

# Social Inequalities in Mental Health and Health-Related Quality of Life in Children in Spain



**WHAT'S KNOWN ON THIS SUBJECT:** The importance of and interest in childhood mental problems have increased worldwide. There are few population studies on child and adolescent mental health and health-related quality of life (HRQoL).



**WHAT THIS STUDY ADDS:** A social gradient was found in childhood mental health according to maternal education level and social class, but none was found in HRQoL, although children from disadvantaged social classes had somewhat lower HRQoL scores than their more advantaged counterparts.

## abstract

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**OBJECTIVES:** To assess mental health and health-related quality of life (HRQoL) of children and adolescents in Spain and to investigate the existence of a social gradient in mental health and HRQoL.

**METHODS:** Within the Spanish National Health Survey (2006), the parents' version of the Strengths and Difficulties Questionnaire was administered to a population aged 4 to 15 years, and the parents' version of the modified KIDSCREEN-10 Index was given to a population aged 8 to 15 years. Sociodemographic data and information on family structure, socioeconomic status, health status, and discrimination were collected. Regression models were developed to analyze associations of socioeconomic status with mental health and HRQoL.

**RESULTS:** A total of 6414 children and adolescents aged 4 to 15 years participated. Mean Strengths and Difficulties Questionnaire score was 9.38 (SD, 5.84) and mean KIDSCREEN-10 Index score ( $n = 4446$ ) was 85.21 (SD, 10.73). Children whose mothers had a primary school education (odds ratio [OR]: 1.37; 95% confidence interval [CI]: 1.29–1.46) or a secondary education (OR: 1.21; 95% CI: 1.14–1.29) presented poorer mental health than those whose mothers had a university degree. Children from disadvantaged social classes (IV–V) showed slightly poorer HRQoL scores (OR: 0.98; CI: 0.97–0.99) than the remaining children.

**CONCLUSIONS:** There is a social gradient in the mental health of children and young adolescents in Spain. No social gradient was found for HRQoL, although children from families of disadvantaged social classes had slightly worse HRQoL scores than their counterparts from more advantaged classes. *Pediatrics* 2012;130:e528–e535

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### KEY WORDS

adolescent, children, health disparities, mental health, quality of life, Spain

### ABBREVIATIONS

CI—confidence interval  
ENSE—Encuesta Nacional de Salud de España (Spanish National Health Interview Survey)  
HRQoL—health-related quality of life  
KS—KIDSCREEN  
OR—odds ratio  
SDQ—Strengths and Difficulties Questionnaire  
SES—socioeconomic status  
TDS—Total Difficulties Score

[www.pediatrics.org/cgi/doi/10.1542/peds.2011-3594](http://www.pediatrics.org/cgi/doi/10.1542/peds.2011-3594)

doi:10.1542/peds.2011-3594

Accepted for publication Apr 24, 2012

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** No external funding.

Mental health problems are prevalent in childhood and adolescence and represent a considerable burden of disease. They are an important health issue that affects young people's relationships with family, in school, and with society in general and are associated with intensive use of health and social services. Mental health disorders affect 10% to 20% of the child and adolescent population.<sup>1,2</sup> Moreover, more than half of the mental health problems in the general population arise in childhood, and there is a continuity between these conditions and those present in adult life.<sup>3–5</sup>

Considerable effort has been made to standardize assessment of mental health in the general population of children and adolescents.<sup>6–10</sup> The factors associated with pediatric mental health problems include gender, age, psychiatric disease in the child's parents, immigrant status, single-parent family, family difficulties, and lower family socioeconomic status (SES), among others.<sup>11–13</sup> Most population studies on child and adolescent mental health have reported poorer mental health in children with a low family education level or social class.<sup>11,13–16</sup>

Health-related quality of life (HRQoL) is an important health outcome measure that is being used increasingly in the infantile and juvenile age groups. Its interest lies in the capacity to reflect the multidimensionality of health in both general populations and disease-specific populations.<sup>17,18</sup> Use of HRQoL as an outcome measure of health status can be useful in daily clinical practice, in effectiveness studies, and as an indicator of the quality of care received.<sup>19,20</sup> Furthermore, identification of individuals with poorer HRQoL enables early detection of health needs. In the pediatric age, at a time when chronic disease is less prevalent than later in life, systematic use of this measure in community-based studies can enable recognition of neglected groups who may be

disadvantaged from the perspective of health and social care.<sup>21–25</sup> Children from disadvantaged social groups generally achieve poorer scores regarding both mental health and HRQoL.

