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Depression, Anxiety and Somatic Complaints in Colombian Children Living in Rural Communities

Depresión, ansiedad y síntomas somáticos en niños que viven en comunidades rurales colombianas

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ABSTRACT

Introduction: In Colombia, children are frequently exposed to traumatic events; however, there are no data regarding the impact on depression, anxiety and somatic correlates of such exposure in children living in rural communities. **Objective:** To investigate the somatic complaints and symptoms of depression and anxiety among children exposed to traumatic events in a rural community of Colombia. **Methods: Design:** Cross-Sectional study. **Participants:** Two hundred and ninety-three Colombian children aged eight to 18 years. **Main Outcome Measures:** Standardized measures were administered to assess children's depression, anxiety, physical symptoms and exposure to traumatic events. Depression: CDI (Children's Depression Inventory); anxiety: SCARED (The Screen for Child Anxiety Related Emotional Disorders); somatic complaints: CBCL (Child Behavior Checklist, Somatic Complaints scale) and reporting traumatic events during the K-SADS-PL (Diagnostic Interview for Children and Adolescents). **Results:** Ninety-one of the 293 children (31.1%) reported somatic complaints. The most common somatic complaint was in the gastrointestinal category (35/91). One hundred and seventy eight children (60.5%) had observed traumatic events, including homicides during the last month. Two hundred five (69.9%)

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of the children showed depressive symptom profiles above established norms, and 239 (81.6%) exhibited anxiety symptoms according to their own reports. The correlation between depression and traumatic events, anxiety and somatic complaints, and between anxiety and depression were statistically significant ($p<0.005$). **Conclusions:** As the first study of its kind in children living in rural communities in Colombia, it demonstrates a clear impact of traumatic events on mental health. Information that somatic complaints are commonly an expression of underlying depression and anxiety may facilitate the treatment and thereby help avoid unnecessary medical workups and sequelae from traumatized children. It is important for physicians to probe for "hidden" symptoms in traumatized children.

Keywords: depression, somatization, traumatic events, anxiety

Evidence level: III

RESUMEN

Introducción: En Colombia, los niños están expuestos con frecuencia a eventos traumáticos, sin embargo, no hay datos sobre el impacto de la depresión, la ansiedad y la correlación somática de dicha exposición en niños que viven en comunidades rurales. **Objetivo:** investigar las alteraciones somáticas, síntomas de depresión y ansiedad en los niños expuestos a eventos traumáticos en una comunidad rural de Colombia. **Metodología:** Diseño: Estudio transversal; Participantes: Doscientos noventa y tres niños colombianos de ocho a 18 años. Principales medidas de resultado: se aplicaron medidas estandarizadas para evaluar la depresión infantil, ansiedad, síntomas físicos y la exposición a eventos traumáticos. Depresión:CDI (Children's Depression Inventory)). Ansiedad: SCARED (The Screen for Child Anxiety Related Emotional Disorders), Enfermedades somáticas: CBCL (Child Behavior Checklist, Somatic Complaints scale) e informar los eventos traumáticos durante el K -SADS -PL (Diagnostic Interview for Children and Adolescents). **Resultados:** Noventa y uno de los 293 niños (31,1 %) informaron de síntomas somáticos. La queja somática más común estuvo en la categoría gastrointestinal (35/ 91). Ciento setenta y ocho niños (60,5 %) habían observado los acontecimientos traumáticos, incluyendo homicidios durante el último mes. Doscientos cinco (69,9 %) de los niños mostraron perfiles de síntomas depresivos por encima de las normas establecidas, y 239 (81,6 %) presentaban síntomas de ansiedad según sus propios informes. La correlación entre la depresión y los eventos traumáticos, la ansiedad y quejas somáticas, y entre la ansiedad y la depresión fueron estadísticamente significativas ($p < 0,005$). **Conclusiones:** como el primer estudio de su tipo en los niños que viven en comunidades rurales de Colombia , demuestra un claro impacto de eventos traumáticos en la salud mental. La afirmación que las quejas somáticas son comúnmente una expresión de la depresión y la ansiedad subyacente puede facilitar el tratamiento y de ese modo ayudar a evitar abordajes médicos innecesarios y secuelas en los niños traumatizados . Es importante para los médicos explorar los síntomas "ocultos" en los niños traumatizados.

