

# Distress Symptoms Among Urban African American Children and Adolescents

## *A Psychometric Evaluation of the Checklist of Children's Distress Symptoms*

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**Objectives:** To explore the factor structure of the *Checklist of Children's Distress Symptoms* (CCDS); to examine whether there is a higher-order single construct underlying the CCDS measure; and, to assess the association between children's distress symptoms, as reflected by the CCDS factors, and children's self-reported exposure to community violence (both victimization and witness events).

**Designs:** Community-based cross-sectional survey.

**Settings:** Ten public housing developments in an eastern metropolis.

**Participants:** A total of 349 low-income urban African American children and adolescents (198 males; 151 females), 9 through 15 years of age.

**Measures:** Children's distress symptoms, exposure to community violence, and selected demographic information including parental education, parental employment status, perceived health status, and school performance.

**Analysis:** Exploratory factor analysis was performed to determine the factorial structure of the CCDS measure. Second-order confirmatory factor analysis was performed to

determine if there is a higher-order single underlying construct among CCDS factors. Pearson correlation coefficients were computed to assess the relationship between exposure to violence and CCDS factors.

**Major Findings:** The exploratory factor analysis yielded a 6-factor solution for the CCDS measure with satisfactory internal consistency. The confirmatory factor model with a single second-order construct yielded a good fit to the data. In general, youth who experienced violent victimization or witnessed violent events reported higher levels of distress symptoms than those who did not. Distress symptoms labeled as "intrusive thoughts," "distraction," and "lack of belongingness" were most frequently associated with exposure to violence. Distress symptoms did not differ on the basis of sex or age.

**Conclusions:** The CCDS has utility as a measure of distress symptoms among urban African American children and adolescents. Whereas analysis provided support for a single higher-order construct, using the proposed 6-factor structure should enhance our understanding of the psychological impact of exposure to violence on youth and contribute to more effective intervention efforts.

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**Editor's Note:** The true value of this study is that it provides data to support what many of us think are self-evident clinical implications of exposure to violence. We all know only too well that just because it's logical doesn't mean it's true.

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**R**ESearch regarding children who are victims of violence has spanned decades and focused on contexts as disparate as war, natural disasters, domestic abuse, acute exposure to life-threatening events, and chronic exposure to neighborhoods plagued by acts

of violent crime and delinquency.<sup>1-4</sup> The endemic nature of violence today, and the pervasive exposure to community violence experienced by many youth, especially those residing in inner city neighborhoods, has been well documented.<sup>5-7</sup> Concomitant with this emphasis on exposure has been the exploration of its psychosocial sequelae. Exposure of youth to community violence has been associated with symptoms of posttraumatic stress disorder (PTSD), including recurrent and intrusive thoughts and restricted or blunted affect.<sup>8</sup> Additional sequelae to violence include anxiety, depression, aggression, social withdrawal and avoidance, or compensatory behaviors that affect academic

## PARTICIPANTS AND METHODS

### PARTICIPANTS

Participants were 349 African American children and adolescents (198 males; 151 females), 9 through 15 years of age as of February 1, 1996, living in any of 10 public housing developments in an eastern metropolis. The youth and one of their parents were recruited to participate in a randomized controlled violence prevention effectiveness trial ("Neighborhood in Action"). A parent was defined as the biological parent, legal guardian, or other responsible adult of the study youth. Enrollment was limited to 1 parent-youth dyad per participating family. Facilitators residing in each of the 10 housing developments were identified by the appropriate tenant housing association to assist research staff in identifying eligible candidates for the trial. The research protocol received clearance from the Institute Research Board at the University of Maryland at Baltimore.

### SURVEY PROCEDURES

Once both the youth and respective parent provided written, informed consent, baseline self-report measures were administered. The youth measures consisted of 7 scales and required approximately 55 to 70 minutes to complete. Parent measures consisted of 7 scales and required approximately 35 to 50 minutes to complete. All 10 housing developments had designated community space where the data collection occurred. Efforts were made to prevent the adults and youth from sitting at the same table during the survey administration. Youth were reimbursed \$5 and parents \$10 for their efforts.

### MEASURES

#### Distress Symptoms

Twenty-five of the original 28 CCDS items designed to measure distress symptoms were used in the current study. Item 22 ("How often do little things bother you or make you angry, even things that don't seem to bother other people or make them angry?") was not used because of the similarity in content with another item (item 23: "How often do little things bother you—things that don't seem to bother other people?"); item 27 was omitted because of a concern with reading level and comprehension (the item has more than 50 words). One item (item 9) was eliminated as invalid as a result of a typographical error.

