

## Psychiatric Morbidity Among Street Children in Duhok

Nezar Ismet Taib<sup>1</sup> and Abdulbaghi Ahmad<sup>2</sup>

<sup>1</sup>Duhok Directorate General of Health, Kurdistan Region, Duhok, Iraq. <sup>2</sup>Department of Neuroscience, Child and Adolescence Psychiatry, Uppsala University, Uppsala, Sweden.

### ABSTRACT

**BACKGROUND:** Due, in part, to family constraints in dealing with the economical burden of raising a family, a wave of street children is sweeping the developing world. Such children are prone to both somatic and mental illnesses. This is the first ever study that has been conducted to explore the psychopathology among street children in the Duhok Governorate.

**METHODS:** The study was conducted between March 2004 and May 2005 in Duhok City among street children who attended the Zewa Center—the only center for street children in the region at the time of the study. Among a total of 107 eligible children, 100 agreed to participate (93% response rate). A modified family map (genogram) was used to obtain demographic data from the children and their caregivers through semi-structured interviews. In addition, the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID) structured interviews were conducted with the children.

**RESULTS:** The study found that 98% of children worked on the street because of the economic need and pressure on their families. There was high rate of parental illiteracy (90% of fathers and 95% of mothers), and 61% of respondents were shown to have at least one psychiatric disorder. A high percentage (57%) of these children suffered from anxiety disorders including posttraumatic stress disorders (29%). Ten percent had depression, and 5% had attention deficit hyperactivity disorder.

**CONCLUSION:** Street children in Duhok seem to be working children due to their families' needs.

**KEYWORDS:** street children, psychiatric disorders, Duhok

**CITATION:** Taib and Ahmad. Psychiatric Morbidity Among Street Children in Duhok. *Clinical Medicine Insights: Pediatrics* 2014;8 11–16 doi: 10.4137/CMPed.S13505.

**RECEIVED:** October 28, 2013. **RESUBMITTED:** January 2, 2014. **ACCEPTED FOR PUBLICATION:** January 8, 2014.

**ACADEMIC EDITOR:** Praveen Kumar, Associate Editor

**TYPE:** Original Research

**FUNDING:** Author(s) disclose no funding sources.

**COMPETING INTERESTS:** Author(s) disclose no potential conflicts of interest.

**COPYRIGHT:** © the authors, publisher and licensee Libertas Academica Limited. This is an open-access article distributed under the terms of the Creative Commons CC-BY-NC 3.0 License.

**CORRESPONDENCE:** [nezar.tahib@neuro.uu.se](mailto:nezar.tahib@neuro.uu.se)

## Introduction

The phenomenon of street children is worldwide. The definition of “street children” differs across countries and cultures.<sup>1</sup> One way to identify this group is by categorizing the children's background according to their relationship to their family of origin, as follows:<sup>2,3</sup> 1) children on the street: This category comprises children working on the street, but who maintain more or less regular ties with their families; 2) children of the street: Children in this category maintain only weak relations with their families; and 3) abandoned children: Children in this category have no ties with their biological families and are completely on their own.

With increasing awareness of governments and international agencies to the phenomenon of street children, this

group of children has been identified as a highly vulnerable group that needs special attention and care. It has been reported that the number of street children range from 10 million to 100 million; the majority of them are living in major urban areas in developing countries.<sup>1</sup> In Amman, Jordan, it is estimated that 3% of children aged 10–18 years were working, which is the highest percentage noted in the capital.<sup>4</sup> According to the Palestinian Central Bureau of Statistics, 3.5% of Palestinian children were working in 2001.<sup>5</sup>

More than one factor plays a role in driving children onto the streets. These include dropping out of school,<sup>2</sup> family economic problems,<sup>3</sup> child abuse and neglect,<sup>6–8</sup> urbanization,<sup>7</sup> broken families,<sup>9,10</sup> peer pressure,<sup>11</sup> as well as the role



of media in promoting this phenomenon.<sup>7</sup> The World Health Organization has identified that street children are prone to developing malnutrition disorders,<sup>12</sup> sexually transmitted diseases,<sup>1</sup> dental problems,<sup>13</sup> psychiatric problems,<sup>14</sup> cognitive and learning problems, unplanned pregnancies,<sup>1</sup> as well as being prone to being trafficked.<sup>1</sup>

Due to its longstanding situations of war and economic sanctions, this phenomenon is not unknown in Iraq. However, there is no clear estimate of the size of the problem in Iraq. Since formal education is compulsory for the age group (6–12 years), the only clue to the magnitude of this problem is the school drop-out rate, which was found to be 1.9 million out of 4.3 million primary school-aged children.<sup>6,15</sup> There is no evidence, neither in Duhok nor in the Kurdistan region, on the demographic characteristics or the psychopathology of street children in this country. This study aims to explore the demographic data and psychiatric morbidity among street children in Duhok.