Palabras Clave: depresión, somatización, evento traumático, ansiedad

Nivel de Evidencia: III

INTRODUCTION

Exposure to traumatic events has been associated with development of anxiety, depression and poor functioning. Children and adolescents with psychiatric disorders (such as Mood Disorders, Autism Spectrum Disorders, Anxiety Disorders, etc) frequently endorse somatic complaints[1].

Despite the fact that the Colombian armed conflict has continued for almost five decades there is still very little information on how it affects the mental health of civilians[2]. As expected, children are disproportional represented as victims of violence. Compared with US where 38% of all homicides in 1995 occurred among children and youth under 25 years of age[3], in Colombia, the rates of homicide were 63% during the same period[4]. Although no known studies of traumatized children and its relationship to somatic complaints and psychiatric illness (i.e., Mood Disorders), the idea that witnesses of traumatic events be related to the severity of somatization, anxiety, and depression, and possibly

to specific diagnoses, is compelling. Moreover, the severity of depression was positively correlated with the frequency of somatic complaints in children and also somatic symptoms were associated with anxiety disorders, major depression, and psychosis[5]. This is important to delineate because mood and related disorders in traumatized children are associated with substantial sequelae for the child, in addition, childhood exposure to trauma has been associated with increased rates of somatic symptoms which may contribute to diminish daily functioning [6].

Some investigations have attempted to determine whether anxiety or depression plays a significant role in somatic complaints[5,6], however, few studies have evaluated the relationship between specific anxiety disorders and associated somatic symptoms in traumatized children. Both separation anxiety disorder and panic disorder, for which physical symptoms are a part of the DSM-IV diagnostic criteria[7], are associated with increased somatic complaints[1].

The prevalence of symptoms of posttraumatic stress disorder (PTSD), anxiety and stress-related disorders in children exposed to chronic violence has been investigated in a number of distressed communities[8-13]. However, to our knowledge, it has not been studied in school-age children living in a rural area of Colombia. We examined the correlation between the children's reported traumatic events and the presence of depressive, anxious and somatic symptoms.

METHODS

Study Population

The study was based in the rural area of Belén, Boyacá, province located geographically on the central area of Colombia. Belén was randomly selected by drawing the numbers from an available pool of 1050 rural municipalities in Colombia. The area is predominantly rural, experiencing many of the difficulties that characteristically face rural communities in Colombia. Rural municipality was defined such a population density of <50000 inhabitant, with only outpatient, primary care (medical and dental) facilities. Data were available from the 1993 census to identify whether the child was living in a rural area. At the time of the study, the area had an estimated overall population of 15,502[14]. The unsafe conditions for the guerillas and military forces further restrict access to resources in the neighboring areas. Three hundred children/ adolescents (eight-18 years old) selected from a simple random sample using the civil registration in Belen, Boyacá, Colombia in November 1999 were invited to participate. Approximately 98% of those invited to take part did so. Inclusion criteria for the study included the following: (1) to be eight-18 years old; (2) with no reading problems; (3) Living in the area at least one year prior to evaluation for the study; and (4) children and parents consent. Were excluded in total seven children. Two boys by parental consent refusal; one girl who was living in the area less than one year; and four children (two girls & two boys, eight years old) for problems reading. One hundred-ten boys and 183 girls participated in the study. The mean age of the children was 13.2 years, with a range of 10 to 18 years. On average, they had 7.25 +/- 1.35 school years (mean +/- SD) before the study was conducted.

MATERIALS

Structured Interview

The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL) interview is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents according to DSM-III-R and DSM-IV criteria[15]. The K-SADS-PL demonstrated a good measurement potential for use as a diagnostic interview in general population samples. The parent's interview covered basic demographic information, the family's traumatic experiences, past and current family structure, and the type and frequency of political violence experienced in Colombia. In addition, parents were asked about the target child's medical history, school performance, mental health symptoms, and use of pediatric services. The children's interview covered their reports of the type and frequency of political violence witnessed in Colombia, the presence or absence of symptoms of depression in themselves, PTSD, anxiety symptoms, and their somatic complaints.