#### Exposure to Community Violence

To assess actual exposure to violence, we employed a modified version of the *Survey of Children's Exposure to Community Violence*.<sup>20</sup> While the instrument examined both frequency of exposure and a number of key contextual factors such as the relationship to the perpetrator and the setting of exposure, only the frequency of exposure was used in the current study. Twenty-eight items were used to measure the frequency of exposure to various forms of violence, including shootings, beatings, weapon carrying, knife attacks, killings, drug use, and drug trafficking. Twelve items assessed a child's experience as a victim of violence and 16 items assessed his or her experience as a witness. The majority of items had a 4-category response format ranging from 1, "never" to

4, "more than 5 times." Items related to rape, suicide, killings, and witnessing a dead body had a 3-category response: 1, "never," 2, "1 time," and 3, "more than 1 time." For the purpose of data analysis in the current study, the last 3 categories for 4-category responses or the last 2 categories for 3-category responses were combined into the single positive response "at least 1 time". The Cronbach  $\alpha$ s for the 12-item victimization scale and 16-item witness scale with modified response choices were .85 and .83, respectively. Cumulative exposure measures were created separately for victimization and witness scales by totaling the numbers of positive responses to exposure questions within each of the scales.

#### Teen Health Survey

To assess demographic characteristics, violent perpetration and other problem behaviors, and psychosocial factors (such as self-esteem, problem-solving competence, family functioning), the Child Health and Illness Profile—Adolescent Edition (CHIP-AE)<sup>21</sup> was administered. The demographic data including parental education and parental employment status were taken from the Child Health and Illness Profile—Adolescent Edition.

### ANALYSIS

Three main analyses were conducted pursuant to the study objectives. First, exploratory factor analysis with oblique rotation was performed to explore the factorial structure of CCDS items. For each factor extracted, the items with loadings smaller than 0.30 were excluded from the final factor composition. Cronbach  $\alpha$  was calculated as an internal consistency estimation for the remaining items in each of the factors. Mean comparisons were performed to examine sex and age differences across the children's distress symptoms, using the CCDS items remaining in the final factor compositions. To assess age differences, youth were divided into 2 groups by the median age (12 years) at recruitment: "younger" (those <12 years old) and "older" (those  $\geq$ 12 years old).

Next, second-order factor analysis was performed to test the hypothesis that there is a higher-order single underlying construct among CCDS subdomains. A covariance matrix of CCDS items was created using the PRELIS 2.0 software program.<sup>22</sup> The second-order confirmatory factor analyses were performed using the LISREL 8.0 statistical software program<sup>23</sup> based on the first-order factor structure generated through exploratory factor analysis. The goodness-of-fit was assessed using multiple measures:  $\chi^2$ -degrees of freedom ratio ( $\chi^2/df$ ); goodness-of-fit index (GFI); adjusted GFI (AGFI); and root mean square residual (RMR). Based on recommendations in the literature,<sup>23,24</sup> the following criteria were used to indicate an acceptable goodness-of-fit of the model to the data:  $\chi^2/df < 2$ ; GFI  $> .90$ ; AGFI  $> .90$ ; and RMR  $< .10$ .

Third, the Pearson product-moment correlation coefficients were calculated to assess the relationship between exposure to violence (both victimization and witnessing) and evidence of distress symptoms as expressed by the CCDS factors. A factor score was calculated for each of the factors by averaging the items in the final factor composition. The Pearson correlations were also calculated between the factor scores and the cumulative measures of exposures to violence to examine whether CCDS factors were associated with the overall exposure to violence.

performance and social functioning.<sup>9-13</sup> Moreover, victimization and/or witnessing violence is a risk factor for subsequent perpetration of violence.<sup>14</sup> The effects of continual exposure to violence may be additive, increasing the likelihood of developmental harm and maladaptation.<sup>9</sup> Finally, psychological adaptations functioning as protective strategies, such as emotional numbing or hypervigilance, may have long-term pathologic consequences.<sup>15,16</sup>

Despite gains in our understanding of the general consequences of exposure to violence, important questions remain unanswered regarding the relationship between the types of exposure and the socioemotional adjustment and psychopathologic characteristics of youth. There is a need to ascertain whether certain distress symptoms, such as intrusive thoughts or feelings of arousal, vary according to the type of exposure to violence, and/or certain psychosocial or demographic factors. Likewise, there is a need to assess the impact of repeated violent encounters rather than single episodes and to examine the effects of being a victim of, as opposed to a witness to, violence.

The availability of psychometrically sound distress measures that evaluate, in degree and kind, the psychological disruptions most likely to occur as a consequence of exposure to violence are critical to the tasks of assessing the impact on youth. The assessment of traumatic stress in childhood has been enhanced by diagnostic criteria and clinical measures of PTSD. The *Checklist of Children's Distress Symptoms (CCDS)*, a 28-item questionnaire developed by Richters and Martinez,<sup>17</sup> is one such instrument that has been used to quantify the emotional toll community violence exacts on children who are its victims and/or witnesses.<sup>12,18</sup> Identification of the underlying constructs or factor structure of existing measures should enhance their utility and effectiveness as screening tools for community- and school-based violence initiatives, particularly those focusing on primary as well as secondary prevention. Furthermore, widespread administration of these measures could provide an empirical database for epidemiologic surveillance of violence-related distress, as well as a means for assessing the variability in psychological symptoms among youth who occupy varying geographic or sociodemographic niches.

