

Letters to the Editor

Use of mental health services and unmet needs for socially-at-risk. Spanish children and adolescents

Dear Editor:

Reported one-year prevalence of service use due to mental disorders in children and adolescents from the general population varies according to country, organization of services, and services considered. Among factors associated with use of services, the literature lists parental and school personnel's perception of problems, having a psychiatric diagnosis (especially externalizing), symptom severity, comorbid disorders, functional impairment, family burden, family environment or being a boy (Cabiya *et al.*, 2006; Farmer *et al.*, 2003; Sayal, 2004). A better understanding of these factors may help to optimize access to services of children needing help.

Having a mental health problem does not always result in service use and most children who need mental health intervention do not receive help. Between 43% and 80% of children who need help do not access services (Kataoka *et al.*, 2002). Unmet mental health care needs result from lack of acceptability (negative attitudes of the user towards mental illness, care providers or the system), accessibility (cost, transportation, language problems, competing demands) or availability of the services (Nelson & Park, 2006). Attitudes of the users (acceptability) have been reported as the most frequent barrier (Kerkorian *et al.*, 2006). Other barriers are poverty or lack of health insurance, belonging to minority groups, being younger or female, or suffering from particular disorders (internalizing, substance use) (Costello *et al.*, 1997; Kataoka *et al.*, 2002; Nelson & Park, 2006; Thompson & May, 2006; Wu *et al.*, 1999).

There is limited data about service use in at-risk populations outside the United States of America. The goals of this research were to ascertain the prevalence of service use, unmet need and barriers to the use of services, as well as their association with specific disorders and other characteristics of the child and family, in a high risk cohort of Spanish children and adolescent. This information can be useful when designing interventions to enhance use of health services among those who need them.

METHOD

Participants

Data were taken from a longitudinal population-based study carried out to obtain mental health epidemiological data on an entire high-risk population of children and adolescents living in the periphery of Barcelona (Ezpeleta *et al.*, 2007).

All children born in 1989 and 1993 and registered in the 2001 Badía del Vallès municipality census were assessed at yearly intervals over 3 years (2002, 2003, 2004). In 2002, these children were 13 and 9 years old, respectively.

Seventy-nine children born in 1989 (53.7% of the census list) and 72 born in 1993 (59.5% of the census) agreed to participate. There were no significant differences between participants and non-participants or drop-outs with regard to gender, socio-economic status, parental unemployment, number of siblings, psychological consultations, type of school (public or private), and total score on a brief telephone questionnaire asking about difficulties in six areas. Non-participants in the adolescent cohort reported that they had failed significantly more often at school than participants ($p = .033$). Table I summarizes the characteristics of the children from the two cohorts at the time of first assessment.

Measures

The *Diagnostic Interview for Children and Adolescents* (Reich, 2000), adapted for Spain (Ezpeleta *et al.*, 1997), was used to assess psychopathology following DSM-IV (American Psychiatric Association, 1994). Diagnoses were generated by combining information from parents and children at symptom level.

Table I – Socio-demographic and Clinical Characteristics of Participants

		Cohort 1993 9 years old (n=72)	Cohort 1989 13 years old (n=79)
<i>Original Population</i>	<i>Male</i>	64 (52.9%)	78 (53.1%)
	<i>Female</i>	57 (47.1%)	69 (46.9%)
<i>Child</i>			
Sex (%)	<i>Male</i>	59.7	51.9
Ethnic group (%)	<i>Caucasian</i>	97.2	98.7
	<i>Hispanic-American</i>	1.4	0.0
	<i>Gypsy</i>	1.4	1.3
		95.8	96.2
Born in Catalonia (%)		15.7	6.3
Child's language is Catalan (%)			
<i>Parents-caretakers</i>			
Socio-economic status ¹ (%)	<i>High/Medium-High</i>	1.4	7.8
	<i>Medium</i>	12.9	7.8
	<i>Medium-low/Low</i>	85.7	84.4
Biological Mother Level of education (%)	<i>None or less than primary</i>	12.9	27.3
	<i>Primary</i>	71.4	57.2
	<i>High-school</i>	8.6	13.0
	<i>University</i>	7.1	2.5
Biological Father Level of education (%)	<i>None or less than primary</i>	16.4	15.3
	<i>Primary</i>	65.6	66.7
	<i>High-school</i>	16.5	12.4
	<i>University</i>	1.5	5.6
Mean age of biological mother (SD)		37.20 (5.5)	40.20 (6.3)
Mean age of biological father (SD)		39.70 (5.6)	44.14 (6.7)
Both biological parents live at home (%)		85.7	87.9
Reconstructed family (%)		5.6	7.7
One parent family (%)		10.1	5.6
Mother unemployed (%)		43.5	39.5
Father unemployed (%)		12.1	13.7
Mother receives social help (%)		14.7	21.6
Father receives social help (%)		9.4	16.7
Mean number of biological brothers/sisters (SD)		2.04 (1.1)	2.31 (1.1)
<i>Clinical characteristics (DSM-IV Diagnoses) (%)</i>			
Disruptive behaviour disorders		27.8	24.1
Substances (Abuse dependence)		0	0
Depressive disorders		1.4	3.9
Anxiety disorders		36.1	27.8
Eating disorders		0	1.3
Elimination disorders		12.5	1.3
Tic disorders		2.8	2.5