Social inequalities in child health refer to the health differences between populations of children defined according to their social condition, economic status, demography, or geography. Health inequalities are determined socially and are unfair and modifiable differences. Recent interest in this line has focused on the concept of a social gradient in health; that is, the greater the social disadvantage, the poorer is health. Social gradients in child health have been described for a number of diseases.<sup>26</sup>

In 2006, the Spanish National Health Interview Survey (ENSE, Encuesta Nacional de Salud de España) incorporated sections on mental health and HRQoL in the Children's Questionnaire. The objectives of this study are to determine the status of mental health and HRQoL in the Spanish infantile-juvenile population, to analyze the associated socioeconomic and psychosocial factors, and to specifically investigate the existence of a social gradient in mental health and HRQoL in this population.

## METHODS

### Sample Selection and Data Sources

The study information was obtained from the 2006 ENSE Children's Questionnaire (0–15 years) and the Household Questionnaire. The ENSE is a nationally representative health interview survey conducted every 4 years on behalf of the Spanish Ministry of Health, Social Policy, and Equality. The fieldwork was performed by the National Statistics Institute (Instituto Nacional de Estadística) between June 2006 and June 2007. Multistage stratified sampling was conducted, with the first-stage units being census tracts and the second units being the main family households. Within each household with children or

adolescents (aged 0–15 years), 1 was randomly selected for the Children's Questionnaire. The sample is independent and representative of each autonomous community (an organizational division of the Spanish territory) and is not proportional; hence, the results were weighted to obtain national indicators.

The information was collected by personal interview. The ideal respondent for the Children's Questionnaire was the person best informed about matters related to the child's health and health care, usually the child's mother or father.

The sample size for the total ENSE was estimated at 31 300 households, distributed in 2236 census tracts. The response obtained was 96% of the theoretical sample (including 31% of substitutions) and was >90% in all the autonomous communities. The methods used by ENSE and the database can be accessed through the Web site of the Ministry of Health, Social Policy, and Equality.<sup>27</sup> The current study includes a sample of children and adolescents aged 4 to 15 years in the mental health study and a population aged 8 to 15 years in the HRQoL study.

### Study Variables

The dependent variables were mental health and HRQoL of the pediatric population. Mental health was assessed by using the parents' version of the Strengths and Difficulties Questionnaire (SDQ).<sup>28</sup> The SDQ is a 25-item questionnaire that detects probable cases of mental disorder and behavioral disorder in children and adolescents aged 4 to 16 years. It includes 5 scales, containing 5 items: 4 scales measure negative aspects of mental health (emotional symptoms, behavioral problems, hyperactivity, and peer problems), and the single prosocial conduct scale records positive behavior. Each item has 3 possible responses (not true, somewhat

true, or certainly true), and scoring is from 0 to 10. The sum of the scores on the 4 scales related to negative aspects yields the Total Difficulties Score (TDS-SDQ), with a range of 0 to 40. The higher the TDS-SDQ score, the poorer the child's mental health is.<sup>29</sup>

Evaluation of HRQoL used the shortest parent-reported version of the KIDSCREEN (KS) instrument, the KS-10 Index. KS is a generic HRQoL questionnaire that has been transculturally developed in 13 European countries for the population of children and adolescents aged 8 to 18 years. The instrument includes 3 versions: KS-52 (52 items and 10 dimensions), KS-27 (27 items and 5 dimensions), and the KS-10 Index, which contains 10 items that score as an index.<sup>30</sup> The validity and reliability of KS have been proven in the European population.<sup>31–33</sup> The questions on the KS-10 Index present a recall period of 1 week and a 5-point Likert response scale. In the current study, the version of the KS-10 Index from the European Eurobarometer study<sup>34</sup> was computed to facilitate comparison with that study and with future versions of ENSE. One of the KS-10 items has been replaced by a general health question, while maintaining the psychometric properties of the original version as much as possible. The modified KS-10 Index scores were transformed to a scale of 0 to 100: the higher the score, the better the HRQoL.

The independent variables analyzed included age (3 categories: 4–7, 8–11, and 12–15 years), gender, place of residence (17 autonomous communities and 2 autonomous cities analyzed jointly), place of birth (Spain or outside Spain), and family SES with regard to social class and maternal educational level. Social class was categorized according to the occupation of the home's main wage earner based on the classification proposed by the Spanish Society of Epidemiology.<sup>35</sup> Social Class I includes managerial and senior technical staff

and liberal professionals; class II includes intermediate occupations and managers in commerce; class III includes skilled nonmanual workers; class IV includes skilled (IVa) and partly skilled (IVb) manual workers; and class V includes unskilled manual workers. For the study analysis, social classes were grouped into 3 categories: I + II (advantaged), III (middle), and IVa + IVb + V (disadvantaged). The educational level referred to the highest level of schooling completed by the mother, categorized into 3 groups: primary school or less, secondary school, and university degree. The family structure was included in the analysis (single-parent family, 2-parent family, or other), as well as the number of family members: 2 to 3, 4 to 5, or >5 members. The variables related to health and the use of health services included activity limitations (yes/no) in the 6 months preceding the interview, declaration of any chronic condition (yes/no) by using a list of relatively common chronic diseases occurring in the pediatric population, and hospitalizations (yes/no) in the previous year. Lastly, a single question on perceived discrimination was included, asking whether the child had experienced discrimination owing to his or her gender, ethnic group, country of origin, social class, or religion.