#### CCDS AND PREVIOUS APPLICATION

The CCDS was developed, based on diagnostic criteria described in the *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*,<sup>19</sup> to assess the impact of exposure to community violence on children's emotional and psychological well-being in a community violence project.<sup>12</sup> This 28-item checklist addresses adolescent distress symptoms (both feelings and behaviors) experienced in the recent past, such as difficulty with attention, sleep, intrusive thoughts, flashbacks, worries, and reminders of "something bad that happened in the past." Responses are based on a 5-point scale ranging from 1, "never" to 5, "most of the time." The CCDS has been used to gauge the type and extent of distress experienced by youth who live with long-term expo-

sure to community violence. In their original study, Martinez and Richters<sup>12</sup> administered the self-report version of the CCDS to 54 fifth- and sixth-grade children. They reported 2 subscales among the distress symptoms on the CCDS with satisfactory internal consistency: depression (Cronbach  $\alpha = .71$ ) and anxiety (Cronbach  $\alpha = .72$ ). Based on the high level of correlation between the 2 subscales ( $r = 0.64, P < .001$ ), they further combined the 2 subscales and used a single score as the measure of CCDS in their study.<sup>12</sup> No additional information on the item-level composition of the subscales or other psychometric properties is available. In addition, there was no further psychometric evaluation beyond the simple correlation coefficients to justify the use of a single score to represent the CCDS measure. Whereas the advantage of the 2-scale or a single-score approach is its ease of use, this may limit the utility of the measure for identifying other clinically defined clusters of socioemotional sequelae that may result from exposure to violence. Determination as to whether this measure has a multidimensional factor structure, beyond the broader categorization of anxiety and depression, may contribute to its wider application and facilitate more targeted interventions. Thus, if the CCDS measure contributes to an assessment of posttraumatic stress symptoms, it would better apprise researchers of necessary programmatic needs.

#### STUDY OBJECTIVES

The 3 objectives of the current study are to (1) explore the factor structure of the CCDS measure, including internal consistency, age, and sex differences of CCDS factors; (2) examine whether there is a single higher-order construct underlying the CCDS measure; and (3) assess the association between CCDS factors and children's self-reported exposure to community violence (both victimization and witness events).

### RESULTS

#### SAMPLE CHARACTERISTICS

As shown in **Table 1**, 96% of participants were African American. The median age for the sample was 12 years. The average grade level was 6 and average family size was 5. While three quarters of respondents reported living with a biological parent, only 29% reported living with both biological parents. Eighty percent of the youth reported their health status to be excellent or very good. About one third of the youth perceived themselves to be excellent students at school.

In general, male and female adolescents were very similar with respect to the sample characteristics. There were some differences between younger youth (ie, those  $\leq 11$  years) and older youth (ie, those  $\geq 12$  years). The younger youth reported more people living at home than the older youth. More younger youth than older youth lived with both biological parents; fewer younger youth lived with a single biological parent; younger youth less frequently reported that their mothers finished at least

**Table 1. Sample Characteristics of 349 Low-Income Urban African American Adolescents**

	Total	Sex		Age, y*	
		Male	Female	≤11	≥12
No. (%)	<b>349 (100)</b>	198 (57)	151 (43)	155 (46)	184 (54)
African American, %	96	97	95	95	98
Mean (SD) grade	6.2 (1.26)	6.2 (1.22)	6.2 (1.31)	5.3 (0.86)	7.0 (0.94)
Mean (SD) No. of people living at home	4.7 (1.73)	4.7 (1.75)	4.7 (1.72)	5.1 (1.84)	4.4 (1.56)
Live with biological parent(s), %	90	89	90	93	89
Both parents	29	31	27	38	22§
Single parent	61	60	64	55	69‡
Mother finished high school, %	59	59	58	52	66‡
Mother works full- or part-time, %	38	44	30‡	35	42
Father finished high school, %	46	50	40	41	49
Father works full- or part-time, %	47	52	41	50	45
Excellent/very good health, %	80	80	78	82	78
Excellent students at school, %	37	36	38	42	33 †

\*The total for the age group does not equal 349 because 10 youths did not report their ages or they were not available for some other reason.

†P < .05.

‡P < .01.

§P < .001.

||P < .0001.

high school; and more younger youth perceived themselves as excellent students at school.

#### VICTIMS OF VIOLENCE

As shown in **Table 2**, about one fifth of the youth reported that they had been victims of various violence or violence-related events including having been asked to sell illegal drugs or to use illegal drugs, or having had their house broken into or something taken from them by physical force. About one tenth had been raped or threatened with rape, had been shot, or had been attacked with a knife. About one fourth of the youth had been picked up or arrested by police. More than one sixth said that they had been beaten badly enough that they had to go to the emergency department. More than 40% said they had been slapped, punched, or hit. Overall, two thirds of the youth had been exposed as victims to at least 1 event; one tenth had been exposed to 6 or more such events.

Youth were exposed as victims to an average of 1.90 violent events. Males reported more such events than females; males were more likely than females to have been asked to sell drugs, to have been arrested by police, and to have been slapped, punched, or hit. Compared with younger youth, older youth reported more events as victims; older youth were more likely to have been asked to sell drugs, experienced a house break-in, been arrested by police, been beaten so badly they had to go to the emergency department, been raped or threatened with rape, been attacked with a knife, or been shot by a gun.

