

Screening of Emotional and Behavioral Problems among Youth in the Schools of Beirut

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Rec Date: Feb 25, 2015; Acc Date: Apr 15, 2015; Pub date: Apr 18, 2015

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Abstract

Objective: Screening of mental health problems in children and adolescents is necessary for epidemiological research on the prevalence of these problems. We conducted a population screening study of emotional and behavioral disorders among 1200 11-16 year old adolescents in Beirut, Lebanon.

Method: Data was collected from parents and youth using the Strengths and Difficulties Questionnaire. Twelve schools were selected, eight private and four public, within Beirut and its direct Southern Suburb. Pupils were randomly sampled from each class of selected schools. Prevalence of probable psychiatric diagnoses was measured using the SDQ multi-informant algorithm.

Results: Prevalence of abnormal symptom scores is reported for both parents and youth: abnormal total difficulties score: parents 14.7% (95% CI 12.3-17.1), youth 4.7% (3.2-6.1). The prevalence of probable psychiatric diagnoses was 9.8% (7.8-11.8) for any psychiatric diagnosis, 4.3% (2.9-5.6) for behavioral disorder, and 6% (4.4-7.5) for emotional disorder. The most significant association with abnormal scores was found for the variable of being in a public school.

Conclusion: Our study shows a prevalence of 9.8% for any psychiatric diagnosis among 11-16 year old youth. One of the most significant associations that we found with abnormal scores was being in a public school, which should highlight the necessity at a national policy level to improve the conditions of the public schools. Moreover, these findings suggest the need for greater investment in community mental health care services for youth.

Keywords: Children and adolescents; Emotional and behavioral disorders; Mental health; Lebanon

Introduction

The overall prevalence of emotional, behavioral and psychiatric disorders in developed countries has been estimated to be around 12% in the pediatric population [1-5]. Whereas behavioral problems appear to have an age of onset before 12, adolescence seems to be a high-risk period for emotional disorders [2,5]. Emerging evidence from developing countries suggests similar levels of morbidity [6-10]. Data from Arab countries are scarce [11].

Screening is important because these problems are a significant public health burden [1,12]. Moreover, there is substantial evidence that most of the mental problems of the adult begin in childhood [2,3]. Data from Lebanon on the prevalence of child mental health conditions is mostly restricted to information from children who had been exposed to war conflict [13,14]. One epidemiological study in the general population exploring the prevalence of ADHD revealed a prevalence of 3.2% among 6-10 year old children in the schools of Lebanon [15]. However, there is no study exploring the overall prevalence of emotional and behavioral problems in a large community sample in Lebanon. This lack of research may reveal the general lack of interest in these conditions, at a policy level [16].

J Depress Anxiety ISSN:2167-1044 JDA, an open access journal One of the most used screening instruments to assess the prevalence of child and adolescent psychiatric disorders is the Strengths and Difficulties Questionnaire (SDQ) [17], which has been widely used in different cultural contexts [18-22] and has been translated into Arabic [23-25]. We have conducted a prevalence study in the city of Beirut using the SDQ for parents and children in order to provide data on rates of emotional and behavioral symptoms and of probable psychiatric disorders among children in complementary schools.

Methods

The study was carried out in the city of Beirut, capital and largest city of Lebanon, and in its most direct and proximal Southern suburb.

Sampling

A two-stage cross-sectional survey was conducted. Sample size of around 1,200 was determined in order to measure a population prevalence of 13% [9]. The Education Center for Research and Development, Ministry of Education, provided us with a list of the Lebanese schools stratified into public and private schools. Inclusion criteria were schools located in Beirut or its direct Southern suburb, comprising complementary classes, and having more than a total of 200 children in complementary grades. The first stage of the study involved random selection of schools from each stratum. Twelve schools were selected, eight private and four public, from a total of 33 corresponding to the inclusion criteria. This reflected the overall proportion of school types within Beirut and its direct Southern Suburb. All twelve schools agreed to participate. In the second stage pupils were randomly sampled from each class of selected schools. Within complementary grades of each school, we randomly sampled 20-22 children from each grade. The sample was divided to cover all classes of the same grade.