### Statistical Analysis

Mean scores on the TDS-SDQ and modified KS-10 Index were calculated for the overall sample and for each category of the independent variables and were compared by using the *t* test or analysis of variance, depending on the nature of the variable. To facilitate interpretation of the scores, effect sizes between groups divided according to education level and social class were calculated for the TDS-SDQ and the KS-10. Effect sizes of 0.2–0.5, 0.51–0.8, and >0.8 were considered small, medium, and large, respectively.<sup>36</sup> To analyze the influence of context variables on mental

health and HRQoL, we had contemplated the use of multilevel analysis, considering the autonomous community of residence as level 2; however, after building the respective empty models, the intraclass coefficient was found to be <3%, and the multilevel approach was rejected. Poisson regression models were used to analyze associations of maternal education level and social class with mental health and HRQoL in the overall sample, because it was the method that best fitted the outcome variables. The final models were adjusted by progressively including variables that were statistically significant in the bivariate analysis while following the proposed conceptual model. That is, the basic (crude) models were initially calculated, and subsequently, the socio-demographic, family, and discrimination variables were included. Health status variables were excluded in the adjusted models for HRQoL. Statistical significance was set at 0.05.

To achieve sample representativeness to national and regional levels in the results, weights were used for each individual. Statistical analyses were performed with SPSS version 18 for Windows (SPSS Inc, Chicago, IL) and the Stata module to estimate variance of complex-sample survey data (version 11; Stata Corp, College Station, TX).

### RESULTS

A total of 6414 children and young adolescents aged 4 to 15 years were included in the mental health analysis (93.8% of the sample), and 4446 aged 8 to 15 years were included in the HRQoL study (94.8% of the sample). The characteristics of the sample are shown in Table 1. The sample was mainly composed of young people born in Spain (90.3%), living in 2-parent families (89.9%), in social class IV to V (51.6%), and with a secondary school maternal educational level (45.4%). Mean score was 9.38 (SD, 5.84; interquartile range:

**TABLE 1** Sample Characteristics on Mental Health (TDS-SDQ) and HRQoL Samples (Modified KS-10 Index)

	Mental Health Sample (TDS-SDQ)		HRQoL Sample (Modified KS-10 Index)	
	<i>n</i>	%	<i>n</i>	%
Age, y				
4–7	2147	31.4	—	—
8–11	2318	33.8	2318	49.4
12–15	2373	34.7	2373	50.6
Gender				
Boys	3509	51.3	2430	51.8
Girls	3329	48.6	2261	48.2
Place of birth				
Spain	6176	90.3	4248	90.6
Outside Spain	633	9.2	423	9.0
Missing	29	0.4	20	0.4
Social class				
I–II	1591	23.2	1048	22.3
III	1612	23.5	1138	24.3
IV–V	3550	51.6	2429	51.8
Missing	105	1.5	76	1.6
Maternal level of education				
Primary school	2124	31.2	1554	33.1
Secondary school	3109	45.4	2107	44.9
University degree	1416	20.7	890	19.0
Missing	190	2.7	140	3.0
Type of family				
Two-parent	6149	89.9	4207	89.7
Single-parent	648	9.4	457	9.7
Missing	42	0.6	28	0.6
No. of family members				
2 or 3	1240	18.1	803	17.1
4 or 5	4979	72.8	3439	73.3
>5	620	9.1	450	9.6
Limitation of activities				
No	6233	91.1	4257	90.7
Yes	605	8.9	434	9.3
Chronic condition				
No	4667	68.2	3124	66.6
Yes	2086	30.5	1515	32.3
Missing	85	1.3	52	1.1
Perceived discrimination				
No	6446	94.2	4385	93.5
Yes	327	4.8	261	5.6
Missing	65	0.9	45	1.0
Hospitalization				
No	6566	96.1	4501	96.0
Yes	273	3.9	189	4.0
Total	6838	100	4691	100

Source: Spanish National Health Interview Survey (2006).<sup>27</sup>

5.0–13.0) on the TDS-SDQ and 85.21 (SD, 10.73; interquartile range: 80.0–92.5) on the modified KS-10 Index. Several statistically significant differences were found for mental health and HRQoL in the bivariate analysis (Table 2).