#### WITNESSES OF VIOLENCE

As shown in Table 2, more than two thirds of the youth had seen other people using or selling drugs, seen others arrested by the police, or heard gunfire. More than one half of the youth had seen other people being slapped,

punched, or hit. One ninth of the youth had seen someone being raped. More than one fourth had heard about someone they knew being raped, and a similar proportion had seen someone being attacked with a knife. One third of the youth had seen someone being shot by a gun, and nearly one fourth had seen someone being killed. One seventh had witnessed a suicide and one sixth had heard that someone they knew had committed suicide. Overall, 98% of the youth had witnessed at least 1 violent event; three tenths of the youth witnessed 8 or more such events.

In general, males reported witnessing more violent events than females. More males reported having seen someone being arrested, being physically threatened, or being slapped, punched, or hit. Younger youth and older youth reported similar rates of witnessing events of violence except that older youth reported witnessing more gunfires and suicides.

#### EXPLORATORY FACTOR ANALYSIS

Principal axis factoring analysis with oblique rotation yielded a 6-factor solution for the 25 CCDS items. Six items with factor loadings less than 0.30 were excluded from the final factor composition (ie, the items in parentheses in **Table 3**). The Cronbach  $\alpha$ s were .88 for the 25 items and .85 for the 19 remaining items. The 6 factors were subsequently labeled based on the symptoms contained in the cluster: intrusive thoughts or feelings from the past (6 items, Cronbach  $\alpha$  = .76), vigilance and avoidance (2 items, Cronbach  $\alpha$  = .60), distraction (3 items, Cronbach  $\alpha$  = .54), dependency about the future (2 items, Cronbach  $\alpha$  = .67), emotional numbing (3 items, Cronbach  $\alpha$  = .64), and lack of belongingness (3 items, Cronbach  $\alpha$  = .64).

#### SEX AND AGE DIFFERENCE

**Table 4** depicts the sex and age distributions of the youths' self-reported distress symptoms, as described

**Table 2. Violence Exposure Among 349 Low-Income Urban African American Adolescents**

Violence	Total	Sex		Age, y*	
		Male	Female	≤11	≥12
No. (%)	349 (100)	198 (57)	151 (43)	155 (46)	184 (54)
Victim of violence, %†					
Asked to sell illegal drugs	19	24	13‡	14	24‡
Asked to use illegal drugs	19	22	14	15	23
Home when house was broken into	19	22	16	13	25§
Not home when house was broken into	20	23	15	19	20
Arrested by police	23	28	15§	15	29§
Physically threatened	27	29	25	22	32
Something taken by physical force	19	23	15	16	22
Beaten badly enough to be taken to emergency department	15	16	14	10	19‡
Slapped, punched, or hit	43	49	36‡	39	46
Raped or threatened with rape	9	10	9	3	14§
Attacked with a knife	12	14	10	5	18
Shot with a gun	10	11	8	4	14§
Cumulative index¶	1.90 (2.30)	2.17 (2.40)	1.54 (2.12)‡	1.48 (1.81)	2.28 (2.59)§
Witness of violence, % #					
Others using/selling drugs	71	75	66	70	72
Others being asked to sell drugs	42	46	37	38	46
Forced entry into other house	34	38	29	39	31
Arrested, picked up by police	75	79	69‡	78	72
Seriously physically threatened	44	49	38‡	40	48
Getting beaten or hit badly	55	60	48‡	53	56
Someone being raped	11	13	9	8	14
Someone you know being raped	26	28	25	24	28
Holding a gun or knife	47	51	42	45	50
Attacked with a knife	28	29	25	24	31
Others get shot with gun	35	37	32	29	40‡
Heard gunfire near home/school	78	82	73	79	78
Saw dead body in community	31	32	29	27	34
Saw a suicide	14	13	16	9	19§
Heard someone you know suicide	17	20	14	15	19
Someone being killed	21	24	18	20	22
Cumulative index	5.70 (3.80)	6.14 (3.88)	5.13 (3.62)‡	5.48 (3.56)	6.07 (3.93)

\*The total for the age group does not equal 349 because 10 youths did not report their ages or they were not available for some other reason.

†Exposures that categorized victimization events reflect direct personal exposure.

‡P < .05.

§P < .01.

||P < .001.

¶Cumulative index was defined as the total number of exposures youth experienced and is reported as mean (SD).

#Exposures that encompassed events directed toward others.

by the 6 factors. Generally, males and females did not report different distress symptoms. Males had higher scores than females on 2 items within the “intrusive thoughts” factor (“people/place/things remind of bad things” and “avoid places/things remind of bad things”) and 1 “emotional numbing” item (“unable to feel upset”). Younger youth and older youth differed on the basis of only 1 distress symptom, “feel unloved or not cared about,” for which the mean score was 1.93 for the younger group and 2.25 for the older group. Because of the similarity between sex and age groups with respect to distress symptoms, further analyses were conducted only among the entire sample.

### SECOND-ORDER FACTOR ANALYSIS

The second-order factor model of CCDS measure, based on the 6 first-order factors obtained from exploratory

factor analysis, yielded a good fit to the data ( $\chi^2/df=1.58$ ; GFI=.92; AGFI=.90; and RMR=.13). Three of the 4 preestablished goodness-of-fit criteria were met (ie,  $\chi^2/df$ , GFI, and AGFI). The parameter estimations and associated significance for the model are displayed in the **Figure**.