The traumatic events and PTSD symptoms

During the administering the K-DSAs, the examiner (R.C.) explains to the child that the child is to report and to write narrative of the most recent event that has happened to the child or that the child has witnessed. The child is told not to report events experienced by siblings or friends or events seen on television. The types of exposure included being in the area or no at the

time of the event. These items were answered "yes" or "no". Exposure was scored, as "no" if the respondent was not in the place at the time, "yes" if the respondent was in the place where the event occurred. For the purposes of the present investigation, listed on the events were categorized into one of the two following groups: if "yes" (1) witness, and if "no" (2) no witness. Severity of exposure: To evaluate severity of exposure, we included an ordinal measure of trauma: 0 = neither injury nor life threat (low trauma); 1 = either injury or life threat (moderate trauma), and 2 = both injury and life threat (high trauma). Life threat was assessed by a single question, "Did you ever feel like your life was in danger during the incident?" Injury was assessed by two questions, one assessing whether the respondent personally had been injured and the other assessing whether another member of the household had.

Previous studies have shown life threat and injuries to be strong predictors of PTSD symptoms among disaster survivors[16-18]. The respondents were asked to rate how disturbing their experience with this event was, on a scale of 0-4, where 0 represented "not at all disturbing" and 4 indicated "extremely disturbing." When the examiner receives a response that elicits concern, such as a child having seen someone shot or stabbed, the examiner asks for additional details.

The symptoms of PTSD covered in the structured interviews were drawn from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) of the American Psychiatric Association[7]. These psychological symptoms must be of at least one month in duration and should be linked to stressor events.

Depression: CDI (Children's Depression Inventory)[19].

Because depression is commonly associated with stress and trauma, we investigated children's self-reported depressive symptoms. The CDI is 27 items in length and provides a measure of depressive symptomatology. Each item consists of three descriptive statements, of which the child must select the one that best characterizes him or her during the previous two weeks. This scale has been found to have high internal consistency and moderate test–retest reliability.

Anxiety: SCARED (The Screen for Child Anxiety Related Emotional Disorders) [20].

The SCARED is a self-report measure of anxiety symptoms. There are five anxiety subscales: Physiological, Worry/Oversensitivity, and Social Concerns/Concentration. There is also a Lie subscale. The SCARED is a valid measure of anxiety in adolescents, as well as to exhibit discriminant and concurrent validity.

Somatic complaints CBCL (Child Behavior Checklist) [21].

The CBCL was used to obtain parents' perceptions of the existence of other behavioral and emotional problems in participating children. The children receive scores on eight to nine specific subscales such as depression, somatic complaints, and hyperactivity. The CBCL Somatic Complaints scale consists of nine items that are rated on a Likert scale of 0 to 2. These items include feels dizzy, overtired, aches or pains, headaches, nausea, problems with eyes, rashes or skin problems, stomachaches or cramps, and vomiting. The CBCL is the most frequently used standardized instrument to assess global child psychopathologic status and has well-founded standards for reliability and validity[21-23]. A cutoff of two SDs above the mean was used in identifying Colombian rural children at the clinical level of behavioral or emotional problems.

School performance: In addition to these evaluations, with permission from and cooperation of teachers, school general performance was also documented as "good"(>4), "average" (3-3.9), or "bad" (≤ 2.9) depending of the average of scores obtained for the children in the subjects during the last month.

PROCEDURES

Prior to data collection, all these questionnaires were translated from English to Spanish and then back-translated and have gone through several pilot studies in Spanish Speaking countries[24]. Parents were asked to complete the instruments at home and send them back to the investigator (IG) in an envelope.

The interviewer consisted of a psychiatrist (RCC) who had been trained in using the K-DSADS PL at the

Western Psychiatric Institute and Clinic in Pittsburgh, PA which is a training center for KDSADS for US. The study was explained in detail and informed consent was obtained. Parents and children were then interviewed separately. All materials were read to the participants. The parent interview took about two hours; the child interview lasted about one hour. Teachers, parents, neither child received any payment to participated in the study. With permission from and cooperation with the School District of Belen (Boyaca), school performance (grades) was also documented. The institutional review boards of the Belen's Local Medical Center approved this study.