**TABLE 2** Mean Scores on Mental Health (TDS-SDQ) and HRQoL (Modified KS-10 Index)

	TDS-SDQ			Modified KS-10 Index		
	<i>n</i>	Mean (SD)	<i>P</i>	<i>n</i>	Mean (SD)	<i>P</i>
Age, y						
4–7	2003	9.89 (5.63) <sup>a</sup>	<.005	—	—	—
8–11	2186	9.52 (5.87) <sup>a</sup>		2190	86.08 (9.91)	<.005
12–15	2224	8.80 (5.94) <sup>b</sup>		2257	84.36 (11.42)	
Gender						
Boys	3274	9.66 (5.85)	<.005	2309	84.87 (10.66)	.026
Girls	3139	9.10 (5.81)		2137	85.58 (10.80)	
Place of birth						
Spain	5829	9.24 (5.75)	<.005	4044	85.54 (10.55)	<.005
Outside Spain	571	10.86 (6.47)		396	81.79 (12.02)	
Social class						
I–II	1500	7.69 (5.30) <sup>b</sup>	<.005	996	85.89 (10.17) <sup>a</sup>	<.005
III	1525	8.84 (5.67) <sup>b</sup>		1079	85.84 (10.65) <sup>a</sup>	
IV–V	3322	10.41 (5.95) <sup>b</sup>		2323	84.59 (11.02) <sup>b</sup>	
Maternal level of education						
Primary school	1990	10.53 (5.95) <sup>b</sup>	<.005	1490	85.10 (10.94)	.671
Secondary school	2947	9.36 (5.74) <sup>b</sup>		1999	85.34 (10.71)	
University degree	1324	7.59 (5.28) <sup>b</sup>		840	85.49 (10.43)	
Type of family						
Two-parent	5767	9.19 (5.71)	<.005	3994	85.44 (10.65)	<.005
Single-parent	605	11.19 (6.53)		424	83.48 (11.10)	
No. of family members						
2 or 3	1161	9.72 (5.93) <sup>a</sup>	<.005	762	84.98 (10.60)	<.005
4 or 5	4666	9.18 (5.74) <sup>b</sup>		3261	85.46 (10.54) <sup>a</sup>	
>5	586	10.3 (6.27) <sup>a</sup>		423	83.70 (12.23) <sup>a</sup>	
Limitation of activities						
No	5869	9.21 (5.69)	<.005	4054	85.75 (10.38)	<.005
Yes	545	11.28 (6.95)		393	79.67 (12.58)	
Chronic condition						
No	4395	8.74 (5.34)	<.005	2979	85.98 (10.42)	<.005
Yes	1983	10.79 (6.58)		1440	83.71 (11.20)	
Perceived discrimination						
No	6109	9.09 (5.61)	<.005	4206	85.56 (10.46)	<.005
Yes	295	15.24 (7.13)		233	79.20 (13.41)	
Hospitalization						
No	6164	9.31 (5.83)	<.005	4276	85.36 (10.62)	<.005
Yes	250	11.30 (5.74)		170	81.38 (12.76)	
Total	6414	9.38 (5.84)		4446	85.21 (10.73)	

Source: Spanish National Health Interview Survey (2006).<sup>27</sup><sup>a</sup> Statistically significant differences between 2 categories in multiple comparisons.<sup>b</sup> Statistically significant differences among >2 categories in multiple comparisons.

Effect sizes for mental health and HRQoL according to the family level of education and social class are shown in Table 3. The largest effect size for TDS-SDQ scores was observed between children from families with a primary level of education and those from families with a university degree (0.52).

The multivariate analysis of mental health and HRQoL is shown in Table 4. There was a statistically significant social gradient for mental health in both maternal level of education and social class. Higher scores (poorer mental

health) were seen in children from more disadvantaged families: children of mothers with a primary school education (odds ratio [OR]: 1.37; 95% confidence interval [CI]: 1.29–1.46) and those of mothers with a secondary school education (OR: 1.21; 95% CI: 1.14–1.29) had worse mental health status than those whose mothers had university degrees. Similar results were seen for social class: children from social class III (middle; OR: 1.15; 95% CI: 1.08–1.22) and those from the more disadvantaged classes (IV–V; OR: 1.31; 95% CI: 1.24–1.38)

**TABLE 3** Standardized Mean Differences (Effect Size) for Mental Health (TDS-SDQ) and HRQoL (Modified KS-10 Index) According to Social Class and Maternal Level of Education