### ASSOCIATION BETWEEN DISTRESS AND VIOLENCE VICTIMIZATION

For each potential exposure to violence, youth who had been victimized generally reported higher levels of distress symptoms than those who did not report such experiences. As shown in **Table 5**, the “lack of belongingness” factor was significantly associated with all 12 victimization experiences. The “intrusive thoughts” factor was positively associated with 7 of the 12 victimization experiences. The “distraction” factor was associated with 4, and the “despondency about the future”

**Table 3. Factor Structure and Item Description of CCDS\* Items**

Loadings	Item Codes	Description†
Factor 1: intrusive thought/feelings of past ( $\alpha = .76$ )		
0.64	Y168	Certain people, places, or things remind you of something bad that happened
0.55	Y169	Avoid or try not to go places or do things that remind you of something bad that happened
0.45	Y170	Have a difficult time trying not to get scared, mad, sad, or upset about something that happened in the past
0.43	Y164	Keep remembering something upsetting, or have upsetting thoughts even when you don't want to do so
0.37	Y179	Feel like something bad or frightening from the past is happening all over again
0.32	Y167	Get really scared, sad, mad, upset, or in a very bad mood
(. . .)	Y176	Little things bother you—things that don't seem to bother other people)‡
(. . .)	Y165	Bad dreams or nightmares)‡
Factor 2: vigilance/avoidance ( $\alpha = .60$ )		
0.69	Y160	Watch things around you real closely in order to protect yourself from something bad happening
0.55	Y161	Try hard not to think about something bad or frightening that happened to you
(. . .)	Y162	Hard time getting to sleep or staying asleep at night)‡
Factor 3: distraction ( $\alpha = .54$ )		
0.73	Y155	Have trouble paying attention or keeping your mind on things (for example, school work) even when you try very hard to pay attention
0.44	Y156	Daydream at home or at class
0.36	Y166	Been to places, seen people, smelled or heard things that remind you of something bad that happened before
(. . .)	Y158	Don't care about anything, even things that you used to care about)‡
Factor 4: despondency about the future ( $\alpha = .67$ )		
0.86	Y178	Feel that you might not have a very happy life
0.57	Y177	Feel that you might not live very long
Factor 5: emotional numbing ( $\alpha = .64$ )		
0.60	Y174	Unable to laugh or feel happy, even when something really good or funny happens
0.53	Y180	Unable to remember something frightening from the past even when you try real hard
0.45	Y173	Unable to feel upset (scared, sad, or mad) even when something bad happens
Factor 6: lack of belongingness ( $\alpha = .64$ )		
0.46	Y171	Feel really lonely, or like you don't fit in, even when there are other people around
0.33	Y172	Feel that nobody cares about you, or that you can't love other people
0.33	Y175	Feel really nervous, scared, or afraid
(. . .)	Y159	Worry about being safe)‡
(. . .)	Y157	Not feel like doing things that you used to like to do)‡

\*CCDS indicates Checklist of Children's Distress Symptoms.<sup>17</sup>  
 †Response options for all items were as follows: 1, never; 2, seldom; 3, once in a while; 4, a lot of the time; and 5, most of the time.  
 ‡Items were dropped from final factor composition because of low factor loadings (<0.30).

factor was associated with 3. In contrast, the “vigilance/avoidance” factor was associated with only 1 victim event and “emotional numbing” did not relate to any of the violence victimization events. The cumulative expo-

sure index of victimization was significantly associated with 4 of the 6 factors: “lack of belongingness,” “intrusive thoughts,” “distraction,” and “despondency about the future.”

### ASSOCIATION BETWEEN DISTRESS AND WITNESSING VIOLENCE

Likewise, youth who witnessed community violence reported higher levels of distress symptoms than those who did not witness violence. As shown in Table 5, “intrusive thoughts” was significantly associated with 14 of the 16 events of violence. “Distraction” was associated with 12 of the witnessing events. “Lack of belongingness” was significantly associated with the witnessing of 10 events and “emotional numbing” was associated with 4 events. “Vigilance/avoidance” and “despondency about future” were each associated with only 2 events. The cumulative index of witnessing violence was significantly associated with 3 of the 6 factors: “intrusive thoughts,” “distraction,” and “lack of belongingness.”

### COMMENT

Our findings demonstrate that the CCDS has moderately high internal consistency for measuring distress symptoms among urban African American children and adolescents. The measure has utility as a screening tool of reasonable length that captures many of the significant sequelae that result from exposure to traumatic events.<sup>8</sup> Although confirmatory factor analysis provided support for a single (higher-order) construct of distress symptoms, using the proposed 6-factor structure rather than a single measure (or 2 subdomains as initially proposed by Martinez and Richters<sup>12</sup>) should enhance our understanding of the psychological impact of exposure to violence on youth and contribute to more effective intervention efforts. The superiority of this 6-factor structure is underscored by the fact that youths' exposures to violence, whether as victims or witnesses, were not uniformly related to all distress factors, but rather reflected a distinct and consistent pattern that only emerged through discriminate validity testing using a multidimensional factor structure of the CCDS.