DATA ANALYSIS

To allow for data analyses, responses to the structured interviews were coded in several ways. The types of traumatic events to which the child was exposed and the mechanism of exposure were tallied for each respondent. In addition, an overall measure of exposure to violence was computed for children, according to their own reports. The first measure was a sum of the number of different types of traumatic events to which the participants had been exposed during the past month; each type of event was weighted according to whether the participant had directly observed the event or had heard about it from others. The second measure included additional weighting, depending on whether the subject, a family member, or a nonfamily member was the victim. These procedures were previously used and reported by Locke et al., 1996[25]. Total scores to the CDI, SCARED and CBCL supplemented responses to the structured interview as appropriate.

The number and type of school problems and health problems experienced by each child were tallied, based on the parent and teacher's report. The number of somatic complaints mentioned by each child also was tallied.

Gender differences in the PTSD symptoms, CDI and SCARED scores, number of somatic complaints, social support and exposure to violence were examined using the Student t tests. Gender differences in the number of children who met the criteria for each depressive group (CDI scores >10 indicate depression), anxious group (SCARED scores >25 indicate anxiety), and group with somatic symptoms, scored by somatic scales of the CBCL were examined using chi squared tests. All other associations were examined using the appropriate correlation coefficient.

RESULTS

DEPRESSION, ANXIETY AND SOMATIC COMPLAINTS IN CHILDREN

On the CDI, which uses the child's own report, 205 of the 293 children (69.9%), 65 boys and 140 girls scored in the "depressed" range. There was a significant gender difference in total CDI scores (girls = 76.5%; boys = 59.1% [chi squared] = 9.91, p = 0.002). Correlations were statistically significant (P<0.001) between the child's CDI and child's SCARED reports of the total number of symptoms (r=0.18), number of school problems reported by teachers (r=-0.22), and suicidal attempts based in the child's report (r=0.26). Interestingly children who reported direct observation of traumatic events exhibited more depressed symptoms than no traumatized children did (traumatized=45.74 %; non-traumatized 24.22%; [chi squared] = 6.09, p = 0.0019). The prevalence of anxiety defined as SCARED^3 25 was 81.6% (n=239), and also, significantly more girls than boys had symptoms of anxiety (girls =91.84 %; boys = 64.22%; [chi squared] = 34.75, p < 0.0001).

Although anxiety symptoms were not significantly correlated with the exposure-to-violence reported for the children during the interview, scores on the SCARED >25 were significantly correlated with the number of somatic complaints by the CBCL children's version (r=0.38, P<0.0001). Moreover, significantly more anxious than non-anxious children had somatic complaints (anxious=30.41 %; no anxious = 64.22 %; [chi squared] = 21.20, p < 0.0001).

High anxiety levels were significantly correlated with the children's age (r=0.18, P<. 05). Youth exhibited more symptoms of anxiety than younger children did.

The children themselves reported a mean +/- SD of 4.5 +/- 2.5 somatic complaints. Somatic complaints were significant different higher in girls than boys (girls=23.20%; boys=7.81%; [chi squared] = 21.20, p<0.0001). Their most common concerns were abdominal (91 children), head (35 children), and other miscellaneous pains (40 children). The number of complaints was significantly correlated with the scores on the SCARED (r=0.60, P<0.05) (**Tables 1 and 2**).

Table1. Characteristics of the Colombian rural children – (N = 293).

Variable	N	%
Sex		
Male	110	37.5
Female	183	65.2
Witnessed event		
No	115	39.2
Yes	178	60.8
Alcohol Use		
Never	128	43.7
1-5 times	157	53.6
More than 5	8.0	2.7
Drug Use		
Never	293	100
Somatic Complaints		
No	202	69.9
Yes	91	31.1
Stomachaches	35	11.9
Headaches	16	5.5
Others (Feels dizzy, aches, overtired, eye and skin problem)	40	13.6

Table 2. Characteristics of the children with somatic complaints Vs no somatic complaints.