Data collection instruments

Children and parents were asked to complete the Arabic version of the extended SDQ. This is a brief behavioral questionnaire that includes 25 items and supplemental questions on impact. The 25 items generate five scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationships problems, and pro-social behavior. Each of these scales is scored from 0 to 10 and can be classified as "normal", "borderline" or "abnormal" depending on how the scores compares with population standards based on original validation work in the UK [17]. All but the last scale are summed to generate a total difficulties score ranging from 0 to 40. The impact supplement enquires about chronicity, distress, social impairment and burden for the child and for others [21]. The Arabic version of the SDQ has been validated previously [23-25]. A standardized computer algorithm to predict child psychiatric disorders has been developed which uses information on symptoms and impact from all the available informants for any individual child [22,26]. This distinguishes between three groups of disorders, conduct-oppositional, hyperactivity-inattention, and anxiety-depressive disorders. Each is predicted to be "unlikely", "possible" or "probable". Predictions of the three groups are combined to generate an overall prediction of the presence or absence of any psychiatric disorder. In order to make a prediction of conduct-oppositional disorders or emotional disorders, the algorithm requires at least one informant, but for the prediction of hyperactivity-inattention disorders, it requires both parents and teachers [26]. That is why in our study we measured the prediction of conduct-oppositional disorders and emotional disorders, since we gathered information only from children and parents. The SDQ has previously been used in research studies without the teacher version [25]. Moreover, prevalence of ADHD has been recently studied in school-age children in Lebanon [15]. In addition parents received a brief demographic questionnaire.

Data collection and ethical considerations

Data was collected over 3 months from January to March 2013. Consent from each school was first obtained after meeting with the school director. Each selected child received an envelope to give to his parents comprising a consent form in Arabic to sign by the parents, the SDQ for parents, and the questionnaire on socio-economic features. Another official paper was included signed by the dean of the Faculty, explaining in detail the aim of the study. Envelops for parents were collected on a period of 2 to 3 weeks and the school secretary would call the parents to make sure they received the envelops and enquire about any concern. Children whom parents have signed the consent form, were asked to fill the SDQ Arabic version for youth, in the presence of the school secretary, who was given instructions by the investigator. The fact that envelopes for the parents were sent with the children and not by mail were justified by the absence of an efficacious postal system in Lebanon. The questionnaires were all anonymous Page 2 of 7

with names replaced by numbers. The phone number and address of the first author were included, and parents were assured that we would respond to all their concerns.

Data analysis

The results from the five subscales of the SDQ, the total difficulties score, and the impact score were classified using the standardized cutoff values into "abnormal" or "not abnormal" ("borderline" and "normal" combined). Predicted psychiatric diagnoses were classified as "probable" or "not probable" ("possible" and "unlikely" combined). Prevalence values were calculated along with their 95% confidence intervals. Prevalence of abnormal symptomatic scores and impact of parents and children were compared using Pearson test (chi-2) to study if there was any statistically significant difference. Another analysis with Chi-2 compared the distribution of the prevalence of abnormal scores of total difficulties and impact reported by both parents and children between the different features of the socio-economic variables, to study associations with potential risk factors. Data analysis was carried out using the Data Analysis and Statistical Software (STATA version 12).

Results

A total of 1200 children, from all complementary classes, were selected from the 12 schools (100 children from each school, 800 from private schools and 400 from public schools). Overall, 893 parents (74.4%) signed the consent letter and filled the socio-demographic questionnaire. 886 (73.8%) among them also filled the SDQ for parents.

	Private schools	Public schools	Total	Ρ
SDQ parent	600 (75%)	286 (71.5%)	886 (73.8%)	0.08
SDQ youth	597 (74.6%)	278 (69.5%)	875 (72.9%)	0.06
Socio-demographic questionnaire	601 (75.1%)	292 (73%)	893 (74.4%)	0.43

 Table 1: Response rates.

Among the 893 children whom parents signed the consent letter, 875 filled the SDQ youth version (72.9%). There was no significant difference in response rates between public and private schools.

Score	Parent assessed SDQ (N=886)	Youth assessed SDQ (N=875)	p
Total difficulties	14.7% (12.3-17.1%)	4.7% (3.2-6.1%)	<0.001
Emotional problems	20.3% (17.6-23%)	7% (5.3-8.7%)	<0.001
Behavioral problems	17.4% (14.9-20%)	6.4% (4.8-8.1%)	<0.001
Hyperactivity symptoms	8.9% (7-10.9%)	7% (5.3-8.7%)	0.165
Peers problems	20.5% (17.8-23.2%)	2.7% (1.6-3.7%)	<0.001
Significant impact scores	16.3% (13.8-18.7%)	17.4% (14.8-19.9%)	0.538

Table 2: Abnormal symptomatic and impact scores on youth andparent SDQ.