## Methods

A cross-sectional study was conducted from March 2004 to May 2005 at the Zewa Center for Street Children (Duhok, Iraq)—the only drop-in daycare center for street and working children in the governorate of Duhok, which has about 1,300,000 inhabitants; 60% are under 18 years of age. At the time of the study, the illiteracy rate among men was 11.6%, and among women it was 26.4%.<sup>16</sup> Almost all of the children found on the street in Duhok were registered with the Police Directorate and Social Affairs Directorate, and they were referred to this center for follow-up and support. This registration by these directorates only served an administrative purpose to enlist those children who worked on the street. The Zewa Center aimed at involving these children in educational programs, while providing social and psychological support. The focus of the center was to encourage children to attend the center on a voluntary basis. The activities in the center included drama, creative art, and music sessions that complemented the school curriculum. It also provided aggression management and life skills training programs. The center also provided medical care and follow-up services, as well as family visits.

The inclusion criteria included all boys aged 8–16 years who attended the Zewa Center. A total of 107 of children were eligible to participate; all were included in the study except for seven children (6.5%) who refused to complete the diagnostic interviews.

The study was ethically evaluated by the Ethical Committee at Duhok University (Duhok, Iraq). Informed consent of the parents and children were recorded. A letter was sent by a social worker to the parents for consent before the child was included. The purpose of the study was explained to both children and parents. Data were kept confidential and were used only for scientific purposes. The study instruments were administered by a trained social worker.

A modified family map (genogram)<sup>17–19</sup> was used to obtain the demographic and background information of the children, such as their age, gender, education level, work type, number of working hours, reasons for working (they were asked whether family need/pressure or peer pressure were among the reasons that drove them to work on the street), number of years on the street, socioeconomic status, number of family members (all members of family living in the same house were counted), and history of disabilities and medicosurgical problems. Parental information regarding their own education (never attended school or illiterate, or completed primary school, secondary/high school, or a university degree), work type, illness history, parent's death and reason of death, and child's age when the parent died was also collected. A composite score was used to determine the socioeconomic status; this score was based on: 1) whether the father is employed or not; 2) the house is owned, belongs to a relative, or is being rented; 3) monthly income is below or above average, or no income; 4) number of family members working in an income-generating activity; and 5) other sources of income. Every item mentioned above had a maximum score of 2 and a minimum score of 0. A total score between 0–4 was considered low, 5–7 was average, and 8–10 was considered good. Trained social workers were involved in the study, and they used the genogram, while also collecting information about each child's background characteristics. The children were given time to recall and answer questions; if they were not able to answer, one of the parents or siblings was approached. Children were not forced to answer questions, particularly about the death of their parents.

The structured International Neuropsychiatric Interview for Children and Adolescent (MINI-KID) tool was used to identify childhood psychiatric disorders.<sup>20</sup> For every diagnosis assessed in the instrument, there is a key question that indicates the exclusion of the diagnosis if the child answers negatively. The MINI-KID tool showed high interrater and test–retest reliability, and it was good at screening for all psychiatric disorders except for dysthymia in children and adolescents aged 6–17 years.<sup>21</sup>

The Harvard—Uppsala Trauma Questionnaire for Children (HUTQ-C)<sup>19</sup> was administered to children to measure the exposure of traumatic events and their severity. Children were asked to recall traumatic events, regardless of whether they were experienced, witnessed, or heard of. One score was given for every reported event, regardless of whether the child was exposed to, witnessed, or heard about the event. If the same type of event occurred more than three times during the same year, it was given a maximum score of 3. The trauma level was determined by the sum of scores experienced, witnessed, and heard of. Children were identified as being mildly traumatized (scores 1–4), moderately traumatized (scores 5–9), or severely traumatized (scores >9). Children who were found to have mental health problems were referred by the researcher to the Mental Health Center in Duhok for further management.



The Statistical Package for the Social Sciences (SPSS for Windows, version 10.0; IBM Corporation, Armonk, NY, USA) was used for the analyses. Data were summarized using percentages (%) for categorical variables.