The 3 domains of distress symptoms associated with most of the exposures to violence among this select group of adolescents—“intrusive thoughts/feelings,” “distraction,” and “lack of belongingness”—reflect a clustering of symptoms that may, on individual evaluation, contribute to a diagnosis of PTSD as specified in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*.<sup>19</sup> Although “intrusive thoughts/feelings” and “distraction” were associated with both victim and witness events, these distress subdomains were more strongly associated with witnessing events of a severe nature (eg, rape, suicide, and killing). The factor “lack of belongingness” was strongly associated with victim and witness events that involved threats of or actual physical violence.

**Table 4. Sex and Age Distribution of CCDS Items Among 349 Low-Income Urban African American Adolescents\***

Item Code	Description	Total	Sex		Age, y†	
			Male	Female	≤11	≥12
	No. (%)	<b>349 (100)</b>	198 (57)	151 (43)	155 (46)	184 (54)
Factor 1: intrusive thought/feelings of past						
Y168	People/place/things remind of bad things	2.58 (1.45)	2.84 (1.48)	2.26 (1.35)	2.74 (1.53)	2.44 (1.38)
Y169	Avoid places/things remind of bad things	2.87 (1.57)	3.04 (1.57)	2.64 (1.54)‡	2.83 (1.56)	2.91 (1.59)
Y170	Hard not get scared/sad/mad/upset—past	2.63 (1.55)	2.66 (1.58)	2.58 (1.52)	2.77 (1.58)	2.50 (1.51)
Y164	Can't stop thinking about upsetting things	2.77 (1.51)	2.85 (1.53)	2.66 (1.48)	2.85 (1.55)	2.71 (1.48)
Y179	Something bad or frightening in past occurring	2.36 (1.44)	2.47 (1.46)	2.22 (1.42)	2.48 (1.48)	2.25 (1.41)
Y167	Get scared/sad/mad/upset/in a bad mood	2.73 (1.32)	2.79 (1.35)	2.65 (1.27)	2.82 (1.31)	2.63 (1.32)
Factor 2: vigilance/avoidance						
Y160	Watch things closely to protect myself	3.25 (1.54)	3.19 (1.52)	3.34 (1.56)	3.28 (1.52)	3.24 (1.55)
Y161	Try not to think bad personal events	2.81 (1.59)	2.85 (1.56)	2.76 (1.63)	2.82 (1.62)	2.80 (1.58)
Factor 3: distraction						
Y155	Inattentive when trying hard	2.41 (1.48)	2.46 (1.49)	2.34 (1.46)	2.52 (1.50)	2.30 (1.46)
Y166	Experienced things remind of something bad	2.08 (1.41)	2.18 (1.48)	1.97 (1.32)	2.10 (1.43)	2.08 (1.39)
Y156	Daydream at home/school	2.63 (1.40)	2.54 (1.45)	2.74 (1.34)	2.55 (1.38)	2.67 (1.43)
Factor 4: despondency about the future						
Y178	Feel might not have a very happy life	2.39 (1.53)	2.38 (1.54)	2.40 (1.53)	2.44 (1.54)	2.32 (1.52)
Y177	Feel might have a short life	2.54 (1.58)	2.55 (1.57)	2.52 (1.60)	2.63 (1.65)	2.44 (1.52)
Factor 5: emotional numbing						
Y174	Unable to express joy	2.66 (1.59)	2.73 (1.60)	2.56 (1.59)	2.73 (1.61)	2.57 (1.58)
Y180	Can't remember frightening event when try	2.54 (1.57)	2.55 (1.58)	2.53 (1.57)	2.66 (1.60)	2.42 (1.54)
Y173	Unable to feel upset	2.62 (1.51)	2.81 (1.56)	2.36 (1.40)§	2.67 (1.49)	2.57 (1.53)
Factor 6: lack of belongingness						
Y171	Feel lonely or do not fit in	2.62 (1.47)	2.61 (1.49)	2.62 (1.45)	2.72 (1.48)	2.52 (1.46)
Y172	Feel unloved or not cared about	2.12 (1.44)	2.22 (1.51)	2.01 (1.35)	1.93 (1.32)	2.25 (1.52)‡
Y175	Feel really nervous, scared, or afraid	2.47 (1.38)	2.50 (1.38)	2.43 (1.37)	2.60 (1.46)	2.33 (1.28)

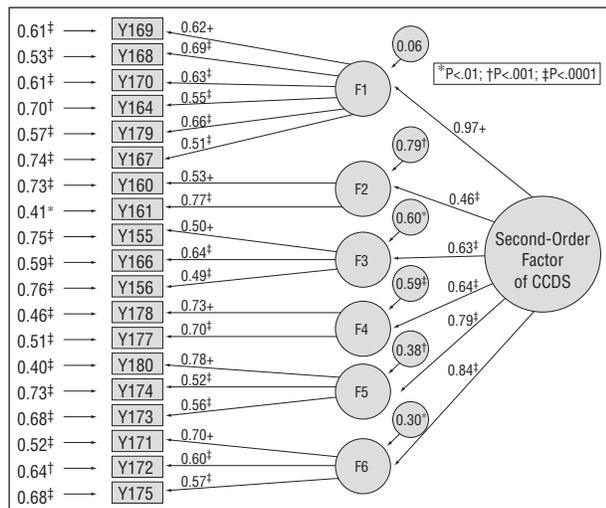
\*The total for the age group does not equal 349 because 10 youths did not report their ages or they were not available for some other reason.