ISSN:2167-1044 JDA, an open access journal

Citation: Kerbage H, Haddad R, Zoghbi M, Gerbaka B, Richa S (2105) Screening of Emotional and Behavioral Problems among Youth in the Schools of Beirut. J Depress Anxiety 4: 1000183. doi:10.4172/2167-1044.1000183

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Table 1 presents response rates to youth and parent SDQ as well as to socio demographic questionnaires and compares between public and private schools. Table 2 shows the results of the SDQ completed by both youth and parents, by describing the prevalence of abnormal symptomatic and impact scores and comparing the prevalence between parents and children.

The parent SDQ reveals an abnormal total difficulties score in 14.7% of cases, whereas the youth SDQ reveals an abnormal total difficulties score in 4.7% of cases only. However, abnormal impact scores are higher in both cases, without a significant statistical difference between them, with 16.3% of parents and 17.4% of children perceiving that children are experiencing overall emotional, behavioral and relational difficulties interfering with their daily lives and functioning.

Potential risk factor	Categories	Distribution	Abnormal scores SDQ parent	Abnormal scores SDQ youth
Gender	Male	381 (43.9%)	62 (16.3%)	22 (5.8%)
	Female	487 (56.1%)	64 (13.1%)	19 (3.9%)
		N=868	p=0.194	p=0.193
Age	11-13	344 (41.6%)	49 (14.2%)	14 (4.3%)
	14-16	483 (58.4%)	69 (14.3%)	24 (5%)
		N=827	p=0.987	p=0.465
Birth order	Eldest	267 (32.5%)	37 (13.9%)	12 (4.5%)
	Non eldest	555 (67.5%)	86 (10.5%)	26 (3.2%)
		N=822	p=0.769	p=0.469
Type of school	Public	282 (32.2%)	56 (19.9%)	22 (8%)
	Private	593 (67.8%)	71 (12%)	19 (3.2%)
		N=875	p=0.002	p=0.002
School performance	<average< td=""><td>58 (6.7%)</td><td>25 (43.1%)</td><td>9 (16%)</td></average<>	58 (6.7%)	25 (43.1%)	9 (16%)
	Average	109 (12.7%)	30 (27.5%)	9 (8.6%)
	Fairly > to average	227 (26.4%)	41 (18%)	15 (6.5%)
	Largely>	466 (54.2%)	30 (6.4%)	7 (1.5%)
		N=860	p<0.001	p<0.001
Marital status	Married	814 (94.3%)	113 (13.9%)	36 (4.4%)
	Divorced/separated	49 (5.7%)	13 (26.5%)	4 (8.7%)
		N=863	p=0.015	p=0.181
Maternal education	Primary and less	57 (6.6%)	17 (29.8%)	4 (6.8%)
	Complementary	206 (23.9%)	40 (19.4%)	12 (6%)
	High school	271 (31.4%)	42 (15.5%)	14 (5.1%)
	College	328 (38%)	27 (8.2%)	11 (3.3%)
		N=862	p<0.001	p=0.427
Paternal education	Primary and less	84 (9.8%)	22 (26.2%)	9 (11%)
	Complementary	240 (28%)	44 (18.3%)	11 (4.6%)

Prevalence Any psychiatric diagnosis 9.8% (7.8-11.8%) Behavioral disorder 4.3% (2.9-5.6%) Emotional disorders 6% (4.4-7.5%)

Table 3: Prediction of probable psychiatric diagnosis, based on multiinformant algorithm combining SDQ scores from parents and youth (N=886).

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	High school	203 (23.7%)	29 (14.3%)	10 (4.9%)
	College	330 (38.5%)	31 (9.4%)	11 (3.3%)
		N=857	p<0.001	p=0.039
Maternal employment	Women with a job	306 (36.1%)	35 (11.4%)	18 (5.8%)
	Housewife	541 (63.9%)	90 (16.6%)	23 (4.2%)
		N=847	p=0.04	p=0.261
Paternal employment	Private profession	383 (48.3%)	60 (15.7%)	23 (6%)
	Public sector	129 (16.3%)	20 (15.5%)	3 (2.3%)
	Private sector	281 (35.4%)	36 (12.8%)	11 (4%)
		N=793	p=0.562	p=0.182

Note: *Categories of certain variables were excluded of this analysis given their small number: Youth having 8,10,17, 18 years (n=22), only child (n=13), twins (n=4)., Artisan category in paternal employment (n=11), as well as unemployed category (n=36).