## Results

The study found that all of the children belonged to the “children on the street” category. The background characteristics of the studied street children revealed that most of them had parents who were illiterate (90% of fathers and 95% of mothers). Fourteen percent of children had at least one parent that died, and 1% reported that both parents had died. Ninety-eight percent reported that they worked because there was family need and/or pressure. The phenomenon was also common in children of low socioeconomic status (84%), and when there was a higher number of siblings. Two-thirds of the children reported selling a variety of items (Table 1).

The MINI-KID interviews indicated that 61% of the children had at least one psychiatric disorder; 16% fulfilled the criteria for two or three diagnoses, and 8% for more than three diagnoses. Fifty-seven percent of the children suffered from anxiety disorders, 29% fulfilled the criteria of posttraumatic stress disorder (PTSD), and 10% for depression, 7% for conduct disorders, 5% for attention deficit hyperactivity disorder (ADHD), and 2% for tic disorders (Fig. 1). The study revealed no cases of psychotic disorders, drug abuse, or bipolar affective illnesses.

More than 90% of the children had experienced at least one trauma. Eighteen percent of them were categorized as being mildly traumatized, 49% as moderately traumatized, and 29% as severely traumatized, as shown in Figure 2.

## Discussion

The current study was the first to describe the phenomenon of street children in Duhok. Though the actual statistics pertaining to the number of street children in Duhok was not known, the sample could be interpreted as being representative of the street children in the Duhok governorate. At the time of the study, almost all street children who attended the Zewa Center were registered by the Social Affairs Directorate and Police Directorate, which tracks working children.

The study revealed an extremely high level of parental illiteracy when compared to what was reported in other studies conducted in developing countries. For instance, in Bangladesh, only 70% of fathers and 76% of mothers of street children were illiterate.<sup>22</sup> This high level of illiteracy, as well as the low socioeconomic status, observed among 48% of street children could explain why the children work on the street; 98% of the children indicated that their reasons for being on the street included family need and pressure. Similarly, in Middle Eastern countries such as Sudan, Syria, Yemen, Egypt, Tunisia, and Jordan, low socioeconomic status pushes children to work on the street.<sup>5</sup> In addition, in Duhok (as is evident in other Middle Eastern countries), some cultures have

**Table 1.** Subject characteristics.

CHARACTERISTIC	N (%)
<b>Age</b>	
8–12 years	58 (58)
13–16 years	42 (42)
<b>School grade</b>	
Primary	84 (84%)
Secondary	14 (14%)
None	2 (2%)
<b>Parentlessness</b>	
Only father dead	12 (12%)
Only mother dead	3 (3%)
One parent alive	14 (14%)
Both dead	1 (1%)
<b>Socioeconomic status</b>	
Good	2 (2%)
Average	14 (14%)
Low	84 (84%)
<b>Father's education</b>	
Illiterate (has not attended school)	90 (90%)
Primary school	7 (7%)
Secondary school	1 (1%)
University degree	1 (1%)
<b>Mother's education</b>	
Illiterate (has not attended school)	95 (95%)
Primary school	2 (2%)
<b>Father's occupation</b>	
Driver	8 (8%)
Worker	40 (40%)
Peshmergeh (National Kurdish soldier)guard	18 (18%)
Professional	11 (11%)
Employer	4 (4%)
Retired and not working	19 (19%)
<b>Mother's work</b>	
Housewife	98 (98%)
Handicrafts	2 (2%)
<b>Number of family members</b>	
4–7	24 (24%)
8–12	36 (36%)
>12	46 (46%)
<b>Type of child's work</b>	
Selling on street	67 (67%)
Shoe-shiner	9 (9%)
Assistant worker	24 (24%)
<b>Working hours/day</b>	
1–3	70 (70%)
4–6	30 (30%)

(Continued)

**Table 1.** (Continued)

CHARACTERISTIC	N (%)
<b>Years on the street</b>	
1–2	70 (70%)
3–4	30 (30%)
<b>Working reasons</b>	
Family need and pressure	98 (98%)
Peer pressure	2 (2%)

dominating religions, such as Islam. Both these characteristics encourage children learn to take responsibilities at early ages for their family's survival and income-generating activities. The situation is different in North America, where two other background factors among street children prevail as the main causes that lead children to work on the street: low levels of parent support and increased feelings of rejection and hostility, as well as difficulties and failure at school.<sup>23</sup>

The high rate (61%) of reported psychiatric problems has no relation to whether the reason for the child working on street was due to neglect, poverty, or family need and pressure.<sup>3,23,24</sup> Rather, the reasons why children work on the street are related to genetic predisposition or exposure to traumatic events, as experienced by these children. This is supported by the prevalence of PTSD among these children; one-fourth of the children meet all of the criteria for PTSD.<sup>3,5,23,24</sup> High levels of PTSD symptoms among the street children were consistent with the traumatized children that were noted in previous studies conducted in Kurdistan.<sup>19,25,26</sup> However, these findings have to be regarded as hypothesis-generating rather than conclusive. In addition, these children will be at risk of experiencing failures in nurturance, which are likely to be complicated by abuse and derogation on the street.