Characteristics	Somatic Complaints (+) (n=91)		Somatic Complaints (-) (n=202)		Differences	
	Mean	S.D.	Mean	S.D.	t	p
Age	13.30	1.68	13.18	1.49	0.61	0.542
Years in school	7.22	1.24	7.26	1.35	-0.256	0.798
CDI Score child version	15.43	7.00	13.96	5.78	1.880	0.061
SCARED Score child version	34.81	7.64	27.60	8.22	-7.10	<0.0001*
Sex	N	%	n	%	X2	p
Female	68	23.20	115	39.20		
					8.472	0.0040*
Male	23	7.80	87	29.70		

SCARED: Self-Report for childhood anxiety related disorders, CID: Children depression inventory, N: total number, SD: Standar deviation, t: Probability under the student-t distribution, p: Stadistical significance, n: Partial number, %: Percentage, X2: Probability under the Chi-square distribution, *: Statistically significant (i.e.: $p \leq 0.05$).

EXPOSURE TO TRAUMATIC EVENTS AND PTSD SYMPTOMS

One hundred and seventy eight of the 293 children (60.8%) reported direct observation of events that would be considered traumatic according to the definition set out in DSM-IV. These events included having family members beaten or taken away, shootings, witnessed people being murdered and seeing dead bodies on the streets. Additionally no children were unaffected by political-related traumatic events, although children had not directly observed such events but had been told about them by family members or friends.

The girls had been exposed to even higher levels of traumatic events than the boys do (girls =119; boys = 59), but there is no significant relationship between sex ($p = 0.053$). In Colombia similarly than in the Latin American culture, extended relatives play an important role in the lives of children, so threats directed to various family members and casualties affecting broad networks compound the psychological effect of violence.

Six of the 293 children met all of the criteria for PTSD, and 96 met the criteria for at least one of the three symptom groups. Fifty-seven of the children met the criteria for reexperiencing, 19 met the criteria for avoidance and numbing, and 61 met the criteria for arousal. Fifty children met the criteria for reexperiencing and arousal, but not for avoidance and numbing. The exposure-to-traumatic events (group of children witnessed) was no significantly correlated with the total or the number of symptoms reported. Three of the six children who met all the criteria for PTSD had witnessed considerable trauamtic events, and 113 of the 197 children who did not meet the criteria for any of the symptom groups also had witnessed considerable violence.

There were sex differences for children reporting at least one of the three PTSD symptom groups (girls=25.30%; boys=7.51%; [chi squared] = 13.02, p < 0.0001); reexperiencing symptoms (girls=14.31%; boys=48.12%; [chi squared] = 4.84, p=0.033); symptoms of avoidance and numbing (girls=5.83%; boys=0.7%; [chi squared] = 6.32, p =0.013); and arousal (girls=15.71%; boys=5.12%; [chi squared] = 5.51, p=0.025). As we expect, children with PTSD had significant higher levels of anxiety in the SCARED than the children with no PTSD symptoms (PTSD=32.10%; Non-PTSD= 0.71%; [chi squared] = 23.32, p < 0.0001). Significant correlation was seen between scores on the SCARED (child version) and the children's description of their PTSD symptoms (r=0.59, P<0.01), their somatic complaints on the subscale of the CBCL (r=0.38, P<0.01), and their scores on the CDI (r=0.184, P<0.01).

RELATION TO OTHER FACTORS

Children in our study reported lower alcohol consumption. The only 2.7% of children (8/293), who reported alcohol consumption in more than 5 occasions had CDI scores ≥25. Children's alcohol consumption reported by parents and children during the interview was higher in boys, depressed and older children, P<0.005. No significant differences were found between children who reported direct observation of traumatic events and alcohol use (N=102), compared with non-users who were witness (61.2% vs. 48.7% [chi squared] = 2.09, p=0.14). No children in this study reported consumption of other drugs. Further, their parents and teachers as meeting criteria for other drugs abuse identified no children.

RELATION BETWEEN CHILDREN'S AND PARENTS' VERSION OF ANXIETY SYMPTOMS

Their parents as meeting all of the criteria for PTSD also identified the four of six children who met all the criteria for PTSD. Their parents as meeting the criteria described forty-four of the 56 children who described themselves as meeting the criteria for re experiencing.