**Total numbers can vary because of missed data on certain items.

Table 4: Variables* associated with abnormal scores of total difficulties (N=886 parents assessed, N=875 children assessed) **.

Table 3 shows the prevalence of probable psychiatric diagnoses based on multi-informant algorithm combining symptomatic scores and impact from available informants (in this case, parent and/or youth). Significant associations with abnormal scores were found for the following variables: Being in a public school, a lower level of school performance as evaluated by parents, parental divorce or separation, a lower level of parental education, and the housewife status for the mother.

Tables 4 and 5 show the associations of independent variables with abnormal scores of total difficulties (Table 4) and abnormal impact scores (Table 5) in parents and youth SDQ.

Potential risk factor	Categories	Distribution among the categories	Abnormal scores SDQ parent	Abnormal scores SDQ youth
Gender	Male	369 (43.9%)	61 (16.5%)	62 (16.6%)
	Female	472 (56.1%)	77 (16.3%)	86 (18.2%)
		N=841	p=0.298	p=0.681
Age	11-13	331 (41.4%)	45 (13.6%)	49 (14.2%)
	14-16	469 (58.6%)	84 (18%)	90 (19.4%)
		N=800	p=0.214	p=0.059
Birth order	Eldest	264 (32.1%)	37 (14%)	39 (14.9%)
	Non eldest	534 (65%)	92 (17.3%)	99 (21.3%)
		N=798	p=0.04	p=0.09
Type of school	Public	273 (32.2%)	60 (22%)	67 (25.4%)
	Private	574 (67.8%)	78 (13.6%)	81 (13.8%)
		N=847	p=0.006	p<0.001
School performances	<average< td=""><td>54 (6.5%)</td><td>26 (48.4%)</td><td>26 (48.1%)</td></average<>	54 (6.5%)	26 (48.4%)	26 (48.1%)
	Average	103 (12.4%)	38 (36.9%)	37 (37.4%)
	Fairly > to average	221 (26.6%)	44 (20%)	44 (19.4%)

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	Largely>	454 (54.6%)	28 (6.2%)	38 (8.4%)
		N=832	p<0.001	p<0.001
Marital status	Married	786 (94.3%)	122 (15.5%)	132 (16.6%)
	Divorced/separated	49 (5.7%)	16 (32.6%)	15 (33.3%)
		N=835	p=0.001	p=0.011
Maternal education	Primary and less	56 (6.7%)	15 (26.8%)	16 (28.6%)
	Complementary	195 (23.3%)	47 (24.1%)	49 (25.2%)
	High school	263 (31.5%)	41 (15.6%)	45 (17.1%)
	College	321 (38.4%)	34 (10.6%)	38 (11.7%)
		N=835	p<0.001	p=0.001
Paternal education	Primary and less	81 (9.7%)	25 (30.9%)	9 (11.7%)
	Complementary	227 (27.3%)	37 (16.3%)	11 (4.8%)
	High school	199 (24%)	39 (19.6%)	10 (4.9%)
	College	323 (39%)	36 (11.1%)	11 (3.4%)
		N=830	p<0.001	p=0.004
Maternal employment	Women with a job	299 (36.5%)	38 (12.7%)	43 (14.4%)
	Housewife	520 (63.5%)	94 (18%)	103 (20%)
		N=819	p=0.072	p=0.044
Paternal employment	Private profession	372 (48.5%)	68 (18.3%)	64 (17.2%)
	Public sector	124 (16.2%)	18 (14.5%)	20 (16.1%)
	Private sector	271 (35.3%)	37 (13.6%)	46 (17%)
		N=767	p=0.253	p=0.935
		N=767	p=0.253	p=0.935
Note: *Categories of certai	n variables were excluded of this a	nalysis given their small numbe	er: youth having 8 10 17 18 v	ears $(n=22)$ only child $(n=13)$ twins $(n=4)$

Note: *Categories of certain variables were excluded of this analysis given their small number: youth having 8,10,17, 18 years (n=22), only child (n=13), twins (n=4) artisan category in paternal employment (n=11), as well as unemployed category (n=36). **Total numbers can vary because of missed data on certain items.