	TDS-SDQ, Effect Size (95% CI)	Interpretation <sup>a</sup>	Modified KS-10 Index, Effect Size (95% CI)	Interpretation <sup>a</sup>
<b>Social class</b>				
IV–V versus III	0.27 (0.21 to 0.33)	Moderate-low	0.12 (0.04 to 0.19)	No effect
IV–V versus I–II	0.47 (0.41 to 0.53)	Moderate-low	0.12 (0.05 to 0.20)	No effect
III versus I–II	0.21 (0.14 to 0.28)	Moderate-low	0.01 (–0.08 to 0.09)	No effect
<b>Maternal level of education</b>				
Primary school versus secondary school	0.2 (0.14 to 0.26)	Moderate-low	0.02 (–0.05 to 0.09)	No effect
Primary school versus university degree	0.52 (0.45 to 0.59)	Moderate-high	0.04 (–0.05 to 0.12)	No effect
Secondary school versus university degree	0.32 (0.25 to 0.38)	Moderate-low	0.01 (–0.07 to 0.09)	No effect

Source: Spanish National Health Interview Survey (2006).<sup>27</sup>

<sup>a</sup> According to Cohen's criteria<sup>36</sup>: 0.20 (small); 0.50 (medium); 0.80 (large).

**TABLE 4** Poisson Regression Models for Mental Health (TDS-SDQ; *n* = 6289) and HRQoL (Modified KS-10 Index; *n* = 4448)

	TDS-SDQ				Modified KS-10 Index			
	Basic (Crude) Model		Adjusted Model <sup>a</sup>		Basic (Crude) Model		Adjusted Model <sup>a</sup>	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Maternal education level</b>								
University degree	1		1		1		1	
Secondary school	1.23	1.15–1.31	1.21	1.14–1.29	0.99	0.98–1.01	1.00	0.98–1.01
Primary school	1.38	1.30–1.48	1.37	1.29–1.46	0.99	0.98–1.01	0.99	0.97–1.01
<b>Social class</b>								
I + II	1		1		1		1	
III	1.14	1.07–1.22	1.15	1.08–1.22	1.00	0.98–1.01	0.99	0.98–1.01
IV–V	1.35	1.27–1.42	1.31	1.24–1.38	0.98	0.97–0.99	0.98	0.97–0.99

Source: Spanish National Health Interview Survey (2006).<sup>27</sup>

<sup>a</sup> Adjusted model: adjusted by age, gender, place of residence, place of birth, type of family, no. of family members, perceived discrimination, and health status (health status variables were not included in the HRQoL models).

had worse mental health status than those from advantaged social classes. This social gradient persisted after adjusting for several variables related to sociodemographics, family, health, and discrimination. Maternal primary education (OR: 0.99; 95% CI: 0.97–1.01), and secondary education (OR: 1.00; 95% CI: 0.98–1.01) showed nonsignificant association with HRQoL. Nevertheless, children from families in social class IV to V presented slightly poorer HRQoL scores than their counterparts in social class I to II (OR: 0.98; 95% CI: 0.97–0.99).

## DISCUSSION

In this study, a social gradient was found for childhood mental health according to the maternal education level and family social class. Children born to disadvantaged families presented poorer mental health. This social gradient was not

found for HRQoL; however, children from families of social classes IV to V showed slightly poorer HRQoL scores than their counterparts from more advantaged classes. The minimal differences in HRQoL according to social class, although statistically significant, do not seem to be relevant from the clinical and epidemiologic viewpoints.

The mental health results found in this study are in keeping with those of previous European and international studies.<sup>1,12,14,16</sup> The youngest children and those from single-parent, immigrant, and disadvantaged families had worse mental health scores. Similar findings were obtained in the recent Catalan Health Survey,<sup>37</sup> which also showed a clear social gradient as determined by family social class and mother's educational level. The adult population in families with a low level of education or

disadvantaged social class presents higher morbidity rates and chronic physical and mental conditions.<sup>38</sup> These circumstances could limit their economic resources and the available time for parenting activities and caring for their children.<sup>39</sup> The lower income might also limit the children's access to educational and social activities.

Effect sizes found for the association of maternal level of education and social class and mental health were low to moderate, although they represent at least the minimal important difference according to international consensus.<sup>36</sup> Moreover, policy makers and clinicians should be aware of the magnitude of social inequalities in mental health. The mental health of >1 million Spanish children aged 4 to 15 years would improve by a medium to large difference on the TDS-SDQ (effect size, 0.52) if they achieved the same mental health status as children from families in the highest educational category.