Similarly, 14 of the 19 children meeting the criteria for avoidance and numbing and 44 of the 61 children meeting the criteria for increased arousal were so described by their parents. Correlation between the child's and parent's reports of the child's total number of symptoms (r=0.09), and symptoms of avoidance and numbing (r=0.11) were small and insignificant. However, the caretaker's report of the total number of PTSD symptoms experienced by the child was significantly correlated with the caretaker's report of symptoms of reexperiencing (r=0.36, P<0.001), symptoms of arousal (r=0.29, P<0.01), and reexperiencing and arousal symptoms (r=0.29, P <0.01). Moreover, total scores in SCARED parent's version were divided into two groups based on the same cut off of ≥25. "Anxious children by parents" (n=158) were those who had reported 25 or more symptoms; "Non-Anxious children by parents" (n=135) were those who had reported 24 or less.

Significant correlation were found between the more symptomatic parents' reports and their children's reports of total number of SCARED symptoms (r=0.88, P<0.01).

One hundred pairs of parents and children agreed on whether the child had witnessed to violent events. Impressively parents and children emphasized same events (**Table 1**). In 78 pairs, the child reported exposure to violent events; the parent did not. Finally, in 58 pairs, the mother reported that the child had been exposed to violence but the child did not.

Significant correlation was seen between scores on the SCARED (parent version) and the children's description of their PTSD symptoms (r=0.50, P<0.01), their somatic complaints on the subscale of the CBCL (r=0.30, P<0.01), and their scores on the CDI (r=0.158, P<0.01).

No significant correlation was seen between children's scores on the SCARED and the academic performance (teacher report) or between scores on the SCARED (child report) and the alcohol consumption (parent

report) or between scores on the SCARED (parent report) and the alcohol consumption (teacher report). However, interesting significant negative correlation was seen between caretakers' reports of their children anxious symptoms (SCARED) and their children's academic performance (based in teacher's report) ($r=-0.120$, $P<0.05$).

ACCESS TO MENTAL-PSYCHOLOGICAL CARE

All parents reported that their children had access to medical and dental care. However, despite the high incidence of emotional and behavioral disorders, none of the families had sought counseling. They reported that their children had no access to any psychological help. A significant negative correlation was seen between PTSD symptoms based in children's report and the number of physician's visits during the last year ($r=-0.21$, $P<0.01$).

CONCLUSIONS

Our study, conducted on young rural Colombian children, supports and extends the literature describing the relationship between children's exposure to traumatic events and depressive, anxious and somatic symptoms. One of the most striking findings in our study was the range and frequency of psychological and somatic symptoms reported by the subjects and the lack of resources (prevention programs or access to mental health professionals) available for these children. Using CDI, the instrument developed by Kovacs et al[19]. we find data similar to what investigators have reported previously[26]. A high prevalence rate of depression and anxiety (69.9% and 81.6% respectively) exceeds the estimated prevalence rates for these disorders in other countries including US[27]. However, it is consistent with the results of other studies that have focused on severely traumatized children[28-31]. Such studies indicate that youth are not privileged, by virtue of their early life, from the long-term effects of the exposure to traumatic events and dislocation that are part of the traumatic experience, and thatthe responses of children are, in many ways, similar to those previously found in adults[27]. Higher levels of depression and anxiety were reported previously in children and adolescents with high exposure to violence, either as a witness or victim[32-37]. The prevalence of higher depression and anxiety was also found to be higher among girls, emphasizing the importance of the mediating role played by sex/gender in the development of these disorders.

We further explored the association between exposure to traumatic events and the presence of depressive and anxious symptoms by extending our evaluations to include a somatic complaint measure, the CBCL, administered to the children. Our results supported that the high report of somatic complaints in children with higher exposure to violence may be multifactorial in origin[38-40]. In this sample, children with the highest exposure to traumatic events had higher levels of depressed symptoms when compared with non-exposed children; anxious children exhibited more anxiety somatic complaints when compared with non-anxious, and depression and anxiety were significantly correlated.