¹ (Hollingshead, 1975)

The *Schedule for Risk Factors* (Unitat d'Epidemiologia i de Diagnòstic en Psicopatologia del Desenvolupament, 1997) is a computerized structured interview based on the Service Utilization and Risk Factors (Goodman *et al.*, 1998). The interview is a compendium of potential areas of risk of psychopathology for children 8 to 18 that includes a number of independent instruments previously developed. Its concurrent validity is acceptable (Ezpeleta *et al.*, 2000). Cluster analyses combining parent and child information permitted the identification of at risk children in the following clusters: family composition, children's psychological characteristics (self-esteem, and social skills), verbal comprehension, pre-peri-postnatal history, physical health, family characteristics (marital discord,

family mental health history, dyadic adjustment of spouses), life events, rearing style (discipline, monitoring, emotional expression) and contextual characteristics (problems at school, school achievement, deviant peers) (for a description see (Ezpeleta *et al.*, 2008)). These clusters were used as predictors in longitudinal models of use of services. The Perception of problems section ascertains whether parents, teachers, or children themselves have considered requiring professional attention. The Use of Services section elicits extensive information from parents and adolescents (older than 12 years) on the use of inpatient and out-patient mental health services. In both cases information was sought about reasons for consultation, location of services, professionals involved, referral

agent, type of services received, duration, treatment received, and barriers to service use. Barriers to service use were grouped into those referring to accessibility, acceptability and availability.

Unmet need was defined as the percentage of children who had at least one DSM-IV diagnosis and had not received professional help.

The Global Children's Assessment Scale (CGAS; Shaffer *et al.*, 1983; Ezpeleta *et al.*, 1999) evaluates the functional impairment resulting from psychopathology identified through the diagnostic interview. CGAS lower than 70 were considered to be of clinical significance.

Procedure

The study was approved by the ethics review committee of the Universitat Autònoma de Barcelona. Written consent for participating was obtained from parents and verbal assent from children. Trained interviewers conducted interviews with parents and their children separately and simultaneously at the Mental Health Center. All the previously described measures were recorded in each assessment. A verbal report of the evaluation was given to parents after each assessment. In the event of a child presenting a problem within the clinical range, the team provided advice about how to obtain professional help.

Statistical analysis

SPSS 15.0.1 for Windows was used. Prevalence of specific service use and unmet need, adjusted for the presence of comorbidities, were estimated for each age group. Logistic regression analyses, adjusted by comorbidity and gender, were used to measure the association between use of services and the presence of specific disorders. Chi-square trend tests were used to analyze linear and quadratic relationships with DSM-IV diagnoses. Longitudinal Generalized Estimating Equations (GEE, selecting a backward sequential method), were used to explore significant predictors (risk-cluster membership, presence of any disorder, impairment, perception of need of help, barriers to service use, and whether a mental health consultation was recommended in the previous assessment) of service use and unmet need during the follow-up period. Discriminative accuracy was measured using the area under the ROC curve (AUC).

RESULTS

Prevalence of use of services, barriers, and perception of need of help

Table II summarizes the information on service use, barriers, and perception of need for help. In preadolescents, parents described significantly more problems in boys than in girl. Acceptability barriers were the most frequent and were found significantly more common in 10 years-old boys than girls.

For adolescents, teachers perceived significantly more problems in boys than in girls at ages 13 and 14. The most frequent barrier was acceptability. At age 15, unmet need was significantly higher among girls than boys.

The only significant difference between preadolescents and adolescents was in medication: more preadolescents than adolescents were taking medication.