With respect to HRQoL, the results of this study concur in great part with those reported by other authors<sup>21,34,40–43</sup>; however, we found minimal differences in HRQoL according to social class and no differences according to maternal education level. The absence of differences according to maternal level of education found in the current study may be partly explained by differences in the study methods and instruments used. For example, the European Health Behavior in School-aged Children 2005/2006 Survey

included different age ranges and used the self-administered version of the KS-10 Index and the Family Affluence Scale to indicate family SES.<sup>41</sup> In the German BELLA Study,<sup>42</sup> conducted between 2003 and 2006, the age investigated (7–17 years), the HRQoL instrument used (self-administered German Questionnaire for Measuring Health-Related Quality of Life in Children and Adolescents, the KIND-R questionnaire), and the indicator of family SES (Winkler Index) all differed from those used in the current study. Similarly, von Rueden et al<sup>43</sup> investigated HRQoL in 7 European countries in a sample with a greater representation of adolescents, using the full self-administered version of the KS (KS-52) and the Family Affluence Scale, in addition to educational level. All these studies reported a socioeconomic gradient in the HRQoL of children and adolescents. The differences relative to the current study may have also originated in part from our use of parent proxy-reporting for the child's HRQoL. It is known that agreement between parents and children is lower when subjective aspects, such as well-being, are being assessed than when more observable aspects are analyzed, such as behavior. The childhood living conditions could be another factor related to the absence of social gradients in HRQoL documented in the current study, and, to some extent, the characteristics of the Spanish health care system. Health care in Spain is financed by taxes and provides universal coverage to the population. Although several social inequalities persist, as is also the case in Northern European countries, health care accessibility would be less unequal than in countries such as the United States, for example, where 13% of uninsured children with serious mental

health problems are more prone to present unmet needs and poorer health outcomes than their insured counterparts.<sup>15,16</sup>

One of the main limitations of this study, as was mentioned, is that the information was obtained from the child's main caregiver, which could imply reporter bias. Nonetheless, in surveys on health in children, it is a universally accepted practice to collect information from the main caregiver, usually the child's mother. Another limitation derives from the cross-sectional design of the ENSE, which does not allow directionality to be determined in the associations found. The regression models showed acceptable fit, although there were only marginal differences between the basic (crude) models and the adjusted models. This fact could be related to the independent effect of social determinants on child mental health. Confounding and interaction effects were ruled out. The inclusion of other variables that were absent in this study, such as parental psychiatric morbidity, may improve these models and should be considered in future studies. Finally, although differences were found in mental health and HRQoL according to gender in the current study, these differences seemed to have no influence on SES inequalities. One of the strengths of the study resides in the use of reproducible and comparable instruments and survey methods. Mental health and HRQoL were assessed with the parents' version of the SDQ and KS-10, respectively. Both instruments are well recognized and widely used internationally, so the study can contribute to international research by enabling comparisons with results from other countries.

Future studies should address the mechanisms producing these social inequalities in health. The addition of sections on mental health and HRQoL in the ENSE Children's Questionnaire provides a valuable resource for comprehensive monitoring of health in the target age group. Detection of poor scores could alert to a loss of health (physical, mental, and social) and enable implementation of measures to avoid health problems later in life. It will also facilitate evaluation of the policies needed for an effective approach to the social gradient in mental health, by early interventions on the social environment closest to the child.

## CONCLUSIONS

This study is the first nationwide one developed in Spain investigating mental health and HRQoL in children and young adolescents. The risk factors and social gradient related to mental health coincide with the data obtained from other Western countries: poorer mental health scores are seen in young people belonging to underprivileged families. No social gradient was found for HRQoL, although children from families in disadvantaged social classes had slightly poorer HRQoL scores than their counterparts from more advantaged classes.

## ACKNOWLEDGMENTS

The authors thank Belén Sanz, PhD, Research Fellow at the National School of Health, Instituto de Salud Carlos III, and Mónica Suárez, from the Ministry of Health, Social Policy and Equality, for their invaluable help in developing the database.

## REFERENCES

- Meltzer H, Gatward R, Goodman R, Ford T. *The Mental Health of Children and Adolescents in Great Britain*. London, United Kingdom: Social Survey Division of the Office for National Statistics on behalf of the Department of Health, the Scottish Health Executive and the National Assembly for Wales; 1999
- Friedman RM, Katz-Leavy JW, Manderscheid RW, Sondheimer DL. Prevalence of serious emotional disturbance in children and adolescents. In: Manderscheid RW, Sonnenschein

