 0.001$ ) (Table 2). This risk increased by 60% among those in the lowest income category compared with those in the highest income category ( $P < 0.001$ ).

## Discussion

Our study found that psychiatric disorders constitute a serious public health problem among Jordanian adolescents, with approximately 1 in 4 adolescents suffering a disorder that requires medical intervention.

This figure was higher than the range of 12.3%–20.0% for adolescent psychiatric disorder reported in some other countries [16–19]. A review of 52 studies conducted during the past 4 decades in over 20 countries to estimate prevalence rates of psychiatric disorders among children and adolescents reported a prevalence ranging from 1% to 51%. The median rates were 8% for preschoolers, 12% for pre-adolescents and 15% for adolescents [20]. These discrepancies in prevalence values, though clearly related to differences in study design, study samples and/or case definitions, may also be related to differences in the social and physical environment and lifestyle changes. The stressful situation that resulted from the return of masses of Jordanian families from Kuwait touched on every aspect of life for returnees as well as other Jordanian residents. This stressful life event might explain the higher rates of psychiatric disorders among our population sample compared to those reported in the literature.

Adolescent Jordanian returnees reported a significantly higher rate of psychiatric disorders than other Jordanian adolescents after controlling for the effect of gender, health status and family income. This difference in values may have its roots in the childhood period. Unlike children of other Jordanians, those of returnees were forced to leave their homes, classmates and playmates and relinquish material things that were considered necessities in Kuwait and to confine themselves to basic needs because of the harsh economic conditions that overcame them. Moreover, they were forced to live in overcrowded houses, go to overcrowded schools and use an overcrowded transportation system. Until they found their own peers in the community and in school, those children spent a period in which they were looked upon as strang-

ers and were forced to live in a state of social alienation. Exposure to such stressful conditions during childhood made it highly unlikely that those children would escape the negative physical and psychological consequences of adolescence and made it more likely for them to suffer psychiatric disorders in adolescence than children of non-returnees.

Genetic research has provided strong evidence that stressful situations trigger predispositions to psychological problems [21] and other research has confirmed the positive association between stressful conditions in childhood and the development of psychiatric disorders in adolescence [10–12]. Data from the Newcastle Thousand Family Study indicated that family disadvantages in childhood, such as family or marital relationship instability, poverty and overcrowding increased the risk of suffering a major depressive disorder in adulthood [12].

In agreement with results reported in the literature [3,22,23], females in the present study had a significantly higher prevalence of psychiatric disorders than males. In their literature review of gender difference in rates of major depression, Cyranowski et al. [22] reported that at the age of puberty, girls tend to experience depression more than boys. They also noted that by 15 years of age the likelihood for females to experience episodes of depression was almost twice that for males and that this gender difference persisted for the

next 35 to 40 years. Sociological literature indicates that women are more sensitive to their bodily states, tend to talk about their symptoms more and accept the “sick role” better than men [24,25].

The negative association between family income, especially the lowest income category, and psychiatric disorders is consistent with the findings of previous studies and literature reviews [26–29]. In his comprehensive literature review, Cockerham concluded that living in poverty means greater exposure to physical, biological and psychological risk factors and ultimately ill health [29].

Consistent with the results reported in previous research [15,30,31], our study data revealed a strong positive association between perception of overall health status and mental health status. The coexistence of physical illness and psychiatric disorders is a common phenomenon and the role of each in initiating or potentiating the effect of the other has been well documented [30,32].

This study found that psychiatric disorders in adolescence could be traced back to undesirable life events in childhood and that these disorders were a major public health problem among adolescents in Jordan. The national health care system should be adapted to address this problem appropriately. Females, the poor and those with poor perceptions about their overall health status were more prone to such conditions than their counterparts.

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