†Mean (SD) is reported in this table. CCDS indicates Checklist of Children's Distress Symptoms.<sup>17</sup>

‡P < .05.

§P < .01.

||P < .001.



Estimated model of second-order factor analysis of the Checklist of Children's Distress Symptoms.<sup>17</sup> The plus sign indicates that the parameter was fixed for model identification purposes. Please refer to Table 3 for specification of items and the first-order factors in the model.

Overall, however, in this sample, exposure was not strongly associated with other well-defined symptoms of PTSD, such as hypervigilance, emotional numbing, and despondency about the future. Emotional numbing was related to witnessing events where violence or the threat of violence occurred, but not acts of victimization. Additional symptoms of PTSD were not analyzed either because they did not load well on any factor, as in the case with sleep disturbances, or were not part of the CCDS.

The fact that participants in this study made up a convenience sample who were assessed in a cross-sectional rather than longitudinal manner precludes both generalizability to other youth as well as attributions of a causal nature. Thus, there is a need to ascertain whether these findings are replicable among sociodemographically similar populations of youth, and if so, to begin to piece together some explanatory models to account for these effects and their likely implications for the psychosocial functioning of youth. This study is a partial psychometric evaluation of the CCDS. While we have ex-

**Table 5. Pearson Correlations Between CCDS Scales and Violence Exposure Among 349 Low-Income African American Adolescents**

	CCDS Factors*					
	F1	F2	F3	F4	F5	F6
<b>Victims of violence</b>						
Asked to sell illegal drugs	0.12†	-0.04	0.02	0.10	0.07	0.16‡
Asked to use illegal drugs	0.09	-0.05	0.06	0.07	0.02	0.11†
Home when house was broken into	0.07	-0.12†	0.04	0.11	0.02	0.16‡
Not home when house was broken into	0.07	-0.08	0.07	0.05	0.02	0.19‡
Arrested by police	0.17‡	0.02	0.11†	0.13†	0.08	0.13†
Physically threatened	0.10	-0.03	0.03	0.11†	0.00	0.22§
Something taken by physical force	0.17‡	0.01	0.12†	0.09	0.08	0.28§
Beaten badly enough to go to emergency department	0.14†	-0.04	0.05	0.14†	0.06	0.20§
Slapped, punched, or hit	0.13†	0.06	0.14†	0.05	0.08	0.18‡
Raped or threatened with rape	0.14†	-0.06	0.18‡	0.11	0.08	0.20§
Attacked with a knife	0.13†	0.04	0.04	0.03	0.07	0.13†
Shot with a gun	0.06	-0.03	0.06	0.08	0.00	0.17‡
Cumulative index	0.17‡	-0.03	0.12†	0.12†	0.08	0.26§
<b>Witnesses of violence, %</b>						
Others using/selling drugs	0.20‡	0.07	0.10	0.06	0.05	0.08
Others being asked to sell drugs	0.11	-0.02	0.10	0.00	0.02	0.16‡
Forced entry into other house	0.17‡	0.09	0.12†	0.15†	0.11	0.19‡
Arrested, picked up by police	0.12†	0.08	0.19‡	-0.02	0.03	0.04
Physically threatened	0.27§	0.08	0.18‡	0.02	0.11†	0.16‡
Getting beaten or hit badly	0.20‡	0.13†	0.18‡	0.03	0.12†	0.10
Someone being raped	0.18‡	0.02	0.11†	0.04	0.16‡	0.23§
Someone you know being raped	0.17‡	0.10	0.08	0.07	0.11	0.11†
Holding a gun or knife	0.16‡	0.15‡	0.22‡	-0.06	-0.01	0.02
Attacked with a knife	0.22‡	0.02	0.12†	-0.02	0.14†	0.20§
Others get shot with gun	0.12†	0.06	0.15‡	0.00	0.05	0.14†
Heard gunfire	0.12†	0.03	0.14†	-0.08	-0.02	-0.03
Saw dead body in community	0.09	0.08	0.11	0.06	0.02	0.07
Saw a suicide	0.14†	-0.02	0.16‡	0.06	0.07	0.20†
Heard someone you know suicide	0.18‡	-0.03	0.13†	0.01	0.06	0.16†
Someone being killed	0.14†	0.00	0.12†	0.13†	0.04	0.18‡
Cumulative index	0.27§	0.11	0.24§	0.02	0.11	0.18‡

\*CCDS indicates Checklist of Children's Distress Symptoms.<sup>17</sup> See Table 3 for explanation of F1 through F6.

†P < .05.

‡P < .01.

§P < .001.

amined factor structure and assessed internal consistency, data were not available for test-retest reliability estimation. Also, it must be left to future study to demonstrate the relationship between factors extracted from the CCDS and other valid measures of distress and psychological symptoms.