Odds ratio of using services in the presence of psychopathology

In preadolescents, a diagnosis of disruptive behavior disorder significantly increased the likelihood of using mental health services (Table III). This was mainly due to the effect of attention deficit/hyperactivity disorder (ADHD) on seeking help.

The probability of service use among adolescents was significantly higher in the presence of disruptive behavior disorders (largely due to the effect of ADHD and oppositional defiant disorder). Depressive and anxiety disorders (generalized anxiety) also increased the odds of seeking professional help.

The likelihood of service use for disruptive behavior disorders increased with age.

Relationship of number of disorders and use of services

The number of DSM diagnoses was positively and linearly associated with the prevalence of service use at ages 10 ($p = .012$), 11 ($p = .002$), 14 ($p = .001$), and 15 ($p = .036$). The number of symptoms followed a similar lineal pattern at ages 9 ($p = .007$), 10 ($p = .01$), 11 ($p = .001$) and 14 ($p = .001$).

Table II – Prevalence (%) of Use of Services, Barriers and Unmet Needs

	1993 cohort				1989 cohort				p value Preadolescent vs. Adolescent
	9 yrs (N=72)	10 yrs (N=70)	11 yrs (N=65)	¹ TOTAL (N=72)	13 yrs (N=79)	14 yrs (N=72)	15 yrs (N=61)	¹ TOTAL (N=79)	
Any diagnosis	63.3*	40.4	31.7	72.2*	48.1	41.4	30.3	60.8	.137
Treatment	21.3	12.3	20.5	33.3	17.7	6.29	6.60	22.8	.149
Use of psychotropic medication	5.31	11.3	18.1	18.1	3.88	4.06	0.00	6.32	.026
Use of services	20.4	23.9	28.9	38.9	11.4	11.3	15.2	25.3	.074
² Barriers to the use of services	–	22.0	36.6	43.1	–	16.5	23.2	29.1	.074
• Accessibility	–	10.1	11.0	19.4	–	6.28	8.73	13.9	.362
• Acceptability	–	17.0*	18.6	29.2	–	11.3	10.3	20.3	.203
• Availability	–	9.13	11.0	19.4	–	4.97	3.88	8.86	.060
Perception of need of help	21.3	12.3	20.5	–	17.7	6.29	6.60	–	–
• Someone perceives the need	34.7	31.7	39.0	51.4*	26.6	27.7	36.1	49.4	.804
• Parents	32.3	28.8	37.3	48.6*	24.0	23.5	34.6	46.3	.827
• Teachers	11.9	16.0	13.6	26.4	6.47*	10.0*	3.54	15.2*	.089
• Children themselves	8.56	7.45	7.67	13.9	2.53	4.21	4.80	7.59	.209
³ Unmet need	–	–	–	–	–	–	–	–	–
• Any disorder	73.3	65.5	55.0	53.8	84.2	76.7	66.7*	64.6	.275
• Disruptive behavioral dis.	62.0	35.7	15.0	27.2	90.5	62.1	41.9	61.6	.132
• Substances	–	–	–	–	–	90.7	62.0	58.1	–
• Depressive disorders	100.0	–	100.0	60.1	40.5	91.0	83.3	50.6	.078
• Anxiety disorders	73.7	77.4	61.5	46.0	84.2	82.5	91.7	65.9	.161
• Eating disorders	–	100.0	0.00	60.1	100.0	–	–	100	.137
• Elimination disorders	73.9	44.0	51.9	58.7	0.00	–	–	0	.168
• Tic disorders	29.0	100.0	48.6	38.1	100.0	85.9	0.00	67.5	.114

¹ Total of the three years.

² Barriers to the use of services was only valued during the second and third assessment.

³ Prevalences adjusted by the presence of other disorders.

* Significant sex differences (0.05 level).