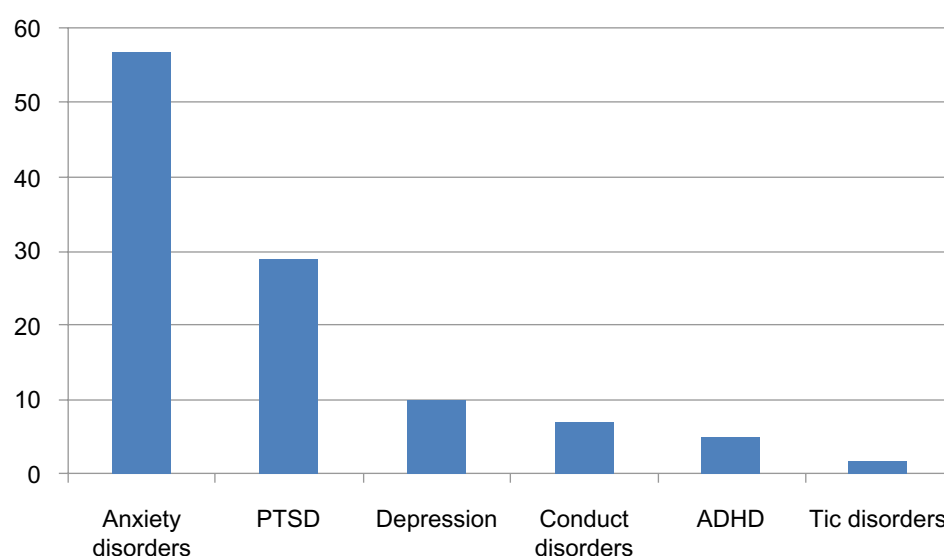
Furthermore, half of the street children suffered from anxiety disorders—a rate that was much higher than that reported among the general population (10%–15%),<sup>27</sup> but this is consistent with what was reported in a previous study.<sup>24</sup>

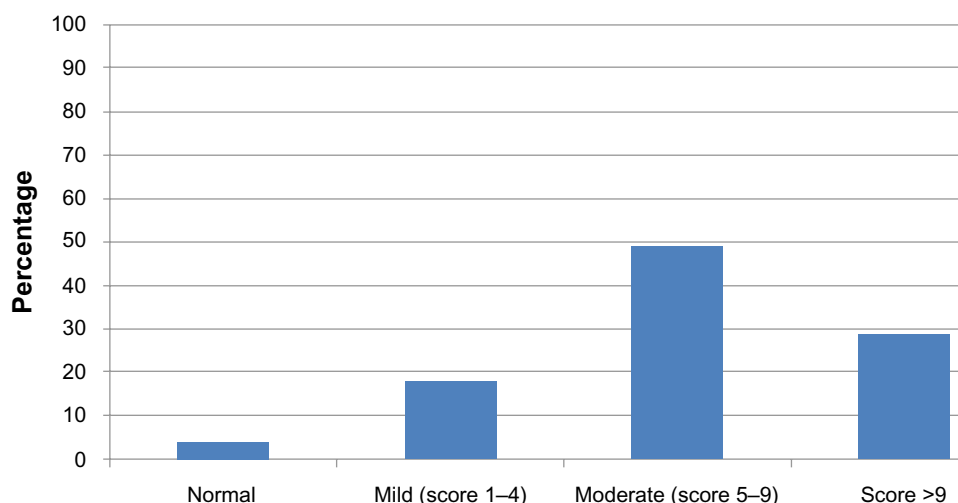
Rates of depression were also higher among the street children (10%) when compared to the prevalence rate of 2%–8% observed among the general population. Literature evidence has indicated that there is a gender difference in depression rates, with a lower prevalence observed among males.<sup>29</sup> Since the study subjects in the current study were only comprised of boys, it is expected that the rate of depression would be closer to that of the general population, which is a rate that accounts for depression in both males and females.