- MA, eds. *Mental Health, United States*. Rockville, MD: US Dept Health Human Services; 1996:71–89
3. McLaughlin KA, Breslau J, Green JG, et al. Childhood socio-economic status and the onset, persistence, and severity of DSM-IV mental disorders in a US national sample. *Soc Sci Med*. 2011;73(7):1088–1096
  4. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication [published correction appears in *Arch Gen Psychiatry*. 2005;62(7):768]. *Arch Gen Psychiatry*. 2005;62(6):593–602
  5. Reef J, Diamantopoulou S, van Meurs I, Verhulst FC, van der Ende J. Developmental trajectories of child to adolescent externalizing behavior and adult DSM-IV disorder: results of a 24-year longitudinal study. *Soc Psychiatry Psychiatr Epidemiol*. 2011;46(12):1233–1241
  6. Goodman SH, Hoven CW, Narrow WE, et al. Measurement of risk for mental disorders and competence in a psychiatric community survey: the National Institute of Mental Health Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) study. *Soc Psychiatry Psychiatr Epidemiol*. 1998;33(4):162–173
  7. Bourdon KH, Goodman R, Rae DS, Simpson G, Koretz DS. The Strengths and Difficulties Questionnaire: U.S. normative data and psychometric properties. *J Am Acad Child Adolesc Psychiatry*. 2005;44(6):557–564
  8. Rothenberger A, Woerner W. Strengths and Difficulties Questionnaire (SDQ)—evaluations and applications. *Eur Child Adolesc Psychiatry*. 2004;13(suppl 2):II1–II2
  9. Mata Zubillaga D, Torres Hinojal C, Carro Serrano A, Ortega García E, Suárez Rodríguez A. Uso del Cuestionario de Capacidades y Dificultades (SDQ) como instrumento de cribado de trastornos psiquiátricos en la consulta de pediatría de Atención Primaria. *Bol Pediatr*. 2009;49(209):259–262
  10. Rothenberger A, Becker A, Erhart M, Wille N, Ravens-Sieberer U; BELLA study group. Psychometric properties of the parent strengths and difficulties questionnaire in the general population of German children and adolescents: results of the BELLA study. *Eur Child Adolesc Psychiatry*. 2008;17(suppl 1):99–105
  11. Ravens-Sieberer U, Erhart M, Gosch A, Wille N; European KIDSCREEN Group. Mental health of children and adolescents in 12 European countries—results from the European KIDSCREEN study. *Clin Psychol Psychother*. 2008;15(3):154–163
  12. Hölling H, Kurth BM, Rothenberger A, Becker A, Schlack R. Assessing psychopathological problems of children and adolescents from 3 to 17 years in a nationwide representative sample: results of the German health interview and examination survey for children and adolescents (KiGGS). *Eur Child Adolesc Psychiatry*. 2008;17(suppl 1):34–41
  13. Wille N, Bettge S, Ravens-Sieberer U; BELLA study group. Risk and protective factors for children's and adolescents' mental health: results of the BELLA study. *Eur Child Adolesc Psychiatry*. 2008;17(suppl 1):133–147
  14. Lipman EL, Offord DR, Boyle MH. Relation between economic disadvantage and psychosocial morbidity in children. *CMAJ*. 1994;151(4):431–437
  15. Kataoka SH, Zhang L, Wells KB. Unmet need for mental health care among U.S. children: variation by ethnicity and insurance status. *Am J Psychiatry*. 2002;159(9):1548–1555
  16. Mark TL, Buck JA. Characteristics of U.S. youths with serious emotional disturbance: data from the National Health Interview Survey. *Psychiatr Serv*. 2006;57(11):1573–1578
  17. Solans M, Pane S, Estrada MD, et al. Health-related quality of life measurement in children and adolescents: a systematic review of generic and disease-specific instruments. *Value Health*. 2008;11(4):742–764
  18. Aymerich M, Berra S, Guillamón I, et al. Desarrollo de la versión en español del KIDSCREEN, un cuestionario de calidad de vida para la población infantil y adolescente [in Spanish]. *Gac Sanit*. 2005;19(2):93–102
  19. Raat H, Mohangoo AD, Grootenhuys MA. Pediatric health-related quality of life questionnaires in clinical trials. *Curr Opin Allergy Clin Immunol*. 2006;6(3):180–185
  20. Janssens L, Gorter JW, Ketelaar M, Kramer WL, Holtslag HR. Health-related quality-of-life measures for long-term follow-up in children after major trauma. *Qual Life Res*. 2008;17(5):701–713
  21. Simon AE, Chan KS, Forrest CB. Assessment of children's health-related quality of life in the United States with a multidimensional index. *Pediatrics*. 2008;121(1). Available at: [www.pediatrics.org/content/full/121/1/e118](http://www.pediatrics.org/content/full/121/1/e118)
  22. Bastiaansen D, Koot HM, Ferdinand RF. Determinants of quality of life in children with psychiatric disorders. *Qual Life Res*. 2005;14(6):1599–1612
  23. Spuijbroek AT, Oostenbrink R, Landgraf JM, et al. Health-related quality of life in pre-school children in five health conditions. *Qual Life Res*. 2011;20(5):779–786
  24. Weinreb L, Wehler C, Perloff J, et al. Hunger: its impact on children's health and mental health. *Pediatrics*. 2002;110(4). Available at: [www.pediatrics.org/content/full/110/4/e41](http://www.pediatrics.org/content/full/110/4/e41)
  25. Grant R, Shapiro A, Joseph S, Goldsmith S, Rigual-Lynch L, Redlener I. The health of homeless children revisited. *Adv Pediatr*. 2007;54:173–187
  26. Starfield B. Social gradients and child health. In: Heggenhuogen HK, Quah SR, eds. *International Encyclopedia of Public Health*, vol. 6. San Diego, CA: Academic Press; 2008: 87–101
  27. Ministerio de Sanidad M, Política Social e Igualdad. *Encuesta Nacional de Salud de España 2006*. Available at: [www.msps.es/estadEstudios/estadisticas/encuestaNacional/encuesta2006.htm](http://www.msps.es/estadEstudios/estadisticas/encuestaNacional/encuesta2006.htm). 2011. Accessed November 28, 2011
  28. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J Child Psychol Psychiatry*. 1997;38(5):581–586
  29. SDQ. Information for researchers and professionals about the Strengths & Difficulties Questionnaires. Available at: [www.sdqinfo.com](http://www.sdqinfo.com). Accessed July 2, 2011
  30. The KIDSCREEN Group Europe. *The KIDSCREEN Questionnaires: Handbook*. Lengerich, Germany: Pabst Science Publishers; 2006
  31. Ravens-Sieberer U, Gosch A, Rajmil L, et al; KIDSCREEN Group. The KIDSCREEN-52 quality of life measure for children and adolescents: psychometric results from a cross-cultural survey in 13 European countries. *Value Health*. 2008;11(4):645–658
  32. Ravens-Sieberer U, Auquier P, Erhart M, et al; European KIDSCREEN Group. The KIDSCREEN-27 quality of life measure for children and adolescents: psychometric results from a cross-cultural survey in 13 European countries. *Qual Life Res*. 2007;16(8):1347–1356
  33. Ravens-Sieberer U, Erhart M, Rajmil L, et al; European KIDSCREEN Group. Reliability, construct and criterion validity of the KIDSCREEN-10 score: a short measure for children and adolescents' well-being and health-related quality of life. *Qual Life Res*. 2010;19(10):1487–1500
  34. The Gallup Organization. *Flash Eurobarometer: Parents' Views on the Mental Health of Their Child: Analytical Report*. Available at: [www.ec.europa.eu/public\\_opinion/flash/fl\\_246\\_en.pdf](http://www.ec.europa.eu/public_opinion/flash/fl_246_en.pdf). Accessed December 3, 2011
  35. Regidor E; Grupo de Trabajo de la SEE. The Goldthorpe Social Class Classification: reference framework for a proposal for the measurement of social class by the Working Group of the Spanish Society of Epidemiology [in Spanish]. *Rev Esp Salud Publica*. 2001;75(1):13–22
  36. Cohen J. *Statistical Power Analysis for Behavioral Sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988