Table III – OR of Use of Services by Psychopathology

	9 yrs (N=72)	10 yrs (N=70)	11 yrs (N=65)	13 yrs (N=79)	14 yrs (N=72)	15 yrs (N=61)
Any disorder	3.76 (.81; 17.5)	2.51 (.80; 7.84)	3.18* (1.02; 9.89)	2.35 (.54; 10.1)	17.1* (1.92; 153)	7.66* (1.60; 36.6)
Disruptive behavior dis.	4.30* (1.26; 14.7)	10.0* (2.59; 38.7)	22.0* (2.12; 228)	.83 (.15; 4.71)	17.7* (2.75; 114)	19.1* (2.61; 139)
Substances	–	–	–	–	1.02 (.07; 14.4)	4.17 (.35; 50.2)
Depressive disorders	–	–	–	14.4* (1.01; 206)	5.20 (.39; 69.7)	1.96 (.12; 32.7)
Anxiety disorders	1.85 (.54; 6.32)	1.11 (.28; 4.42)	1.55 (.37; 6.52)	2.12 (.49; 9.15)	14.9* (1.32; 168)	.791 (.07; 8.92)
Elimination disorders	1.36 (.21; 8.74)	3.52 (.29; 42.7)	2.56 (.17; 39.6)	–	–	–
Tics disorders	10.3 (.36; 291)	–	2.72 (.28; 26.8)	–	7.23 (.41; 128)	–
Subthreshold diagnosis ¹	–	2.38 (.36; 15.6)	1.92 (.38; 9.61)	–	2.37 (.21; 26.4)	–
ADHD ²	4.12* (1.18; 14.4)	14.6* (3.11; 68.6)	14.6* (1.33; 160)	.53 (.06; 4.88)	13.5* (1.69; 107)	2.94 (.27; 31.9)
Oppositional disorder	1.41 (.24; 8.31)	2.87 (.33; 25.3)	–	.42 (.05; 3.87)	28.2* (2.86; 279)	32.1* (2.24; 458)
Conduct disorder	–	–	–	–	13.1 (.51; 335)	–
Major Depression	–	–	–	5.37 (.28; 101)	5.20 (.38; 69.7)	1.96 (.12; 32.7)
Separation anxiety	2.51 (.50; 12.5)	2.43 (.27; 21.5)	1.75 (.09; 34.6)	–	–	–
Generalized anxiety	–	–	–	6.14* (1.03; 36.5)	6.66 (.37; 119)	–
Specific phobia	.340 (.07; 1.55)	.472 (.10; 2.28)	2.76 (.61; 12.4)	–	7.91 (.70; 88.8)	3.15 (.23; 42.5)
Social phobia	–	–	–	1.10 (.11; 10.7)	7.10 (.29; 174)	–
Obsessive-compulsive	3.50 (.20; 62.5)	2.51 (.80; 7.84)	–	–	–	–

OR in logistic regression models adjusted by sex and other disorders. *Significant OR (0.05 level). – Non estimable parameter. In brackets, 95% C.I.

¹ Children who do not meet diagnostic criteria but with functional impairment

² ADHD = Attention-deficit and hyperactivity disorder.

Predictors of use of services and unmet need

In both preadolescent and adolescents, GEE analyses showed that longitudinal service use was significantly

predicted by perceptions by any significant person that the child had problems (OR=5.8, 95% CI: 2.2 to 15 for preadolescents and OR=4.3, 95% CI: 1.7 to 11.1 for adolescents) and the presence of contextual problems

(OR=5.5, 95% CI: 2.2 to 14.1 for preadolescents and OR=8.1, 95% CI: 1.0 to 63.6 for adolescents). The final models showed good discriminative accuracy (AUC values above 0.75).

Predictors of unmet need were also examined using GEE analyses among children with psychopathology. For preadolescents, longitudinal unmet need was significantly predicted by perceptions of not needing help (OR=1.9, 95% CI: 1.0 to 3.6), not presenting contextual problems (OR=3.4, 95% CI: 1.3 to 3.6), and having lower impairment at first assessment (OR=1.05, 95% CI: 1.01 to 1.1). For adolescents, female sex (OR=2.1, 95% CI: 1.04 to 4.3) and lower impairment (OR=1.07, 95% CI: 1.04 to 1.1) predicted higher odds of unmet need. AUCs were around 0.70 for both models.

DISCUSSION

Pattern of use

Spain has a health system financed by taxes that covers all residents. Considering that prevalence of disorders in this high-risk population of children was three times higher than the median found in the general population (Ezpeleta *et al.*, 2007), use of services was low and prevalence of unmet need was high for all the disorders. Linear trend analyses showed that service use was associated with diagnosis and its severity: service use increased with the number of diagnoses and symptoms.

Girls showed unmet need more often than boys. This result is consistent with findings elsewhere that girls with mental health problems are under-treated. Overall, the needs of adolescents were also highly unfulfilled and should therefore be, along with girls, the target of policies to improve access to services.