The prevalence of conduct disorders was 7% among the studied sample. It was slightly higher than the prevalence of conduct disorders observed among the general population (5.6%). This may be due to high levels of stress experienced on the street, with bad friends, and due to low levels of social support.<sup>30</sup> The study showed that 5% of children on the street had ADHD, which is similar to the rate observed in the general population (3%–5%).<sup>30</sup>

There was an absence of psychotic disorders, and this can be explained by difficulties of diagnosis or misdiagnosis with other pervasive disorder and social dysfunction of psychotic disorders in contrast to the selected sample. The nonreporting of bipolar affective illness among the studied sample could be partly due to its misdiagnosis as ADHD.<sup>31</sup>

The study revealed that there was no substance abuse noted among the subjects, which was in contrast to our expectations. However, during the years of 2000–2003, several cases of glue sniffing were identified among street children in Duhok City, but the local authorities took active steps to prevent glue sniffing, which can partly explain the absence of glue sniffing cases among our sample.<sup>24</sup>

**Figure 1.** Percentage of disorders among street children in Duhok.



**Figure 2.** Trauma level among street children.

## Conclusion

Street children in Duhok seem to be mostly comprised of children working on the street. The study concluded that family needs and financial pressures drive children to work on the street. Lack of psycho-social support and a nurturing environment will lead to a child's exposure to many health problems, both mental and somatic. Special attention to this risky group of children by their families, communities, schools, and the government is essential. Provision of good environments at the family level, with the availability of community-based education to increase psycho-social awareness, can help decrease the amount of suffering experienced among street children. School support for street children, the provision of psychological support, as well as involving families and street children in family care programs through the adoption of hosting centers (similar to the Zewa Center) are urgently needed. However, further research is needed to test the hypotheses generated by this study, as the findings were not conclusive. It should be noted that this study was a descriptive study, and the findings were not representative of all street children and their families in Duhok.

## Author Contributions

Conceived and designed the experiments: NIT, AA. Analyzed the data: NIT, AA. Wrote the first draft of the manuscript: NIT. Contributed to the writing of the manuscript: AA. Agree with manuscript results and conclusions: NIT, AA. Jointly developed the structure and arguments for the paper: NIT, AA. Made critical revisions and approved final version: NIT, AA. All authors reviewed and approved of the final manuscript.

## DISCLOSURES AND ETHICS

As a requirement of publication the authors have provided signed confirmation of their compliance with ethical and legal obligations including but not limited to compliance with ICMJE authorship and competing interests guidelines, that the article is neither

under consideration for publication nor published elsewhere, of their compliance with legal and ethical guidelines concerning human and animal research participants (if applicable), and that permission has been obtained for reproduction of any copyrighted material. This article was subject to blind, independent, expert peer review. The reviewers reported no competing interests.

## REFERENCES

1. World Health Organization. *A One-Way Street? Report on Phase I of the Street Children Project*. Geneva, Switzerland: World Health Organization; 1993.
2. Namo K, Abdulwaheed F, Abdulqahar A, Faiza A, Abduljabar A, Berivan F. *The Relation between the Family and Child Delinquency, Duhok, Kurdistan—2001*. Unpublished report.
3. Lusk MW. Street children programs in Latin America. *J Sociol Soc Welf*. 1989;16(1):55–77.
4. United Nations Children's Fund. *Children in Jordan. Situational Analysis 2006–2007*. New York, NY: United Nations Children's Fund; 2007.
5. Consortium for Street Children. *A Civil Society Forum for North Africa and the Middle East on Promoting and Protecting Street Children, Cairo, Egypt*. New York, NY: Consortium for Street Children; 2004.
6. United Nations Children's Fund. *The State of the World's Children 2005. Childhood under threat*. New York, NY: United Nations Children's Fund; 2005.
7. Barakat, MEMman. Factor pushing the children onto the street in Syria. In: Consortium for street children. *A civil society forum for North Africa and Middle East on the promoting and protecting the right of children, Cairo, Egypt; 3–6 Mar, 2004*.
8. Marvasti JA. *Child Suffering in the World: Child Maltreatment by Parents, Culture and Governments in Different Countries and Cultures*. 1st ed. Manchester, CT: Sexual Trauma Center Publication; 2000.
9. Aptekar L. Family structure in Colombia: its impact on understanding street children. *The J Ethn Stud*. 1989;17(1):97–108.
10. Agnelli S. *Street Children: A Growing Urban Tragedy*. London, UK: Weidenfeld and Nicholson; 1986.
11. Corrigan D. *Solvent Abuse: A Guide for Professionals & Parents*. Dublin, Ireland: Hawkins House; 1998.
12. Ayaya SO, Esamai FO. Health problems of street children in Eldoret, Kenya. *East Afr Med J*. 2001;78(12):624–9.
13. Srinivas R, Srinivas P, Viswanath V, Suresh S, Devaki T, Narayana V. Oral health status of institutionalized street children aged 5–15 years In Guntur City Andhra Pradesh India. *International Journal of Scientific & Technology Research*. 2012;1(11):19–23.
14. Fekadu D, Alem A, Hägglöf. The prevalence of mental health problems in Ethiopian child laborers. *J Child Psychol Psychiatry*. 2006;47(9):954–9.
15. IRIN. Iraq: children work instead of going to school. Baghdad, IRIN; 2004.
16. Central Organization for Statistics and Information Technology; The World Bank; Kurdistan Region Statistics Organization. *Iraq Household Socio-Economic Survey 2006–2007*. Washington, DC: The World Bank; 2011.
17. Penayo U. *On Mental Disorders in Nicaragua: An Epidemiological Approach*. Umeå, Sweden: Umea University; 1990.