37. Rajmil L, López-Aguilà S, Mompert Penina A, Medina Bustos A, Rodríguez Sanz M, Brugulat Guiteras P. Desigualdades sociales en la salud mental infantil en Cataluña. *An Pediatr (Barc)*. 2010;73(5):233–240
38. Borrell C, Rue M, Pasarín MI, Rohlfis I, Ferrando J, Fernandez E. Trends in social class inequalities in health status, health-related behaviors, and health services utilization in a Southern European urban area (1983-1994). *Prev Med*. 2000;31(6):691–701
39. Belsky J, Bell B, Bradley RH, Stallard N, Stewart-Brown SL. Socioeconomic risk, parenting during the preschool years and child health age 6 years. *Eur J Public Health*. 2007;17(5):508–513
40. Ravens-Sieberer U, Erhart M, Wille N, Bullinger M; BELLA study group. Health-related quality of life in children and adolescents in Germany: results of the BELLA study. *Eur Child Adolesc Psychiatry*. 2008;17(suppl 1):148–156
41. Erhart M, Ottova V, Gaspar T, et al; HBSC Positive Health Focus Group. Measuring mental health and well-being of schoolchildren in 15 European countries using the KIDSCREEN-10 Index. *Int J Public Health*. 2009;54(suppl 2):160–166
42. Ravens-Sieberer U, Wille N, Erhart M, et al; BELLA study group. Prevalence of mental health problems among children and adolescents in Germany: results of the BELLA study within the National Health Interview and Examination Survey. *Eur Child Adolesc Psychiatry*. 2008;17(suppl 1):22–33
43. von Rueden U, Gosch A, Rajmil L, Bisegger C, Ravens-Sieberer U. Socioeconomic determinants of health related quality of life in childhood and adolescence: results from a European study. *J Epidemiol Community Health*. 2006;60(2):130–135

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*Pediatrics* 2012;130:e528

DOI: 10.1542/peds.2011-3594 originally published online August 20, 2012;

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