Parents and teachers perceived significantly more problems in boys than in girls. Further, disruptive disorders were associated with higher rates of service use. This can be explained, because the observable nature of disruptive behavior disorder symptoms, make parents and teachers aware of the problem more easily and because of parent and teacher biases towards detection of problems in boys (Hartung *et al.*, 2002). Acceptability barriers were also important. Issues that get in the way of using services, such as distrust and previous negative experiences with professionals, embarrassment about discussing psychological or behavioral problems, and stigma need to be modified through public education.

Looking at the longitudinal data, prevalence rates among pre-adolescents are halved over the course of three

years (dropping from 63% to 32%) and among adolescents prevalence rates also decreased substantially (from 48% down to 30%). The rate of service use for pre-adolescents does not show a parallel change (increasing from 20% to 29%), nor does use for adolescents increase in the same proportion (from 11% to 15%). Only 33% of the recovered pre-adolescents and 12% of the adolescents at the third follow-up had received treatment. Discrepancy between use and recovery might bring into question the effectiveness of treatments. However, looking at the disorders that remitted without treatment, we found specific phobia (40%), enuresis and encopresis (14%), tic disorder (6%) and separation anxiety (9%). That is, an important part of the disorders that recovered without treatment were disorders having a high developmental influence. Of the remaining 30% of "spontaneous remittances" 14% correspond to subthreshold diagnosis, i.e. cases that do not meet diagnostic criteria but which nevertheless have functional impairment, and thus require services.

Predictors of use

Disruptive disorders, although associated with higher use of services, were more often not treated in adolescents than in preadolescents. The higher proportion of preadolescents than adolescents on psychotropic medication can be due to disruptive behavior disorders not being as often treated in the latter group. Older children and girls are less likely to be prescribed stimulant medication for these disorders (Angold *et al.*, 2000). So, detection and care of disruptive disorders in adolescents should be another target for mental health policies in disadvantaged populations.

Available studies usually examine a single or a few variables to predict service use. The models in this study went further in that they were quite extensive in the number of variables brought together as predictors. However, few were shown to have predictive value. Unmet need in this at-risk population is associated with perceptions of no problems in the child, which highlights the need of public education.

Implications for prevention and engagement

Service use in this high risk population was low and unmet need was considerable. This suggests that more needs to be done to promote the services and educate parents and teachers. Special programs are needed to facilitate adolescents' use of services. These may incorporate:

- a) credible facilitators;
- b) cultural matching;
- c) an appropriate setting (which might not necessarily be the health centre or the mental health centre), and
- d) adolescent-friendly services. For preadolescents, looking for unmet need relating to internalizing and early eating disorders would be the priority, while for adolescents, because of the overall low use, monitoring should be wider.

Further, educating adults in contacts with children and adolescents (e.g., parents and teachers) in what is normal and what is abnormal behavior, emotions and functioning according to age, would help them to identify problems and thus decrease this important barrier to service use. Teachers' education should also address gender biases. Finally, public education needs to be used to eliminate acceptability barriers and stigma.

Strengths and limitations of the study

This study controlled for the presence of psychopathology as it has been shown that many correlates of service use are also risk factors for disorders (Sayal, 2006). It extends previous work by reporting time-trends in service use and unmet need in a disadvantaged population including multiple domains reported longitudinally by multiple informants. Data based on general population studies of service use are not adequate to describe the mental health needs of children living in "high-risk" environments, since the concentration of adverse living circumstances creates specific risks and needs.

The following limitations must be considered in interpreting these data. Results for this population may not necessarily generalize to other high-risk groups or to other countries. Refusal rate was within the ranges reported in similar studies (Ayuso *et al.*, 2001) but non-participants were more often from minority cultures, performed worse at school, and were more likely to have unemployed parents than those who participated (Granero *et al.*, 2007). This may have resulted in an underestimation of problems and need. The small number of cases resulted in low statistical power, which could explain the absence of relationships between service use and some disorders. For ethical reasons, after the assessment, the families received a verbal report of the results and, when indicated, consultation to mental health services was recommended. This fact may have resulted in an overestimation of the prevalence of service use in the second and third years of the study.

Acknowledgements. This study was supported by grants BS022002-3850 and SEJ2005-01786 of the Ministry of Science and Technology, Spain. We wish to thank the City Council and Educational and Health Centers of Badia del Vallés for their support.

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Received 27.07.2008

Revised version received 30.09.2008

Accepted on 01.10.2008

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