In addition to efforts at primary prevention, researchers and program planners must acknowledge that a substantial proportion of urban youth are already exposed to violence. Thus, inclusion of measures of distress into both community- and school-based violence prevention initiatives is not merely advantageous, but imperative. This is consistent with the recommendations by Shakoor and Chalmers<sup>25</sup> that schoolchildren be periodically screened and high-risk youth be identified and assessed for emotional and behavioral disturbances so that appropriate intervention and support remediation can be initiated. Through such efforts we can begin to more fully explicate who is at most risk for symptoms and what kinds or resources, such as mental health, social welfare, and educational, are necessary to ameliorate the effects of exposure.

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## REFERENCES

- Garbarino J, Kostelny K, Dubrow N. What children can tell us about living in danger. *Am Psychol*. 1991;46:376-383.
- Jaffe P, Wolfe D, Wilson S, Zak L. Similarities in behavioral and social maladjustment among child victims and witnesses to family violence. *J Am Orthopsychiatr Assoc*. 1986;56:142-146.
- Pynoos RS, Calvin F, Nader K, et al. Life threat and posttraumatic stress in school-age children. *Arch Gen Psychiatry*. 1987;44:1057-63.

4. Rosenblatt R. *Children of War*. New York, NY: Doubleday; 1983.
5. Fitzpatrick KM, Boldizar JP. The prevalence and consequences of exposure to violence among African American youth. *J Am Acad Child Adolesc Psychiatry*. 1993;32:424-30.
6. Kotlowitz A. *There are No Children Here: The Story of Two Boys Growing Up in the Other America*. New York, NY: Doubleday; 1991.
7. Richters JE, Martinez P. THE NIMH community violence project, I: children as victims and witnesses to violence. *Psychiatry*. 1993;56:6-21.
8. Wilson JP, Keane TM, eds. *Assessing Psychological Trauma and PTSD*. New York, NY: The Guilford Press; 1997.
9. Garbarino J, Dubrow N, Kostelny K, Pardo C. *Children in Danger: Coping With the Consequences of Community Violence*. San Francisco, Calif: Jossey-Bass; 1992.
10. McAlister-Graves B, Zuckerman B, Mavan SS, Cohen DJ. Silent victims: children who witness violence. *JAMA*. 1993;269:261-264.
11. Kilpatrick DG, Resnick HS. Posttraumatic stress disorder associated with exposure to criminal victimization in criminal and community populations. In: Davidson JRT, Foa EB, eds. *Posttraumatic Stress Disorder: DSM-IV and Beyond*. Washington DC: American Psychiatric Press; 1993, 113-143.
12. Martinez P, Richters JE. The NIMH community violence project, II: children's distress symptoms associated with violence exposure. *Psychiatry*. 1993;56:22-35.
13. Osofsky JD. The effects of exposure to violence on young children. *Am Psychol*. 1995;50:782-788.
14. DuRant RH, Cadenhead C, Pendergrast RA, et al. Factors associated with the use of violence among urban black adolescents. *Am J Public Health*. 1994;84:612-617.
15. Cicchetti D, Lynch M. Toward an ecological/transactional model of community violence and child maltreatment: consequences for children's development. *Psychiatry*. 1993;56:96-117.
16. Howard DE. Searching for resilience among African American youth exposed to community violence: theoretical issues. *J Adolesc Health*. 1996;18:254-262.
17. Richters JE, Martinez P. *Checklist of Children's Distress Symptoms (Self-report Version)*. Rockville, Md: National Institutes of Mental Health; 1990.
18. Lorion RP, Saltzman W. Children's exposure to community violence: Following a path from concern to research to action. *Psychiatry*. 1993;56:55-65.
19. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*. Washington DC; American Psychiatric Association; 1987.
20. Richters JE, Saltzman W. *Survey of Children's Exposure to Community Violence (Self-report Version)*. Rockville, Md: National Institute of Mental Health; 1990.
21. Starfield B, Forrest CB, Ryan SA, et al. Health status of well vs ill adolescents. *Arch Pediatr Adolesc Med*. 1994;150:1249-1256.
22. Jöreskog KG, Sörbom D. *PRELIS 2 User's Reference Guide*. Chicago, Ill: Scientific Software International; 1993.
23. Jöreskog KG, Sörbom D. *LISREL 8 User's Reference Guide*. Chicago, Ill: Scientific Software International; 1993.
24. Schumacker RE, Lomax RG. *A Beginner's Guide to Structural Equation Modeling*. Mahwah, NJ: Lawrence Erlbaum Assoc; 1996.
25. Shakoor BH, Chalmers D. Co-victimization of African-American children who witness violence: effects on cognitive, emotional, and behavioral development. *J Natl Med Assoc*. 1991;83:233-238.

### Correction

**Error in Table.** In the article entitled "A Number-Needed-to-Treat Analysis of the Use of Respiratory Syncytial Virus Immune Globulin to Prevent Hospitalization," published in the April issue of the ARCHIVES (1998;152:358-366), an error appeared in Table 1 on page 361. The last item in the "Question" section, "Assume your infant was premature but **without** complications of BPD," should not have appeared in the table. The journal regrets the error.