Table 5: Variables* associated with abnormal impact scores (N=886 parents assessed, N=875 children assessed)**

Discussion

Our study shows a prevalence of 9.8% for any psychiatric diagnosis among 11-16 year old youth in the schools of Beirut, which is similar to the mean prevalence in developed countries, [1-5], as well as in Arab countries outside the conflict zones [7,9,10]. Emotional disorders (6%) were found in our study to be more frequent than behavioral disorders (4.3%) and this may be explained by the age frame [11-16], and the higher risk of depression and anxiety in adolescence, whereas in the study of Abd el Hamid et al [10], using a similar one-step screening by the SDQ among 6-12 year old children, behavioral disorders were more frequent.

Abd el Hamid et al. [10] have noted that studies using the SDQ in developing countries found higher symptomatic scores than the original study in the UK [26], but similar prevalence of probable psychiatric diagnosis, because of the similar impact scores. The same authors suggest that this may be characteristic of countries in developmental transition. However in our study, even though the symptomatic scores in parents were higher than those found in UK and similar to those found in Egypt, symptomatic scores in youth were lower, and the impact scores of both parents and youth were higher than those found in UK or Egypt, meaning that both children and parents perceive the difficulties as having a significant impact on the youth's life.

The similar impact score and difficulties score at the parent SDQ might be explained by the fact that in teenage years, symptoms perceived by parents are more likely to be part of a disorder rather than non- specific developmental variations. However, the high impact score compared to the low symptomatic score at the youth SDQ raises the question of the sensitivity of the Arab version of the SDQ in screening symptoms in the Lebanese culture: children perceived the impact of a significant problem but not the nature of it, or at least they do not experience it as the items described by the SDQ or as perceived by parents. This has been noted in validation studies of

the Arabic version in Gaza and Yemen [23,25], where the SDQ was found to have a good sensitivity in detecting the presence of global difficulties but less sensitivity in detecting specific problems in the selfversion, and this may be explained by cultural reasons [23].

Our study shows an association between abnormal symptomatic and impact scores and certain socio-demographic variables that have been established as risk factors for youth mental health: lower school performance, parental separation, and a lower parental education level [7,10,27]. However, these are only transversal associations.

One of the most significant associations that we found with both symptomatic and impact abnormal scores was being in a public school. Students in public schools usually are from lower socio economic backgrounds, which is a risk factor in for child mental health [27]. Moreover, public schools selected in our study were located in poor and politicized neighborhoods witnessing armed conflicts, and this might be a risk factor for children exposed to those scenes. Furthermore, Syrian displaced youth in Lebanon, are usually accepted in public schools (Ministry of Education, personal communication). This may have contributed to the higher scores in public schools since Syrian displaced children are under a great environmental pressure.

Moreover, public schools have limited resources, as reported by the school directors and there is no school psychologist available. Another factor is the frequency of teachers' strike in public schools, which can stop the functioning of the school for many weeks and may have a destabilizing effect on the child.

Limitations of the Study

The study has been conducted in Beirut and is not representative of the whole country. The school setting excluded children who have dropped out school, which might have underestimated the prevalence of psychiatric disorders, since those children are at higher risk of behavioral and emotional disorders [27]. Parents filled the questionnaires at home without supervision. This might have contributed to lower the response rates, if the parents happen to be illiterate. Finally, there was no independent confirmation of the diagnosis by a semi-structured validated interview in youth with a probable psychiatric diagnosis.

Implications of the Study

Our study found a prevalence of any psychiatric diagnosis of nearly 10%, among 11-16 school youth in Beirut. This shows the importance of implementing child mental health services, as well as a national mental health policy. Research implications would be to conduct larger epidemiological studies at a national level, to identify high-risk populations, and to conduct validation studies of screening tools in Lebanese Arabic. Possible implications for mental health policy and services would be to raise awareness among youth, parents, and children on mental health conditions, as well as a greater investment of the Ministry of Education in the public schools, and the integration of mental health care into primary health care. This necessitates an allocation in human and financial resources, coordination between different professionals, as well as funds for research.

Ethical Statement

The study has been approved by the ethics committee of Hotel-Dieu de France and has therefore been performed in accordance with the

ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

Acknowledgements

We would like to thank all the parents and children who participated in the study, as well as the school directors and staff. The Beirut Regional Education authority. Martine El-Bejjani, Ph.D candidate in epidemiology, McGill University, and Salim Adib, M.D, Ph.D., for methodological advice.

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