18. Ahmad A, Sofi MA, Sundelin-Wahlsten V, von Knorring AL. Posttraumatic stress disorder in children after the military operation "Anfal" in Iraqi Kurdistan. *Eur Child Adolesc Psychiatry*. 2000;9(4):235–43.
19. Ahmad A. *Childhood Trauma and Posttraumatic Stress Disorder: A Developmental and Cross-Cultural Approach (Comprehensive Summaries of Uppsala Dissertations)*. Stockholm, Sweden: Uppsala Universitet; 1999.
20. Sheehan DV, Lecrubier Y, Sheehan KH, et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry*. 1998;59 Suppl 20:22–3; quiz 34–57.
21. Sheehan DV, Sheehan KH, Shytle RD, et al. Reliability and validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID). *J Clin Psychiatry*. 2010;71(3):313–26.
22. Ahmed KS, Uddin MM, Islam S, et al. *A Baseline Survey of Street Children in Bangladesh*. Agargaon, Dhaka: The Bangladesh Bureau of Statistics, National Child-Labor Survey; 2003.
23. Covell K. *Violence Against Children in North America*. Ontario, Canada: UNICEF Canada; 2005.
24. Richter L, van der Walt M. The psychological assessment of South African street children. *Child Youth Environ*. 2003;(1). cited 8 Jun, 2005. Available from: [http://www.colorado.edu/journals/cye/13\\_1/Vol13\\_ArticleReprints/PsychAssessmt\\_AfricaInsight.pdf](http://www.colorado.edu/journals/cye/13_1/Vol13_ArticleReprints/PsychAssessmt_AfricaInsight.pdf)
25. Ahmad A. Symptoms of posttraumatic stress disorder among displaced Kurdish children in Iraq—victims of a man-made disaster after the Gulf war. *Nord J Psychiatry*. 1992;46(5):315–9.
26. Ahmad A, Mohamed HT, Ameen NM. A 26-month follow-up of posttraumatic stress symptoms in children after the mass-escape tragedy in Iraqi Kurdistan. *Nord J Psychiatry*. 1998;52(5):357–65.
27. Husain A, Baker G, Bauer B, et al. Child and adolescent psychiatry and trauma psychology. A course for Iraqi delegation in Amman, Jordan, 2004. Unpublished report.
28. Sabate E. Depression in young people and elderly. Priority medicines for Europe and World. "A public health approach to innovation". Background paper 2004. cited 20 Sep 2005. Available from: <http://archives.who.int/prioritymeds/report/background/depression.doc>.
29. Sørensen MJ, Nissen JB, Mors O, Thomsen PH. Age and gender differences in depressive symptomatology and comorbidity: an incident sample of psychiatrically admitted children. *J Affect Disord*. 2005;84(1):85–91.
30. Carr A. Evidence-based practice in family therapy and systemic consultation: child-focused problems. *J Fam Ther*. 2002;22(1):29–60.
31. Lexcen F. *Effects of Adolescent Psychopathology on Juvenile Competence to Make Medical and Legal Decision. Juvenile Justice Fact Sheet*. Charlottesville, VA: Institute of Law, Psychiatry & Public Policy-University of Virginia; 2000.