Children in our study with higher exposure to violence, high levels of anxiety and depression reported lower alcohol and drug consumption. Further, no one reported the consumption of drugs. To our knowledge, this association of exposure to traumatic events and lower alcohol and drug consumption has not been previously reported to our knowledge in rural communities. Increased alcohol and drug consumption, however, has been associated with the presence of anxiety and depressive disorders[41-46]. We should mention that besides the high levels of anxiety, several protective and healing factors were frequently mentioned by school teachers, parents and by the children themselves on a surprising non-alcohol substance abuse rate were found. Many mentioned the importance of strong religious beliefs, caring home mothers, active community involvement in the school system, and the sense of participating in a nation's struggle against violence. We certainly observed anecdotally the beneficial effects of these factors in many of the children we interviewed, especially those who had been exposed to significant trauma and high anxiety levels, and yet seemed to be functioning well. The family cohesion does have several aspects in common with protective public health approaches in adolescents, aimed at avoiding risk factors such as an early exposure to substance of abuse.

In the group as a whole, a lot of agreement was seen between parent and child regarding specific areas of dysfunction. In this regard, our study's agreement was documented during the KDSADs interview and using the SCARED parent's version interview. Our results disagree with several other studies that show only low to moderate correlation between parent and child reports of the psychological symptoms experienced by the child[37-42]. As these parents of children who have been exposed to trauma also may have been severely

and chronically traumatized by the same events (more than forty years in Colombia's case), and because they may feel the same fears, they reported that they had discussed several times these experiences with their children.

Several limitations deserve comment. First, the analysis presented here is cross-sectional. It is possible that our outcome variables, such as somatic complaints and increased anxiety and depression, antedated the exposure to traumatic events. Since we did not measure these characteristics prior to our assessment of exposure to traumatic events, these outcomes or characteristics may have been preexisting and not a result of exposure to violence. Earlier and repeated assesments in larger cohorts should provide important information. Second, our sample size is not large enough to determine whether exposure to traumatic events is causal or merely an associative factor with cohort outcomes. We have described the correlation of higher exposure to traumatic events with more depressive, anxious somatic symptoms but we cannot assign causality from a sample size of 293 children. While multivariate analyses would help differentiate factors causing depression, anxiety and somatic complaints, as previously noted, we are limited by the numerous factors (home environment, maternal and child IQ, preschool experience, etc) that affect these outcomes, and by the cohort size. Third, although our sample represents a group of Colombian children living in rural areas, this study's children living in Belen, Boyaca, representing less than one-fourth of the Colombian youth involved in the conflict, could have underestimated or overestimated their psychopathology, limiting generalizability of findings. The suggestion, however, that high exposure to violence may lead to adverse outcomes needs to be explored with larger cohorts. Fourth relying on self-reporting in children has inherent problems that cannot be completely resolved.

Further studies are needed to examine the association of depression and anxiety symptoms among children exposed to violence and trauma[49,50]. The importance of parent support, encouragement, and education is emphasized repeatedly. We would encourage direct assessments of children. For example, questions regarding exposure to violence should be directed not only at parents, but also at children to assess their reported feelings of distress. Complaints about physical well being are also likely to be a more culturally acceptable means of expressing distress. Because of this pattern and because somatic complaints are often associated with the presence of disorders such as depression and anxiety, physicians in rural areas are in a good position and need to be prepared to identify problems and to assist the families in obtaining appropriate psychological and medical services[51].

What This Study Adds

It is common for children living in Colombia to witness traumatic events. Few data are available regarding the psychological (e.g. depressive and anxiety symptoms), and somatic manifestations of witnessing traumatic events at a young age in this country. Our study explores associations between exposure to traumatic events in children and psychological and somatic symptoms. We found that young Colombian-rural children have a high exposure to traumatic events, with many children showing signs of anxiety, depression, and somatic complaints. Further, higher exposure to traumatic events correlated with somatic complaints. These findings underscore physicians' responsibility to not only assess children for exposure to traumatic events, but to treat anxiety and depression as well.

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INTEREST CONFLICTS

This study received no financial support. No conflicts of interests are reported by the authors.

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